

LAMPIRAN



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET DAN TEKNOLOGI

POLITEKNIK NEGERI SRIWIJAYA

Jalan Srijaya Negara, Palembang 30139 Telp. 0711-353414

Laman: <http://polsri.ac.id>, Pos El : info@polsri.ac.id



KESEPAKATAN BIMBINGAN TUGAS AKHIR (TA)

Kami yang bertanda tangan dibawah ini,

Pihak Pertama

Nama : Sherina Humairoh
NIM : 061940351956
Jurusan : Teknik Elektro
Program Studi : Sarjana Terapan Teknik Telekomunikasi

Pihak Kedua

Nama : Irma Salamah, S.T., M.T.I
NIP : 197410221998022001
Jurusan : Teknik Elektro
Program Studi : Sarjana Terapan Teknik Telekomunikasi

Pada hari ini Senin tanggal 8 Mei 2023 telah sepakat untuk melakukan konsultasi bimbingan Tugas Akhir (TA).

Konsultasi bimbingan sekurang- kurangnya 1 (satu) kali dalam satu minggu. Pelaksanaan bimbingan pada setiap hari Rabu pukul 09.00 tempat di Politeknik Negeri Sriwijaya.

Demikianlah kesepakatan ini dibuat dengan penuh kesadaran guna kelancaran penyelesaian Tugas Akhir.

Pihak Pertama

(Sherina Humairoh)
NIM. 061940351956

Palembang, 8 Mei 2023
Pihak Kedua

(Irma Salamah, S.T., M.T.I)
NIP. 197410221998022001

Mengetahui
Ketua Jurusan Teknik Elektro

(Ir. Iskandar Lutfi, M.T.)
NIP. 196501291991031002



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KESEPAKATAN BIMBINGAN TUGAS AKHIR (TA)

Kami yang bertanda tangan dibawah ini,

Pihak Pertama

Nama : Sherina Humairoh
NIM : 061940351956
Jurusan : Teknik Elektro
Program Studi : Sarjana Terapan Teknik Telekomunikasi

Pihak Kedua

Nama : Sopian Soim, S.T.,M.T.
NIP : 197103142001121001
Jurusan : Teknik Elektro
Program Studi : Sarjana Terapan Teknik Telekomunikasi

Pada hari ini ~~Senin~~ tanggal 8 Mei 2023 telah sepakat untuk melakukan konsultasi bimbingan Tugas Akhir (TA).

Konsultasi bimbingan sekurang- kurangnya 1 (satu) kali dalam satu minggu. Pelaksanaan bimbingan pada setiap hari ~~Jum'at~~ Jum'at pukul ~~19.00~~ 19.00 tempat di Politeknik Negeri Sriwijaya.

Demikianlah kesepakatan ini dibuat dengan penuh kesadaran guna kelancaran penyelesaian Tugas Akhir.

Pihak Pertama



(Sherina Humairoh)
NIM. 061940351956

Palembang, 8 Mei 2023
Pihak Kedua

(Sopian Soim, S.T.,M.T.)
NIP. 197103142001121001





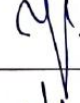
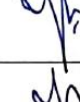

Mengetahui
Ketua Jurusan Teknik Elektro





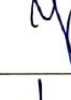

(Ir. Iskandar Lutfi, M.T.)
NIP. 196501291991031002

	KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI	
	POLITEKNIK NEGERI SRIWIJAYA PJURUSAN TEKNIK ELEKTRO Jalan Srijaya Negara, Palembang 30139 Telp. (0711) 353414 Laman: http://polsri.ac.id , Pos El : info@polsri.ac.id	
LEMBAR BIMBINGAN TUGAS AKHIR		


Lembar : 1

Nama : Sherina Humairoh
 NIM : 061940351956
 Jurusan/Program Studi : Teknik Elektro/Sarjana Terapan Teknik Telekomunikasi
 Judul Tugas Akhir : Rancang Bangun Alat Klasifikasi Kematangan dan Ukuran Buah Nanas Menggunakan Metode *Covolutional Neural Network* (CNN) Berbasis Android
 Pembimbing I : Irna Salamah, S. T., M. T. I.
 NIP. 197410221998022001

No.	Tanggal	Uraian Bimbingan	Tanda Tangan Pembimbing
1.	8/5 2023	Revisi BAB I (Latar Belakang kutipan)	
2.	16/5 2023	BAB II - III	
3.	30/5 2023	Revisi BAB II dan III	
4.	5/6 2023	Revisi Metodologi & Diagram alat	
5.	26/6 2023	Konsultasi Data pengujian	
6.	3/7 2023	Konsultasi alat dan aplikasi	
7.	10/7 2023	BAB IV Pembahasan	

8.	13/7 2023	Revisi tampilan aplikasi	
9.	24/7 2023	Revisi BAB IV	
10.	27/7 2023	kesimpulan & saran	
11.	31/7 2023	Revisi kesimpulan & Saran	
12.	4/8 2023	Tes Alat Hardware dan Software	
13.	8/8 2023	Acc. Simp Uji	
14.			
15.			

Palembang, 8 Agustus 2023
Koordinator Program Studi
Sarjana Terapan Teknik Telekomunikasi,


Lindawati, S.T., M.T.I.
NIP. 197105282006042001



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
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JURUSAN TEKNIK ELEKTRO

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LEMBAR BIMBINGAN TUGAS AKHIR


Lembar : 1

Nama : Sherina Humairoh
 NIM : 061940351956
 Jurusan/Program Studi : Teknik Elektro/Sarjana Terapan Teknik Telekomunikasi
 Judul Tugas Akhir : Rancang Bangun Alat Klasifikasi Kematangan dan Ukuran Buah Nanas Menggunakan Metode *Covolutional Neural Network* (CNN) Berbasis Android
 Pembimbing II : Sopian Soim, S.T., M.T.

No.	Tanggal	Uraian Bimbingan	Tanda Tangan Pembimbing
1.	10/05 2023	Miliki dataset yang digunakan pada model	SJ
2.	17/05 2023	Kenisi latar belakang	SJ
3.	23/05 2023	Kenisi kumusan masalah	SJ
4.	23/06 2023	Dulri Koneksi ke database dan ke Mysql	SJ
5.	26/06 2023	Acc Bab I	SJ
6.	4/07 2023	Bimbingan Bab II	SJ
7.	11/07 2023	Pengajuan BAB III	SJ

8.	$\frac{13}{07}$ 2023	revisi diagram metodeleyi dan proses pemodelan CNN	sj
9.	$\frac{18}{07}$ 2023	Pengajaran BAB \bar{IV} & \bar{V}	sj
10.	$\frac{24}{07}$ 2023	dimensi perancangan alat.	sj
11.	$\frac{28}{07}$ 2023	revisi BAB \bar{IV} hasil CNN	sj
12.	$\frac{2}{08}$ 2023	revisi hasil pemodelan CNN	sj
13.	$\frac{9}{08}$ 2023	revisi grafik pemodelan hasil CNN	sj
14.	$\frac{8}{08}$ 2023	Acc BAB \bar{IV} & \bar{V}	sj
15.	$\frac{14}{08}$ 2023	Acc Siap Ujian	sj

Palembang, 14 Agustus 2023
 Koordinator Program Studi
 Sarjana Terapan Teknik Telekomunikasi,


 Lindawati, S.T., M.T.I.
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	<p>KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI POLITEKNIK NEGERI SRIWIJAYA Jalan Srijaya Negara, Palembang 30139 Telp. 0711-353414 fax. 0711-355918 Website : www.polsri.ac.id E-mail : info@polsri.ac.id</p>	
REKOMENDASI UJIAN TUGAS AKHIR		

Pembimbing Tugas Akhir memberikan rekomendasi kepada,

Nama : Sherina Humairoh
NIM : 061940351956
Jurusan/Program Studi : Teknik Elektro / Sarjana Terapan Teknik Telekomunikasi
Judul Tugas Akhir : Rancang Bangun Alat Klasifikasi Kematangan dan Ukuran Buah Nanas Menggunakan Metode *Convolutional Neural Network* (CNN) Berbasis Android

Mahasiswa tersebut telah memenuhi persyaratan dan dapat mengikuti Ujian Tugas Akhir (TA) pada Tahun Akademik 2022/2023

Pembimbing I,



Irma Salimah, S.T., M.T.I
NIP. 197410221998022001

Palembang, 8 Agustus 2023
Pembimbing II,



Sopian Soim, S.T., M.T
NIP. 197103142001121001



**KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
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PELAKSANAAN REVISI TUGAS AKHIR

Mahasiswa berikut,

Nama : Sherina Humairoh
NIM : 0619 4035 1956
Jurusan/Program Studi : Teknik Elektro/Sarjana Terapan Teknik Telekomunikasi
Judul Tugas Akhir : Rancang Bangun Alat Klasifikasi Kematangan dan Ukuran Buah Nanas Menggunakan Metode *Convolutional Neural Network* (CNN) Berbasis Android

Telah melaksanakan revisi terhadap Tugas Akhir yang diujikan pada hari Rabu tanggal 16 bulan Agustus tahun 2023. Pelaksanaan revisi terhadap Tugas Akhir tersebut telah disetujui oleh Dosen Penguji yang memberikan revisi:

No.	Komentar	Nama Dosen Penguji	Tanggal	Tanda Tangan
1.	Acc	<u>Ir. Ali Nurdin, M.T.</u> NIP. 196212071991031001	28/8 23	
2.	Acc	<u>Irma Salamah, S.T., M.T.I.</u> NIP. 197410221998022001	28/8 23	
3.	Acc	<u>Nasron, S.T., M.T.</u> NIP. 196808221993031001	27/8-23	
4.	Acc	<u>Suzanzezi, S.T., M. Kom.</u> NIP. 197709252005012003	23/8-23	

Palembang, 28 Agustus 2023
Ketua Penguji,

(Ir. Ali Nurdin, M.T.)
NIP. 196212071991031001



Pusat Penelitian dan Pengabdian Kepada Masyarakat
Politeknik Negeri Bengkalis
Jl. Bathin alam, Sungai Alam Bengkalis-Riau 28711

SURAT KETERANGAN PENERIMAAN NASKAH JURNAL

Nomor: 05/ISI/Vol VIII.2/2023

Dewan editor Jurnal INOVTEK Polbeng Seri Informatika telah menerima artikel berikut:

Penulis : Irma Salamah, Sherina Humairoh, Sopian Soim
Judul : Implementasi Convolutional Neural Network Pada Alat Klasifikasi
Kematangan dan Ukuran Buah Nanas Berbasis Android
Asal Instansi : Politeknik Negeri Sriwijaya

Menyatakan bahwa artikel tersebut telah memenuhi kriteria Penulisan Jurnal INOVTEK Polbeng Seri Informatika Politeknik Negeri Bengkalis dan akan diterbitkan pada Volume 8 Nomor 2 Tahun 2023. Demikian surat keterangan ini dibuat untuk digunakan sebagaimana mestinya

Bengkalis, 04 Agustus 2023

Ketua Dewan Editor



Agus Tedyana

1) Kode Program Model CNN

```
import tensorflow as tf
from google.colab import drive

drive.mount ('/content/drive')
path_to_dataset = '/content/drive/MyDrive/DatasetNanasLengkap'

%cd '/content/drive/MyDrive/Colab Notebooks/'

import os
from sklearn.model_selection import train_test_split
#Tentukan presentase data untuk testing
test_size = 0.2

# List untuk menyimpan path ke gambar dan label
images = []
labels = []

# Loop melalui setiap subfolder dalam folder dataset
for subdir in os.listdir(path_to_dataset):
    subdir_path = os.path.join(path_to_dataset,subdir)
    if os.path.isdir(subdir_path):
        #Loop melalui setiap gambar dalam subfolder
        for file in os.listdir(subdir_path):
            file_path = os.path.join(subdir_path, file)
            if file_path.endswith('.jpg') or file_path.endswith('.png'):
                images.append(file_path)
                labels.append(subdir)

# Bagi dataset menjadi training dan testing
x_train, x_test, y_train, y_test = train_test_split(images, labels,
test_size=test_size)

# Tampilkan jumlah data pada setiap subfolder
print('Training data:', len(x_train))
print('Testing data:', len(x_test))

import numpy as np

# Mengubah labels menjadi array numpy
y_train = np.array(y_train)
y_test = np.array(y_test)

# Mendapatkan label dari data training
data_labels_train = np.unique(y_train)

# Mendapatkan label dari data testing
data_labels_test = np.unique(y_test)

# Menampilkan jumlah label pada setiap dataset
print('Training Labels:', len(data_labels_train))
print('Testing Labels:', len(data_labels_test))

IMAGE_SIZE = (150,200)
BATCH_SIZE = 32
SEED = 100

import tensorflow as tf
datagen = tf.keras.preprocessing.image.ImageDataGenerator(
    validation_split=0.2
)

train_data = datagen.flow_from_directory(
    path_to_dataset,
    class_mode='categorical',
    subset='training',
    target_size=IMAGE_SIZE,
```

```

    batch_size=BATCH_SIZE,
    seed=SEED
)

valid_data = datagen.flow_from_directory(
    path_to_dataset,
    class_mode='categorical',
    subset='validation',
    target_size=IMAGE_SIZE,
    batch_size=BATCH_SIZE,
    seed=SEED
)

#Image Augmentation

data_augmentation=tf.keras.Sequential(
    [
        tf.keras.layers.RandomFlip("horizontal",
                                     input_shape=(IMAGE_SIZE[0],
                                                  IMAGE_SIZE[1],
                                                  3)),

        tf.keras.layers.RandomRotation(0.1),
        tf.keras.layers.RandomZoom(0.1),
        tf.keras.layers.Rescaling(1./255)
    ]
)

# Membuat Arsitektur CNN

cnn_model=tf.keras.models.Sequential([
    data_augmentation,
    tf.keras.layers.Conv2D(32, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(64, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(128, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(512, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(1024, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Dropout(0.3),
    tf.keras.layers.Flatten(),
    tf.keras.layers.Dense(512, activation='relu'),
    tf.keras.layers.Dense(256, activation='relu'),
    tf.keras.layers.Dense(6, activation='softmax')
])

cnn_model.summary()

cnn_model.compile(
    loss='categorical_crossentropy',
    optimizer=tf.keras.optimizers.Adam(),
    metrics=['accuracy']
)

# Training model CNN
cnn_hist=cnn_model.fit(
    train_data,
    epochs=100,
    validation_data=valid_data
)

loss, accuracy = cnn_model.evaluate(train_data, steps=len(train_data))
print("Training Loss:", loss)
print("Training Accuracy:", accuracy)

loss, accuracy = cnn_model.evaluate(valid_data, steps=len(valid_data))

```

```

print("Validation Loss:", loss)
print("Validation Accuracy:", accuracy)

import matplotlib.pyplot as plt

# Membuat grafik akurasi pelatihan dan validasi
accuracy = cnn_hist.history['accuracy']
val_accuracy = cnn_hist.history['val_accuracy']
epochs = range(1, len(accuracy) + 1)

plt.plot(epochs, accuracy, 'b', label='Training Accuracy')
plt.plot(epochs, val_accuracy, 'r', label='Validation Accuracy')
plt.title('Training and Validation Accuracy Graphs')
plt.xlabel('Epochs')
plt.ylabel('Accuracy')
plt.legend()
plt.show()

# Dapatkan nilai loss pelatihan dan validasi dari riwayat pelatihan
loss_pelatihan = cnn_hist.history['loss']
loss_validasi = cnn_hist.history['val_loss']

# Buat grafik garis
epoch = range(1, len(loss_pelatihan) + 1)
plt.plot(epoch, loss_pelatihan, 'b', label='Training Loss')
plt.plot(epoch, loss_validasi, 'r', label='Validation Loss')
plt.title('Training and Validation Loss Graphs')
plt.xlabel('Epoch')
plt.ylabel('Loss')
plt.legend()
plt.show()

cnn_model.save('cnnnanasbismillah9')
loaded_model = tf.keras.saving.load_model("cnnnanasbismillah9")

```

2) Kode Program Alat Full

```

#define dira 28 //IN2
#define dirb 32 //IN4
#define pwma 12 // IN1
#define pwmb 13 // IN3
#define s0 7
#define s1 8
#define s2 9
#define s3 10
#define outPin 11

//variabel
const int relay1 = 2; //pin2
const int TRIGPIN = 3; //pin4
const int ECHOPIN = 4; //pin3
int relayON = LOW; //relay nyala
int relayOFF = HIGH; //relay mati
long timer;
int jarak;
int red, grn, blu;
long startTiming = 0;
long elapsedTime = 0;

String last_pos = "Sedang";

String inputString = ""; // a String to hold incoming data
bool stringComplete = false; // whether the string is complete

```



```

void setup() {
  //relay
  pinMode(relay1, OUTPUT);
  digitalWrite(relay1, relayOFF);

  //ultrasonik
  pinMode(ECHOPIN, INPUT);
  pinMode(TRIGPIN, OUTPUT);

  //motor dc
  pinMode(dira, OUTPUT);
  pinMode(dirb, OUTPUT);

  //sensor warna
  //Setting the outputs
  pinMode(s0, OUTPUT);
  pinMode(s1, OUTPUT);
  pinMode(s2, OUTPUT);
  pinMode(s3, OUTPUT);
  pinMode(outPin, INPUT); //out from sensor becomes input to arduino

  // Setting frequency scaling to 20%
  digitalWrite(s0, HIGH);
  digitalWrite(s1, LOW);

  // Begins serial communication
  Serial.begin(9600);
  Serial.println("mulai");
}

void loloskan_nanas() {
  digitalWrite(relay1, relayON);
  delay(2000);
  while (jarak < 30) {
    bacajarak();
  }
  delay(2000);
}

bool start = false;

void loop() {

  while (!start) {

    serialEvent();
    if (stringComplete) {
      Serial.println("XXX");
      Serial.println(inputString);
      int aa = inputString.indexOf("start");
      Serial.println(aa);
      if (aa >= 0) {
        start = true;
        Serial.println(start);
        stringComplete = false;
        inputString = "";
        break;
      }
    }
  }

  while (start) {

    serialEvent();

```

```

if (stringComplete) {
    Serial.println("XXX");
    Serial.println(inputString);
    int aa = inputString.indexOf("finish");

    Serial.println(aa);
    if (aa >= 0) {
        start = false;
        Serial.println(start);
        stringComplete = false;

        digitalWrite(relay1, relayOFF);
        inputString = "";
        break;
    }
}

bacajarak();

if (jarak > 20) {
    Serial.println("Jalankan Conveyor");
    digitalWrite(relay1, relayON);
    // statusRelay = "ON";
} else if (jarak <= 20) {
    Serial.println("Stop Conveyor");
    digitalWrite(relay1, relayOFF);
    Serial.println("Raspi Baca Gambar");

    inputString = "";
    stringComplete = false;
    baca_serial();
    String pesan_raspi = inputString;
    // while (pesan_raspi == "") {
    //     pesan_raspi = baca_serial();
    // }
    Serial.print("pesan : ");
    Serial.println(pesan_raspi);

    if (pesan_raspi.indexOf("Besar") >= 0) {
        Serial.println("Besar nih");

        //tujuan merah
        if (last_pos == "Besar") {
            loloskan_nanas();
            //langsung saja hidupkan lagi si conveyor
        } else if (last_pos != "Besar") {
            //maju sampe ketemu merah
            motor(300, 300);
            while (getColorKk() != 2) {
                ;
            }
            motor(0, 0);
            last_pos = "Besar";
            loloskan_nanas();
        }
    } else if (pesan_raspi.indexOf("Sedang") >= 0) {
        Serial.println("Sedang nih");

        //tujuan biru
        if (last_pos == "Sedang") {
            loloskan_nanas();
            //langsung saja hidupkan lagi si conveyor
        } else if (last_pos == "Kecil") {
            motor(300, 300);
            while (getColorKk() != 1) {

```

```

        ;
    }
    motor(0, 0);
    last_pos = "Sedang";
    loloskan_nanas();
} else if (last_pos == "Besar") {
    motor(-300, -300);
    while (getColorKk() != 1) {
        ;
    }
    motor(0, 0);
    last_pos = "Sedang";
    loloskan_nanas();
}

} else if (pesan_raspi.indexOf("Kecil") >= 0) {
    Serial.println("Kecil nih");

    //tujuan hijau
    if (last_pos == "Kecil") {
        loloskan_nanas();
        //langsung saja hidupkan lagi si conveyor
    } else if (last_pos != "Kecil") {
        //maju sampe ketemu merah
        motor(-300, -300);
        while (getColorKk() != 3) {
            ;
        }
        motor(0, 0);
        last_pos = "Kecil";
        loloskan_nanas();
    }
}

}
}
}

void baca_serial() {
    while (true) {
        serialEvent();
        if (stringComplete) {
            Serial.println("XXX");
            Serial.println(inputString);
            break;
        }
    }
}

Void serialEvent() {
    while (Serial.available()) {
        // get the new byte:
        char inChar = (char)Serial.read();
        // add it to the inputString:
        inputString += inChar;
        // if the incoming character is a newline, set a flag so the main loop can
        // do something about it:
        if (inChar == '\n') {
            stringComplete = true;
        }
    }
}

void bacajarak() {
    digitalWrite(TRIGPIN, LOW);
    delayMicroseconds(2);
}

```

```

digitalWrite(TRIGPIN, HIGH);
delayMicroseconds(10);
digitalWrite(TRIGPIN, LOW);

timer = pulseIn(ECHOPIN, HIGH);
jarak = timer / 58.2;
delay(100);

Serial.print("Jarak = ");
Serial.print(jarak);
Serial.print(" cm");
Serial.println();
}

// ultrasonik baca jarak
void jaraknanas() {
  if (jarak > 20) {
    digitalWrite(relay1, relayON);
    // statusRelay = "ON";

  } else if (jarak <= 20) {
    digitalWrite(relay1, relayOFF);
    // statusRelay = "OFF";
  }
}

void motor(int a, int b) {
  if (a >= 0) {
    digitalWrite(dira, 0);
    analogWrite(pwma, a);
  } else if (a < 0) {
    digitalWrite(dira, 1);
    analogWrite(pwma, a + 255);
  }
  if (b >= 0) {
    digitalWrite(dirb, 0);
    analogWrite(pwmb, b);
  } else if (a < 0) {
    digitalWrite(dirb, 1);
    analogWrite(pwmb, b + 255);
  }
}

void readRGB() {
  red = 0, grn = 0, blu = 0;

  int n = 10;
  for (int i = 0; i < n; ++i) {
    //read red component
    digitalWrite(s2, LOW);
    digitalWrite(s3, LOW);
    red = red + pulseIn(outPin, LOW);

    //read green component
    digitalWrite(s2, HIGH);
    digitalWrite(s3, HIGH);
    grn = grn + pulseIn(outPin, LOW);

    //let's read blue component
    digitalWrite(s2, LOW);
    digitalWrite(s3, HIGH);
    blu = blu + pulseIn(outPin, LOW);
  }
  red = red / n;
  grn = grn / n;
  blu = blu / n;
}

```

```

Serial.print(red);
Serial.print("|");
Serial.print(grn);
Serial.print("|");
Serial.print(blu);
Serial.println("|");
}

void getColor() {
  readRGB();
  // Serial.println(grn);
  if (red > grn && grn > blu) {
    Serial.println("BLUE");
    // blueColor = "BLUE";
  } else if (grn > blu && blu > red) {
    Serial.println("RED");
    // redColor = "RED";
  } else if (blu > red && red > grn) {
    Serial.println("GREEN");
    // greenColor = "GREEN";
  }
}

int getColorKk() {
  readRGB();
  // Serial.println(grn);
  if (red > grn && grn > blu) {
    Serial.println("BLUE");
    return 1;
    // blueColor = "BLUE";
  } else if (grn > blu && blu > red) {
    Serial.println("RED");
    return 2;
    // redColor = "RED";
  } else if (blu > red && red > grn) {
    Serial.println("GREEN");
    return 3;
    // greenColor = "GREEN";
  }
}
}

```

3) Kode Program Raspberry Pi

```

import serial
import time
import numpy as np
import cv2
import time
import tensorflow as tf
import threading
import queue

class WebcamThread(threading.Thread):
    def __init__(self):
        super(WebcamThread, self).__init__()
        self.cap = cv2.VideoCapture(0)
        self.is_running = True
        self.latest_frame = None

    def run(self):
        while self.is_running:
            ret, frame = self.cap.read()
            if not ret:
                print("Error: Couldn't read a frame.")
                break
            self.latest_frame = frame

```



```

        cv2.imshow("Webcam Stream", frame)
        if cv2.waitKey(1) & 0xFF == ord('q'):
            break

    self.cap.release()
    cv2.destroyAllWindows()

def stop(self):
    self.is_running = False
    self.join()

print("proses loading model")

loaded_model = tf.keras.saving.load_model("cnnnanasmodel5")
print(loaded_model)

labels = ['Besar Matang', 'Besar Setengah Matang', 'Sedang Matang', 'Sedang
Setengah Matang', 'Kecil Matang', 'Kecil Setengah matang']

#inisialisasi kamera
#cap = cv2.VideoCapture(0)

# Capture frame-by-frame
#time.sleep(4)

# Modify the port and baudrate based on your Arduino setup
port = '/dev/ttyUSB0' # Replace with your Arduino's serial port (on Windows,
it might look like 'COM3')
baudrate = 9600 # Make sure it matches the baudrate in your Arduino
sketch

# Initialize the serial connection
ser = serial.Serial(port, baudrate, timeout=1)

# Wait for the serial connection to be established
time.sleep(2)

webcam_thread = WebcamThread()
webcam_thread.start()

# Your additional processing tasks can go here in the main thread.
# For example, you can perform image processing, object detection, etc.

# When you're done, stop the webcam thread:

import firebase_admin
from firebase_admin import credentials, db
import time

id_pengguna = -1
start = False
# Initialize the Firebase Admin SDK.
# Replace 'path/to/your/serviceAccountKey.json' with the actual path to your
service account key JSON file.
cred = credentials.Certificate('firebase.json')
firebase_admin.initialize_app(cred, {'databaseURL': 'https://klasifikasi-
nanas-default-rtdb.firebaseio.com'})

# Define the database reference you want to listen to.
# Replace 'your_database_node' with the specific node you want to listen to.
ref = db.reference('button_control')

# Event handler for database changes.
def handle_change(event):
    print("Data changed: ", event.data)

```

```

    if (event.data=='start'):
        data_to_send = "start\n"
        ser.write(data_to_send.encode()) # Make sure to encode the data to
bytes

        start=True
    else:
        data_to_send = "finish\n"
        ser.write(data_to_send.encode()) # Make sure to encode the data to
bytes

        start=False

# Listen for changes on the specified node.
ref.listen(handle_change)

ref2 = db.reference('id_pengguna')

# Event handler for database changes.
def handle_change2(event):
    global id_pengguna
    print("Data changed2: ", event.data)
    id_pengguna = event.data

# Listen for changes on the specified node.
ref2.listen(handle_change2)

try:
    # Main communication loop
    while True:
        # Send data to Arduino (optional)
        #data_to_send = "Hello Arduino!"
        #ser.write(data_to_send.encode()) # Make sure to encode the data to
bytes

        # Read data from Arduino
        data_received = ser.readline().decode().strip()
        if (data_received == 'Raspi Baca Gambar'):
            frame = webcam_thread.latest_frame
            image = cv2.cvtColor(frame, cv2.COLOR_BGR2RGB)
            #generate nama berdasarkan timestamp
            timestamp = int(time.time())
            output_directory = "/home/pi/Hasil_Foto_Nanas"
            output_path = f"{output_directory}/image_{timestamp}.png"

            image = cv2.resize(image, (200,150))
            print([image.shape])

            #Processing gambar
            input_data = np.expand_dims(image, axis=0)

            hasil = loaded_model.predict(input_data)
            max_index = np.argmax(hasil)
            print(max_index)
            data_to_send = labels[max_index)+"\n"
            ser.write(data_to_send.encode()) # Make sure to encode the data
to bytes

            print(labels[max_index])

            import requests

            # Replace 'https://example.com/api/endpoint' with the URL of the
API endpoint you want to send data to.
            url =
'http://192.168.102.117/api_database_klasifikasinanas/data/tambah_tabel_detek

```

```

si.php'

    # Data to be sent as form data.
    hasil_deteksi = labels[max_index]
    pecah = hasil_deteksi.split(" ")
    ukuran = pecah[0]
    matang = pecah[1]

    data = {
        'kematangan_nanas': matang,
        'ukuran_nanas': ukuran,
        'id_pengguna': id_pengguna,
        'hasil_deteksi': hasil_deteksi,
    }

    # Send POST request with form data.
    response = requests.post(url, data=data)

    # Process the response.
    print(response.status_code) # HTTP status code
    print(response.json())     # Parsed JSON response, if the
server returned JSON data
    print(response.text)

    print(f"Received from Arduino: {data_received}")

except KeyboardInterrupt:
    # Close the serial connection when Ctrl+C is pressed
    ser.close()
    webcam_thread.stop()

```

4) Kode Program Android

- Kode Program Login Page

```

package com.example.cubocubo;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Context;
import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.os.Handler;
import android.text.TextUtils;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import com.example.cubocubo.server.ApiClient;
import com.example.cubocubo.server.LoginRequest;
import com.example.cubocubo.server.LoginResponse;

import retrofit2.Call;
import retrofit2.Callback;
import retrofit2.Response;

public class loginpage extends AppCompatActivity {

    EditText etUsername;
    EditText etPassword;
    TextView tvDaftar;

```

```

Button btnlogin;

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.login_page);
    etUsername = findViewById(R.id.etUsername);
    etPassword = findViewById(R.id.etPassword);
    btnlogin = (Button) findViewById(R.id.btnlogin);
    tvDaftar = (TextView) findViewById(R.id.tvDaftar);

    btnlogin.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if(TextUtils.isEmpty(etUsername.getText().toString()) ||
TextUtils.isEmpty(etPassword.getText().toString())){
                Toast.makeText(loginpage.this, "Username / Password
Required", Toast.LENGTH_SHORT).show();
            }
            else{
//                //proceed to login
                login();
            }
        }
    });
    tvDaftar.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            Intent BukatvDaftar = new
Intent(getApplicationContext(), signuppage.class);
            startActivity(BukatvDaftar);
        }
    });
}

public void login(){
    LoginRequest loginRequest = new LoginRequest();
    loginRequest.setUsername(etUsername.getText().toString());
    loginRequest.setPassword(etPassword.getText().toString());
    Call<LoginResponse> loginResponseCall =
ApiClient.getUserService().userLogin(loginRequest);
    Log.d("data", loginResponseCall.toString());
    loginResponseCall.enqueue(new Callback<LoginResponse>() {
        @Override
        public void onResponse(Call<LoginResponse> call,
Response<LoginResponse> response) {
            LoginResponse loginResponse = response.body();
            Log.d("data user", loginResponse.getUser().toString());
            SharedPreferences sharedPreferences =
getSharedPreferences("data", Context.MODE_PRIVATE);
            if(response.isSuccessful() && loginResponse.isSuccess()){
                SharedPreferences.Editor editor =
sharedPreferences.edit();
                editor.putString("user", loginResponse.getUser());
                editor.putString("username", loginResponse.getUsername());
                editor.putString("image", loginResponse.getImage());
                editor.apply();
                Toast.makeText(loginpage.this, "Login SuccessFull",
Toast.LENGTH_SHORT).show();
                new Handler().postDelayed(new Runnable() {
                    @Override
                    public void run() {
                        startActivity(new
Intent(loginpage.this, halaman2.class).putExtra("data", loginResponse.getMessag
e()));
                    }
                }, 700);
            }
        }
    });
}

```

```

    }
    else{
        Toast.makeText(loginpage.this, "Login Failure",
Toast.LENGTH_SHORT).show();
    }
}

@Override
public void onFailure(Call<LoginResponse> call, Throwable t) {
    Toast.makeText(loginpage.this, "Thworable",
Toast.LENGTH_SHORT).show();
}
});
}
}

```

- **Kode Program Signup Page**

```

package com.example.cubocubo;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

import android.Manifest;
import android.app.Activity;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.graphics.Bitmap;
import android.net.Uri;
import android.os.Build;
import android.os.Bundle;
import android.os.FileUtils;
import android.provider.MediaStore;
import android.util.Base64;
import android.widget.Button;
import android.widget.EditText;

import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;

import android.view.View;

import com.example.cubocubo.server.ApiClient;
import com.example.cubocubo.server.BaseResponse;
import com.example.cubocubo.server.DataService;
import com.example.cubocubo.server.LoginResponse;
import com.example.cubocubo.server.RegisterRequest;
import com.example.cubocubo.server.ServiceGenerator;
import com.squareup.picasso.Picasso;

import java.io.ByteArrayOutputStream;
import java.io.File;
import java.io.IOException;

import android.util.Log;
import android.widget.Toast;
import retrofit2.Call;
import retrofit2.Callback;
import retrofit2.Response;
import static android.text.TextUtils.isEmpty;

public class signuppage extends AppCompatActivity {
    private static final String TAG = signuppage.class.getSimpleName();
    private static final int MY_RESULT_CODE_PERMISSION = 1000;
    private static final int MY_RESULT_CODE_FILECHOOSEER = 2000;
    String lokasiFile;
    private DataService service;

```



```

private EditText etUsername;
private EditText etPassword;
private EditText etNohp;
private Button btnProfil, btnDaftar;
private Bitmap selectedImage;

private static final int REQUEST_IMAGE_PICK = 100;
private static final int PERMISSION_REQUEST_CODE = 200;

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.signup_page);
    initView();
    initListener();
    service = ServiceGenerator.createBaseService(this,
DataService.class);
    btnDaftar = findViewById(R.id.btnDaftar);
}

private void initListener() {
    btnDaftar.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            String username = etUsername.getText().toString();
            String password = etPassword.getText().toString();
            String no_hp = etNohp.getText().toString();
            if (isEmpty(username))
                etUsername.setError("Tolong Di Isi");
            else if (isEmpty(password))
                etPassword.setError("Tolong Di Isi");
            else if (isEmpty(no_hp))
                etNohp.setError("Tolong Di Isi");
            else
                registerUser();
            //          addData(username,password,no_hp);
        }
    });

    btnProfil.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
                if (ContextCompat.checkSelfPermission(
                    getApplicationContext(),
                    Manifest.permission.READ_EXTERNAL_STORAGE
                ) != PackageManager.PERMISSION_GRANTED) {
                    ActivityCompat.requestPermissions(
                        signuppage.this,
                        new
String[] {Manifest.permission.READ_EXTERNAL_STORAGE},
PERMISSION_REQUEST_CODE
                    );
                } else {
                    openImagePicker();
                }
            } else {
                openImagePicker();
            }
        }
    });
}

private void registerUser() {
    String username = etUsername.getText().toString();
    String password = etPassword.getText().toString();
    String noHp = etNohp.getText().toString();
}

```

```

        if (selectedImage != null) {
            String imageString = bitmapToBase64(selectedImage);

            RegisterRequest registerRequest = new RegisterRequest();
            registerRequest.setUsername(username);
            registerRequest.setPassword(password);
            registerRequest.setNo_hp(noHp);
            registerRequest.setFoto_profil(imageString+".png");

//            Log.d("data",registerRequest.toString());
            System.out.println("data: "+registerRequest);
            Call<LoginResponse> call =
ApiClient.getUserService().userRegister(registerRequest);
            call.enqueue(new Callback<LoginResponse>() {
                @Override
                public void onResponse(Call<LoginResponse> call,
Response<LoginResponse> response) {
                    if (response.isSuccessful()) {
                        LoginResponse loginResponse = response.body();
                        if (loginResponse != null &&
loginResponse.isSuccess()) {
                            Toast.makeText(signuppage.this, "Registrasi
berhasil.", Toast.LENGTH_SHORT).show();
                            // Registrasi berhasil, lakukan tindakan tambahan
di sini
                        } else {
                            Toast.makeText(signuppage.this, "Registrasi
gagal.", Toast.LENGTH_SHORT).show();
                        }
                    } else {
                        Toast.makeText(signuppage.this, "Registrasi gagal.",
Toast.LENGTH_SHORT).show();
                    }
                }

                @Override
                public void onFailure(Call<LoginResponse> call, Throwable t)
{
                    Log.d("error", t.getMessage());
                    Toast.makeText(signuppage.this, "Error: " +
t.getMessage(), Toast.LENGTH_SHORT).show();
                }
            });
        } else {
            Toast.makeText(this, "Pilih gambar profil",
Toast.LENGTH_SHORT).show();
        }
    }

    private void openImagePicker() {
        Intent intent = new Intent(Intent.ACTION_PICK,
MediaStore.Images.Media.EXTERNAL_CONTENT_URI);
        startActivityForResult(intent, REQUEST_IMAGE_PICK);
    }

    @Override
    protected void onActivityResult(int requestCode, int resultCode, Intent
data) {
        super.onActivityResult(requestCode, resultCode, data);
        if (requestCode == REQUEST_IMAGE_PICK && resultCode ==
Activity.RESULT_OK) {
            Uri selectedImageUri = data.getData();
            if (selectedImageUri != null) {
                try {
                    selectedImage =

```

```

MediaStore.Images.Media.getBitmap(getContentResolver(), selectedImageUri);
//
        imgProfile.setImageBitmap(selectedImage);
    } catch (IOException e) {
        e.printStackTrace();
    }
}
}

private String bitmapToBase64(Bitmap bitmap) {
    ByteArrayOutputStream byteArrayOutputStream = new
ByteArrayOutputStream();
    bitmap.compress(Bitmap.CompressFormat.JPEG, 100,
byteArrayOutputStream);
    byte[] byteArray = byteArrayOutputStream.toByteArray();
    return Base64.encodeToString(byteArray, Base64.DEFAULT);
}

@Override
public void onRequestPermissionsResult(int requestCode, @NonNull String[]
permissions, @NonNull int[] grantResults) {
    super.onRequestPermissionsResult(requestCode, permissions,
grantResults);
    if (requestCode == PERMISSION_REQUEST_CODE && grantResults.length > 0
        && grantResults[0] == PackageManager.PERMISSION_GRANTED) {
        openImagePicker();
    }
}

private void initView() {
    etUsername = (EditText) findViewById(R.id.etUsername);
    etPassword = (EditText) findViewById(R.id.etPassword);
    etNohp = (EditText) findViewById(R.id.etNohp);
    btnProfil = (Button) findViewById(R.id.btnProfil);
    btnDaftar = (Button) findViewById(R.id.btnDaftar);
}
}
}

```

- **Kode Program Home Fragment**

```

package com.example.cubocubo;

import android.content.Context;
import android.content.SharedPreferences;
import android.net.Uri;
import android.os.Bundle;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;
import androidx.recyclerview.widget.LinearLayoutManager;

import android.util.Log;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;

import com.bumptech.glide.Glide;
import com.example.cubocubo.server.BaseResponse;
import com.example.cubocubo.server.DataService;

```

```

import com.example.cubocubo.server.ServiceGenerator;
import com.example.cubocubo.server.UserService;
import com.google.firebase.database.DatabaseReference;
import com.google.firebase.database.FirebaseDatabase;

import java.util.List;
import okhttp3.ResponseBody;
import retrofit2.Call;
import retrofit2.Callback;
import retrofit2.Response;

import org.json.simple.JSONObject;
import org.json.simple.parser.JSONParser;
import org.json.simple.parser.ParseException;

/**
 * A simple {@link Fragment} subclass.
 * Use the {@link HomeFragment#newInstance} factory method to
 * create an instance of this fragment.
 */
public class HomeFragment extends Fragment {

    // TODO: Rename parameter arguments, choose names that match
    // the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
    private static final String ARG_PARAM1 = "param1";
    private static final String ARG_PARAM2 = "param2";

    // TODO: Rename and change types of parameters
    private String mParam1;
    private String mParam2;

    private DataService service;

    private TextView tvbesarmatang;
    private TextView tvbesarsetmatang;
    private TextView tvsedangmatang;
    private TextView tvsedangsetmatang;
    private TextView tvkecilmatang;
    private TextView tvkecilsetmatang;
    private TextView tvPengguna;
    private ImageView ivFotoprofile;

    private Button btnMulai;
    private Button btnSelesai;

    public HomeFragment() {
        // Required empty public constructor
    }

    /**
     * Use this factory method to create a new instance of
     * this fragment using the provided parameters.
     *
     * @param param1 Parameter 1.
     * @param param2 Parameter 2.
     * @return A new instance of fragment HomeFragment.
     */
    // TODO: Rename and change types and number of parameters
    public static HomeFragment newInstance(String param1, String param2) {
        HomeFragment fragment = new HomeFragment();
        Bundle args = new Bundle();
        args.putString(ARG_PARAM1, param1);
        args.putString(ARG_PARAM2, param2);
        fragment.setArguments(args);
        return fragment;
    }

    @Override

```

```

public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    if (getArguments() != null) {
        mParam1 = getArguments().getString(ARG_PARAM1);
        mParam2 = getArguments().getString(ARG_PARAM2);
    }
}

@Nullable
@Override
public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
ViewGroup container,
                        @Nullable Bundle savedInstanceState) {

    View view = inflater.inflate(R.layout.fragment_home, container, false);
    tvbesarmatang = view.findViewById(R.id.tvbesarmatang);
    tvbesarsetmatang = view.findViewById(R.id.tvbesarsetmatang);
    tvsedangmatang = view.findViewById(R.id.tvsedangmatang);
    tvsedangsetmatang = view.findViewById(R.id.tvsedangsetmatang);
    tvkecilmatang = view.findViewById(R.id.tvkecilmatang);
    tvkecilsetmatang = view.findViewById(R.id.tvkecilsetmatang);
    tvPengguna = view.findViewById(R.id.tvPengguna);
    ivFotoprofil = view.findViewById(R.id.ivFotoprofil);

    service =
ServiceGenerator.createBaseService(getApplicationContext(), DataService.class);

    loadData();

    btnMulai = view.findViewById(R.id.btnMulai);
    btnSelesai = view.findViewById(R.id.btnSelesai);

    // Write a message to the database
    FirebaseDatabase database = FirebaseDatabase.getInstance();
    DatabaseReference myRef = database.getReference("button_control");
    DatabaseReference myRefId = database.getReference("id_pengguna");

    btnMulai.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // Kode yang ingin dijalankan saat tombol diklik
            SharedPreferences sharedPreferences =
getApplicationContext().getSharedPreferences("data", Context.MODE_PRIVATE);
            String id_pengguna = sharedPreferences.getString("user", "");

            myRef.setValue("start");
            myRefId.setValue(id_pengguna);
        }
    });

    btnSelesai.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // Kode yang ingin dijalankan saat tombol diklik
            myRef.setValue("finish");
            myRefId.setValue("");
        }
    });

    return view;
}

private void loadData() {
    SharedPreferences sharedPreferences =
getApplicationContext().getSharedPreferences("data", Context.MODE_PRIVATE);

```

```

String id_pengguna = sharedPreferences.getString("user", "");
String username = sharedPreferences.getString("username", "");
String image = sharedPreferences.getString("image", "");
System.out.print("image data string : "+ image);
String imageUrl =
"http://servernanas.my.id/api_database_klasifikasinanas/data/"+image;

Call<ResponseBody> call = service.lihatjumlah(id_pengguna);
call.enqueue(new Callback<ResponseBody>() {
    @Override
    public void onResponse(Call<ResponseBody> call,
Response<ResponseBody> response) {
        if (response.isSuccessful()) {
            ResponseBody responseBody = response.body();
            if (responseBody != null) {
                try {
                    String responseString = responseBody.string();

Toast.makeText(getApplicationContext(), responseString, Toast.LENGTH_LONG).show();

                    JSONParser parser = new JSONParser();
                    JSONObject jsonObject = (JSONObject)
parser.parse(responseString);

                    String besar_matang =
String.valueOf(jsonObject.get("Besar Matang"));
                    String besar_setengah_matang =
String.valueOf(jsonObject.get("Besar Setengah Matang"));
                    String sedang_matang =
String.valueOf(jsonObject.get("Sedang Matang"));
                    String sedang_setengah_matang =
String.valueOf(jsonObject.get("Sedang Setengah Matang"));
                    String kecil_matang =
String.valueOf(jsonObject.get("Kecil Matang"));
                    String kecil_setengah_matang =
String.valueOf(jsonObject.get("Kecil Setengah Matang"));

                    tvbesaratang.setText(besar_matang);
                    tvbesarsetatang.setText(besar_setengah_matang);
                    tvsedangatang.setText(sedang_matang);

tvsedangsetatang.setText(sedang_setengah_matang);
                    tvkecilatang.setText(kecil_matang);
                    tvkecilsetatang.setText(kecil_setengah_matang);
                    tvPengguna.setText(username);

                    // Load image menggunakan Glide
                    Glide.with(getApplicationContext())
                        .load(imageUrl)

                            .into(ivFotoprofile);

                } catch (Exception e) {
                    Log.e("MainActivity", "Error: " +
e.getMessage());
                }
            } else {
                Log.e("MainActivity", "Response not successful. Error: "
+ response.message());
            }
        }

        @Override
        public void onFailure(Call<ResponseBody> call, Throwable t) {

        }
    }
}

```

```
    });  
  }  
}
```

• Kode Program Deteksi Fragment

```
package com.example.cubocubo;  
  
import android.content.Context;  
import android.content.SharedPreferences;  
import android.os.Bundle;  
import android.util.Log;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.Nullable;  
import androidx.fragment.app.Fragment;  
import androidx.recyclerview.widget.LinearLayoutManager;  
import androidx.recyclerview.widget.RecyclerView;  
  
import com.example.cubocubo.server.BaseResponse;  
import com.example.cubocubo.server.DataService;  
import com.example.cubocubo.server.ServiceGenerator;  
  
import java.util.List;  
  
import retrofit2.Call;  
import retrofit2.Callback;  
import retrofit2.Response;  
  
/**  
 * A simple {@link Fragment} subclass.  
 * Use the {@link DeteksiFragment#newInstance} factory method to  
 * create an instance of this fragment.  
 */  
public class DeteksiFragment extends Fragment {  
  
    // TODO: Rename parameter arguments, choose names that match  
    // the fragment initialization parameters, e.g. ARG_ITEM_NUMBER  
    private static final String ARG_PARAM1 = "param1";  
    private static final String ARG_PARAM2 = "param2";  
    private static final String TAG = DeteksiFragment.class.getSimpleName();  
    // TODO: Rename and change types of parameters  
    private String mParam1;  
    private String mParam2;  
    private DeteksiAdapter adapter;  
    private RecyclerView rvDeteksi;  
    private DataService service;  
  
    public DeteksiFragment() {  
        // Required empty public constructor  
    }  
  
    /**  
     * Use this factory method to create a new instance of  
     * this fragment using the provided parameters.  
     *  
     * @param param1 Parameter 1.  
     * @param param2 Parameter 2.  
     * @return A new instance of fragment DeteksiFragment.  
     */  
    // TODO: Rename and change types and number of parameters  
    public static DeteksiFragment newInstance(String param1, String param2) {  
        DeteksiFragment fragment = new DeteksiFragment();  
        Bundle args = new Bundle();
```



```

        args.putString(ARG_PARAM1, param1);
        args.putString(ARG_PARAM2, param2);
        fragment.setArguments(args);
        return fragment;
    }

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        if (getArguments() != null) {
            mParam1 = getArguments().getString(ARG_PARAM1);
            mParam2 = getArguments().getString(ARG_PARAM2);
        }
    }

    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
ViewGroup container,
                            @Nullable Bundle savedInstanceState) {
        View view =
inflater.inflate(R.layout.fragment_deteksi, container, false);
        rvDeteksi = view.findViewById(R.id.rv_deteksi);
        return view;
    }

    @Override
    public void onViewCreated(@NonNull View view, @Nullable Bundle
saveInstanceState) {
        super.onViewCreated(view, saveInstanceState);
        initView();
        adapter = new DeteksiAdapter(getContext());
        rvDeteksi.setLayoutManager(new LinearLayoutManager(getContext()));
        rvDeteksi.setAdapter(adapter);
        service =
ServiceGenerator.createBaseService(getContext(), DataService.class);
        loadData();
    }
    private void loadData() {
        SharedPreferences sharedPreferences =
getContext().getSharedPreferences("data", Context.MODE_PRIVATE);
        String id_pengguna = sharedPreferences.getString("user", "");
        String username = sharedPreferences.getString("username", "");
        Call<BaseResponse<List<M_tabel_deteksi>>> call =
service.lihatDataDeteksi(id_pengguna);
        call.enqueue(new Callback<BaseResponse<List<M_tabel_deteksi>>>() {
            @Override
            public void onResponse(Call<BaseResponse<List<M_tabel_deteksi>>>
call,
Response<BaseResponse<List<M_tabel_deteksi>>> response) {
                if (response.isSuccessful()) {
                    List<M_tabel_deteksi> deteksiList =
response.body().getData();
                    adapter.addAll(deteksiList);
                } else {
                    Log.e(TAG, "Failed to load data: " + response.code());
                }
            }
        });

        @Override
        public void onFailure(Call<BaseResponse<List<M_tabel_deteksi>>>
call, Throwable t) {
            Log.e(TAG, "Failed to load data: " + t.getMessage());
        }
    });
    }
}

```

```

private void initView() {
    rvDeteksi = getView().findViewById(R.id.rv_deteksi);
}
}

```

- **Kode Program Stok Fragment**

```

package com.example.cubocubo;

import android.content.Context;
import android.content.SharedPreferences;
import android.os.Bundle;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

import android.util.Log;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

import com.example.cubocubo.server.BaseResponse;
import com.example.cubocubo.server.DataService;
import com.example.cubocubo.server.ServiceGenerator;

import java.util.List;

import okhttp3.ResponseBody;
import retrofit2.Call;
import retrofit2.Callback;
import retrofit2.Response;

import org.json.simple.JSONObject;
import org.json.simple.parser.JSONParser;
import org.json.simple.parser.ParseException;

/**
 * A simple {@link Fragment} subclass.
 * Use the {@link StokFragment#newInstance} factory method to
 * create an instance of this fragment.
 */
public class StokFragment extends Fragment {

    // TODO: Rename parameter arguments, choose names that match
    // the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
    private static final String ARG_PARAM1 = "param1";
    private static final String ARG_PARAM2 = "param2";

    // TODO: Rename and change types of parameters
    private String mParam1;
    private String mParam2;

    private TextView tvnanasbesar;
    private TextView tvnanassedang;
    private TextView tvnanaskecil;
    private DataService service;

    public StokFragment() {
        // Required empty public constructor
    }

```

```

/**
 * Use this factory method to create a new instance of
 * this fragment using the provided parameters.
 *
 * @param param1 Parameter 1.
 * @param param2 Parameter 2.
 * @return A new instance of fragment StokFragment.
 */
// TODO: Rename and change types and number of parameters
public static StokFragment newInstance(String param1, String param2) {
    StokFragment fragment = new StokFragment();
    Bundle args = new Bundle();
    args.putString(ARG_PARAM1, param1);
    args.putString(ARG_PARAM2, param2);
    fragment.setArguments(args);
    return fragment;
}

@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    if (getArguments() != null) {
        mParam1 = getArguments().getString(ARG_PARAM1);
        mParam2 = getArguments().getString(ARG_PARAM2);
    }
}

@Nullable
@Override
public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
ViewGroup container,
                        @Nullable Bundle savedInstanceState) {
    View view =
inflater.inflate(R.layout.fragment_stok, container, false);
    tvnanasbesar = view.findViewById(R.id.tvnanasbesar);
    tvnanassedang = view.findViewById(R.id.tvnanassedang);
    tvnanaskecil = view.findViewById(R.id.tvnanaskecil);

    service = ServiceGenerator.createBaseService(getContext(),
DataService.class);
    loadData();

    return view;
}

private void loadData() {
    SharedPreferences sharedPreferences =
getContext().getSharedPreferences("data", Context.MODE_PRIVATE);
    String id_pengguna = sharedPreferences.getString("user", "");
    String username = sharedPreferences.getString("username", "");
    Call<ResponseBody> call = service.lihatukuran(id_pengguna);
    call.enqueue(new Callback<ResponseBody>() {
        @Override
        public void onResponse(Call<ResponseBody> call,
Response<ResponseBody> response) {
            if (response.isSuccessful()) {
                ResponseBody responseBody = response.body();
                if (responseBody != null) {
                    try {
                        String responseString = responseBody.string();

Toast.makeText(getContext(), responseString, Toast.LENGTH_LONG).show();

                        JSONParser parser = new JSONParser();
                        JSONObject jsonObject = (JSONObject)
parser.parse(responseString);

```

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        String nanas_besar =
String.valueOf(jsonObject.get("Besar"));
        String nanas_sedang =
String.valueOf(jsonObject.get("Sedang"));
        String nanas_kecil =
String.valueOf(jsonObject.get("Kecil"));

        tvnanasbesar.setText(nanas_besar);
        tvnanassedang.setText(nanas_sedang);
        tvnanaskecil.setText(nanas_kecil);

//                responseTextView.setText(responseString);
        } catch (Exception e) {
            Log.e("MainActivity", "Error: " +
e.getMessage());
        }
    } else {
        Log.e("MainActivity", "Response not successful. Error: "
+ response.message());
    }
}

@Override
public void onFailure(Call<ResponseBody> call, Throwable t) {
}
});
}
}
}

```

- **Kode Program Informasi Fragment**

```

package com.example.cubocubo;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

/**
 * A simple {@link Fragment} subclass.
 * Use the {@link InformasiFragment#newInstance} factory method to
 * create an instance of this fragment.
 */
public class InformasiFragment extends Fragment {

    // TODO: Rename parameter arguments, choose names that match
    // the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
    private static final String ARG_PARAM1 = "param1";
    private static final String ARG_PARAM2 = "param2";

    // TODO: Rename and change types of parameters
    private String mParam1;
    private String mParam2;

    public InformasiFragment() {
        // Required empty public constructor
    }
}

```

```

/**
 * Use this factory method to create a new instance of
 * this fragment using the provided parameters.
 *
 * @param param1 Parameter 1.
 * @param param2 Parameter 2.
 * @return A new instance of fragment InformasiFragment.
 */
// TODO: Rename and change types and number of parameters
public static InformasiFragment newInstance(String param1, String param2)
{
    InformasiFragment fragment = new InformasiFragment();
    Bundle args = new Bundle();
    args.putString(ARG_PARAM1, param1);
    args.putString(ARG_PARAM2, param2);
    fragment.setArguments(args);
    return fragment;
}

@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    if (getArguments() != null) {
        mParam1 = getArguments().getString(ARG_PARAM1);
        mParam2 = getArguments().getString(ARG_PARAM2);
    }
}

@Override
public View onCreateView(LayoutInflater inflater, ViewGroup container,
    Bundle savedInstanceState) {
    // Inflate the layout for this fragment
    return inflater.inflate(R.layout.fragment_informasi, container,
false);
}
}

```

- **Kode Program Akun Fragment**

```

package com.example.cubocubo;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;

/**
 * A simple {@link Fragment} subclass.
 * Use the {@link AkunFragment#newInstance} factory method to
 * create an instance of this fragment.
 */
public class AkunFragment extends Fragment {

    // TODO: Rename parameter arguments, choose names that match
    // the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
    private static final String ARG_PARAM1 = "param1";
    private static final String ARG_PARAM2 = "param2";

    // TODO: Rename and change types of parameters
    private String mParam1;
    private String mParam2;

    private Button btnKeluar;

```

```

public AkunFragment() {
    // Required empty public constructor
}

/**
 * Use this factory method to create a new instance of
 * this fragment using the provided parameters.
 *
 * @param param1 Parameter 1.
 * @param param2 Parameter 2.
 * @return A new instance of fragment AkunFragment.
 */
// TODO: Rename and change types and number of parameters
public static AkunFragment newInstance(String param1, String param2) {
    AkunFragment fragment = new AkunFragment();
    Bundle args = new Bundle();
    args.putString(ARG_PARAM1, param1);
    args.putString(ARG_PARAM2, param2);
    fragment.setArguments(args);
    return fragment;
}

@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    if (getArguments() != null) {
        mParam1 = getArguments().getString(ARG_PARAM1);
        mParam2 = getArguments().getString(ARG_PARAM2);
    }
}

@Override
public View onCreateView(LayoutInflater inflater, ViewGroup container,
    Bundle savedInstanceState) {
    View view = inflater.inflate(R.layout.fragment_akun, container,
false);

    // Find the Button in the layout by its ID
    Button btnExitApp = view.findViewById(R.id.btnKeluar);

    // Set an onClickListener to the Button
    btnExitApp.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // Call the method to exit the app
            exitApplication();
        }
    });

    return view;
}

// Method to exit the application
private void exitApplication() {
    // You can perform any additional tasks or cleanups here before
    exiting
    // For example, saving user data, preferences, etc.

    // Exit the app
    getActivity().finishAffinity();
}

// @Override
// public View onCreateView(LayoutInflater inflater, ViewGroup container,
// Bundle savedInstanceState) {
//     // Inflate the layout for this fragment
//     return inflater.inflate(R.layout.fragment_akun, container, false);

```

```
// }  
}
```

- **Kode Program Server**

```
package com.example.cubocubo.server;  
  
public class Server {  
    public static String BASE_URL =  
    "http://servernanas.my.id/api_database_klasifikasinanas/";  
}
```

- **Kode Program Api Client**

```
package com.example.cubocubo.server;  
  
import okhttp3.OkHttpClient;  
import okhttp3.logging.HttpLoggingInterceptor;  
import retrofit2.Retrofit;  
import retrofit2.converter.gson.GsonConverterFactory;  
  
public class ApiClient {  
    private static Retrofit getRetrofit(){  
        HttpLoggingInterceptor httpLoggingInterceptor = new  
HttpLoggingInterceptor();  
        httpLoggingInterceptor.setLevel(HttpLoggingInterceptor.Level.BODY);  
        OkHttpClient okHttpClient = new  
OkHttpClient.Builder().addInterceptor(httpLoggingInterceptor).build();  
        Retrofit retrofit = new Retrofit.Builder()  
            .addConverterFactory(GsonConverterFactory.create())  
            .baseUrl("http://servernanas.my.id/")  
            .client(okHttpClient)  
            .build();  
  
        return retrofit;  
    }  
    public static UserService getUserService(){  
        UserService userService = getRetrofit().create(UserService.class);  
        return userService;  
    }  
    public static DataService getDataService(){  
        DataService dataService = getRetrofit().create(DataService.class);  
        return dataService;  
    }  
}
```

- **Kode Program Data Service**

```
package com.example.cubocubo.server;  
  
import com.example.cubocubo.M_tabel_deteksi;  
import java.util.List;  
  
import okhttp3.ResponseBody;  
import retrofit2.Call;  
import retrofit2.http.GET;  
import retrofit2.http.Query;  
  
public interface DataService {  
    @GET("data/lihat_tabel_deteksi.php")  
    Call<BaseResponse<List<M_tabel_deteksi>>>  
lihatDataDeteksi(@Query("id_pengguna") String id_pengguna);  
  
    @GET("data/jumlahnanas.php")  
    Call<ResponseBody> lihatjumlah(@Query("id_pengguna") String id_pengguna);  
}
```



```

@GET("data/jumlahukuran.php")
Call<ResponseBody> lihatukuran(@Query("id_pengguna") String id_pengguna);
}

```

• Kode Program User Service

```

package com.example.cubocubo.server;

import retrofit2.Call;
import retrofit2.http.Body;
import retrofit2.http.POST;

public interface UserService {
    @POST("api_database_klasifikasinanas/data/login.php")
    Call<LoginResponse> userLogin(@Body LoginRequest loginRequest);
    @POST("api_database_klasifikasinanas/data/registrasi.php")
    Call<LoginResponse> userRegister(@Body RegisterRequest registerRequest);
}

```

• Kode Layout Login

```

<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:background="@drawable/login"
    tools:context=".loginpage">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center"
        android:layout_gravity="center"
        android:orientation="vertical">
        <TextView
            android:id="@+id/openingText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:padding="12dp"
            android:text="Selamat Datang !"
            android:textAlignment="center"
            android:textColor="@color/back_login"
            android:textSize="40sp"
            android:textStyle="bold" />

        <androidx.cardview.widget.CardView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_margin="30dp"
            app:cardCornerRadius="30dp"
            app:cardElevation="20dp"
            android:background="@drawable/custom_edittext">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="450dp"
                android:layout_gravity="center_horizontal"
                android:orientation="vertical"
                android:padding="25dp"
                android:background="@color/white">

```

```

<TextView
    android:id="@+id/loginText"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Masuk"
    android:textAlignment="center"
    android:textColor="@color/back_login"
    android:textSize="36sp"
    android:textStyle="bold"/>

<EditText
    android:id="@+id/etUsername"
    android:layout_width="match_parent"
    android:layout_height="50dp"
    android:layout_marginTop="40dp"
    android:background="@drawable/custom_edittext"
    android:drawableLeft="@drawable/baseline_person_24"
    android:drawablePadding="8dp"
    android:hint="Nama Pengguna"
    android:padding="8dp"
    android:textColor="@color/black"

android:textColorHighlight="@color/cardview_dark_background" />

<EditText
    android:id="@+id/etPassword"
    android:layout_width="match_parent"
    android:layout_height="50dp"
    android:layout_marginTop="20dp"
    android:background="@drawable/custom_edittext"
    android:drawableLeft="@drawable/baseline_lock_24"
    android:drawablePadding="8dp"
    android:hint="Kata Sandi"
    android:inputType="textPassword"
    android:padding="8dp"
    android:textColor="@color/black"

android:textColorHighlight="@color/cardview_dark_background" />

<Button
    android:id="@+id/btnlogin"
    android:layout_width="match_parent"
    android:layout_height="60dp"
    android:text="Masuk"
    android:textSize="18sp"
    android:layout_marginTop="30dp"
    android:layout_marginBottom="20dp"
    android:backgroundTint="@color/back_login"
    app:cornerRadius = "20dp"/>

<LinearLayout
    android:orientation="horizontal"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:id="@+id/signupText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:padding="10dp"
        android:layout_marginLeft="8dp"
        android:text="Belum Punya Akun ?"
        android:textColor="@color/black"
        android:textSize="18sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/tvDaftar"
        android:layout_width="wrap_content"

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        android:layout_height="68dp"
        android:clickable="true"
        android:text="Daftar"
        android:textColor="#D32F2F"
        android:textSize="20sp"
        android:textStyle="bold" />

    </LinearLayout>
</LinearLayout>

</androidx.cardview.widget.CardView>

</LinearLayout>
</ScrollView>

```

• Kode Layout Sign Up

```

<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:background="@drawable/login"
    tools:context=".signuppage">

    <androidx.cardview.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_margin="30dp"
        app:cardCornerRadius="30dp"
        app:cardElevation="20dp"
        android:background="@drawable/custom_edittext">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="500dp"
            android:layout_gravity="center_horizontal"
            android:orientation="vertical"
            android:padding="26dp"
            android:background="@color/white">

            <TextView
                android:id="@+id/regisText"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Daftar Akun"
                android:textAlignment="center"
                android:textColor="@color/back_login"
                android:textSize="36sp"
                android:textStyle="bold"/>

            <EditText
                android:id="@+id/etUsername"
                android:layout_width="match_parent"
                android:layout_height="50dp"
                android:layout_marginTop="40dp"
                android:background="@drawable/custom_edittext"
                android:drawableLeft="@drawable/baseline_person_24"
                android:drawablePadding="8dp"
                android:hint="Nama Pengguna"
                android:padding="8dp"
                android:textColor="@color/black"
                android:textColorHighlight="@color/cardview_dark_background"

```

```

/>

    <EditText
        android:id="@+id/etPassword"
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:layout_marginTop="20dp"
        android:background="@drawable/custom_edittext"
        android:drawableLeft="@drawable/baseline_lock_24"
        android:drawablePadding="8dp"
        android:hint="Kata Sandi"
        android:inputType="textPassword"
        android:padding="8dp"
        android:textColor="@color/black"
        android:textColorHighlight="@color/cardview_dark_background"
    />

    <EditText
        android:id="@+id/etNoHp"
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:layout_marginTop="20dp"
        android:background="@drawable/custom_edittext"
        android:drawableLeft="@drawable/phone"
        android:drawablePadding="8dp"
        android:hint="Nomor Telepon"
        android:inputType="text|number"
        android:padding="8dp"
        android:textColor="@color/black"
        android:textColorHighlight="@color/cardview_dark_background"
    />

    <Button
        android:id="@+id/btnProfil"
        android:layout_width="match_parent"
        android:layout_height="60dp"
        android:text="Masukkan Foto"
        android:textSize="18sp"
        android:drawableLeft="@drawable/camera"
        android:drawablePadding="8dp"
        android:textColor="@color/black"
        android:layout_marginTop="15dp"
        android:backgroundTint="@color/back_login"
        app:cornerRadius = "20dp" />

    <Button
        android:id="@+id/btnDaftar"
        android:layout_width="match_parent"
        android:layout_height="60dp"
        android:text="Daftar"
        android:textSize="18sp"
        android:layout_marginTop="30dp"
        android:backgroundTint="@color/back_login"
        app:cornerRadius = "20dp"/>

    </LinearLayout>
</androidx.cardview.widget.CardView>

</ScrollView>

```

- **Kode Layout Home Fragment**

```

<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"

```



```

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="20dp"
            android:text="Halo !"
            android:textStyle="bold"
            android:textColor="@color/white"
            android:textSize="23sp" />

        <TextView
            android:id="@+id/tvPengguna"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="20dp"
            android:text="Mamang Ujang"
            android:textColor="@color/white"
            android:textSize="23sp"
            android:lineSpacingExtra="3sp"
            android:textStyle="bold" />

    </LinearLayout>

</RelativeLayout>

</LinearLayout>

</androidx.cardview.widget.CardView>

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Stok Terkini"
    android:layout_marginTop="10sp"
    android:textSize="20dp"
    android:textColor="@color/black"
    android:layout_marginHorizontal="5dp"
    android:textStyle="bold"/>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:weightSum="3"
    android:orientation="horizontal">

    <androidx.cardview.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:foreground="?android:attr/selectableItemBackground"
        android:clickable="true"
        app:cardCornerRadius="10dp"
        app:cardElevation="5dp"
        android:layout_margin="5dp">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:padding="2dp">
            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:orientation="horizontal">
                <ImageView
                    android:layout_width="50dp"

```

```

        android:layout_height="50dp"
        android:src="@drawable/pineapple"
        android:layout_gravity="center"/>
    <TextView
        android:id="@+id/tvbesarmatang"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginTop="8sp"
        android:textAlignment="center"
        android:textStyle="bold"
        android:text="12"
        android:textColorHighlight="@color/white"
        android:textColor="@color/back_login"
        android:textSize="25sp"/>
    </LinearLayout>

    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:text="Matang Besar"/>
    </LinearLayout>
</androidx.cardview.widget.CardView>

<androidx.cardview.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:foreground="?android:attr/selectableItemBackground"
    android:clickable="true"
    app:cardCornerRadius="10dp"
    app:cardElevation="5dp"
    android:layout_margin="5dp">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="2dp">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">
            <ImageView
                android:layout_width="50dp"
                android:layout_height="50dp"
                android:src="@drawable/pineapple"
                android:layout_gravity="center"/>
            <TextView
                android:id="@+id/tvsedangmatang"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:layout_marginTop="8sp"
                android:textAlignment="center"
                android:textStyle="bold"
                android:text="12"
                android:textColorHighlight="@color/white"
                android:textColor="@color/back_login"
                android:textSize="25sp"/>
        </LinearLayout>

        <TextView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:textAlignment="center"
            android:textColor="@color/black"

```



```

        android:text="Matang Sedang"/>
    </LinearLayout>
</androidx.cardview.widget.CardView>

<androidx.cardview.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:foreground="?android:attr/selectableItemBackground"
    android:clickable="true"
    app:cardCornerRadius="10dp"
    app:cardElevation="5dp"
    android:layout_margin="5dp">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="2dp">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">
            <ImageView
                android:layout_width="50dp"
                android:layout_height="50dp"
                android:src="@drawable/pineapple"
                android:layout_gravity="center"/>
            <TextView
                android:id="@+id/tvkecilmatang"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:layout_marginTop="8sp"
                android:textAlignment="center"
                android:textStyle="bold"
                android:text="12"
                android:textColorHighlight="@color/white"
                android:textColor="@color/back_login"
                android:textSize="25sp"/>
        </LinearLayout>

        <TextView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:textAlignment="center"
            android:textColor="@color/black"
            android:text="Matang Kecil"/>
    </LinearLayout>
</androidx.cardview.widget.CardView>

</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:weightSum="3"
    android:orientation="horizontal">

    <androidx.cardview.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:foreground="?android:attr/selectableItemBackground"
        android:clickable="true"
        app:cardCornerRadius="10dp"
        app:cardElevation="5dp"
        android:layout_margin="5dp">

        <LinearLayout

```

```

        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="2dp">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">
            <ImageView
                android:layout_width="50dp"
                android:layout_height="50dp"
                android:src="@drawable/pineapple"
                android:layout_gravity="center"/>
            <TextView
                android:id="@+id/tvbesarsetmatang"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:layout_marginTop="8sp"
                android:textAlignment="center"
                android:text="12"
                android:textStyle="bold"
                android:textColorHighlight="@color/white"
                android:textColor="@color/back_login"
                android:textSize="25sp"/>
        </LinearLayout>

        <TextView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:textAlignment="center"
            android:textColor="@color/black"
            android:text="Setengah Matang Besar"/>
    </LinearLayout>
</androidx.cardview.widget.CardView>

<androidx.cardview.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:foreground="?android:attr/selectableItemBackground"
    android:clickable="true"
    app:cardCornerRadius="10dp"
    app:cardElevation="5dp"
    android:layout_margin="5dp">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="2dp">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">
            <ImageView
                android:layout_width="50dp"
                android:layout_height="50dp"
                android:src="@drawable/pineapple"
                android:layout_gravity="center"/>
            <TextView
                android:id="@+id/tvsetengahsetmatang"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:layout_marginTop="8sp"
                android:text="12"
                android:textAlignment="center"
                android:textStyle="bold"
                android:textColorHighlight="@color/white"

```

```

        android:textColor="@color/back_login"
        android:textSize="25sp"/>
    </LinearLayout>

    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:text="Setengah Matang Sedang"/>
    </LinearLayout>
</androidx.cardview.widget.CardView>

<androidx.cardview.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:foreground="?android:attr/selectableItemBackground"
    android:clickable="true"
    app:cardCornerRadius="10dp"
    app:cardElevation="5dp"
    android:layout_margin="5dp">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="2dp">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">
            <ImageView
                android:layout_width="50dp"
                android:layout_height="50dp"
                android:src="@drawable/pineapple"/>
            <TextView
                android:id="@+id/tvkecilsetmatang"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:layout_marginTop="8sp"
                android:text="12"
                android:textAlignment="center"
                android:textStyle="bold"
                android:textColorHighlight="@color/white"
                android:textColor="@color/back_login"
                android:textSize="25sp"/>
            </LinearLayout>

            <TextView
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:textAlignment="center"
                android:textColor="@color/black"
                android:text="Setengah Matang Kecil"/>
        </LinearLayout>
    </androidx.cardview.widget.CardView>

</LinearLayout>

<androidx.cardview.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:clickable="true"
    android:foreground="?android:attr/selectableItemBackground"
    app:cardElevation="10dp"
    app:cardCornerRadius="10dp"

```

```

android:layout_marginTop="20dp"
android:backgroundTint="@color/white">
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:padding="5dp"
    android:layout_marginHorizontal="5dp">
    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:layout_centerInParent="true"
            android:layout_alignParentLeft="true">

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Anda Dapat Mengklasifikasi Buah
Nanas Berdasarkan Ukuran dan Tingkat Kematangannya"
                android:textColor="@color/back_login"
                android:textAlignment="center"
                android:textSize="20dp"
                android:textStyle="bold"
                android:layout_marginLeft="5dp"/>

            </LinearLayout>

        </RelativeLayout>

    </LinearLayout>

</androidx.cardview.widget.CardView>

<Button
    android:layout_width="match_parent"
    android:layout_height="60dp"
    android:id="@+id/btnMulai"
    android:text="MULAI DETEKSI"
    android:textSize="25dp"
    android:textColor="@color/white"
    android:layout_marginTop="10dp"
    android:backgroundTint="@color/back_login"
    android:textStyle="bold"
    app:cornerRadius = "30dp"/>
<Button
    android:layout_width="match_parent"
    android:layout_height="60dp"
    android:id="@+id/btnSelesai"
    android:text="SELESAI"
    android:textSize="25dp"
    android:layout_marginTop="5dp"
    android:backgroundTint="@color/back_login"
    android:textStyle="bold"
    app:cornerRadius = "30dp"/>

</LinearLayout>
</ScrollView>
</FrameLayout>

```

- **Kode Layout Deteksi Fragment**

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:background="@drawable/login"
    tools:context=".DeteksiFragment">

    <ScrollView
        android:layout_width="match_parent"
        android:layout_height="match_parent">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:orientation="vertical">

            <androidx.cardview.widget.CardView
                android:layout_width="match_parent"
                android:layout_height="40dp"
                android:layout_marginRight="24dp"
                android:layout_marginLeft="24dp"
                android:layout_marginTop="30dp"
                app:cardCornerRadius="8dp"
                app:cardElevation="8dp"
                tools:layout_editor_absoluteX="0dp"
                tools:layout_editor_absoluteY="87dp"
                tools:ignore="MissingConstraints">

                <RelativeLayout
                    android:layout_width="match_parent"
                    android:layout_height="match_parent"
                    android:padding="10dp">
                    <TextView
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:layout_alignParentLeft="true"
                        android:text="INDIKATOR"
                        android:textSize="15sp"
                        android:textStyle="bold"
                        android:textColor="@color/back_login" />

                    <TextView
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:layout_centerInParent="true"
                        android:text="KEMATANGAN"
                        android:textColor="@color/back_login"
                        android:textSize="15sp"
                        android:textStyle="bold" />

                    <TextView
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:text="UKURAN"
                        android:layout_alignParentRight="true"
                        android:layout_centerVertical="true"
                        android:textSize="15sp"
                        android:textStyle="bold"
                        android:textColor="@color/back_login"/>
                </RelativeLayout>
            </androidx.cardview.widget.CardView>

            <androidx.recyclerview.widget.RecyclerView
                android:layout_width="match_parent"
```

```

        android:layout_height="wrap_content"
        android:id="@+id/rv_deteksi"
        tools:listitem="@layout/isi_deteksi"
    />

    </LinearLayout>
</ScrollView>

</FrameLayout>

```

• Kode Layout Stok Fragment

```

<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:background="@drawable/login"
    tools:context=".StokFragment">

    <ScrollView
        android:layout_width="match_parent"
        android:layout_height="match_parent">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:orientation="vertical">

            <!-- CardView 1 -->
            <androidx.cardview.widget.CardView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:clickable="true"
                android:foreground="?android:attr/selectableItemBackground"
                app:cardElevation="10dp"
                app:cardCornerRadius="10dp"
                android:layout_marginTop="30dp"
                android:layout_gravity="center"
                android:backgroundTint="@color/white">
                <LinearLayout
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:orientation="horizontal"
                    android:layout_gravity="center"
                    android:gravity="center"
                    android:padding="5dp"
                    android:layout_marginHorizontal="5dp">
                    <TextView
                        android:layout_width="wrap_content"
                        android:layout_height="30dp"
                        android:text="STOK NANAS"
                        android:textStyle="bold"
                        android:textColor="@color/back_login"
                        android:textSize="25dp"
                        android:letterSpacing="0.2"
                        android:textAlignment="center"
                        android:layout_margin="5dp" />

                </LinearLayout>
            </androidx.cardview.widget.CardView>

            <!-- CardView 2 -->
            <androidx.cardview.widget.CardView

```

```

        android:layout_width="match_parent"
        android:layout_height="120dp"
        android:layout_marginStart="24dp"
        android:layout_marginEnd="24dp"
        android:layout_marginTop="30dp"
        app:cardCornerRadius="8dp"
        app:cardElevation="8dp"
        app:layout_constraintBottom_toBottomOf="@+id/view"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/view">

<RelativeLayout
    android:layout_width="match_parent"
    android:padding="20dp"
    android:layout_height="match_parent">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Nanas Besar"
        android:layout_alignParentLeft="true"
        android:textSize="25dp"
        android:textStyle="bold"
        android:textColor="@color/black"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:text="Total : "
        android:layout_alignParentLeft="true"
        android:textSize="25dp"
        android:textStyle="bold"
        android:textColor="@color/black"/>

    <TextView
        android:id="@+id/tvnanasbesar"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:layout_marginLeft="90dp"
        android:text="78"
        android:layout_alignParentLeft="true"
        android:textSize="25dp"
        android:textStyle="bold"
        android:textColor="@color/merah"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:layout_marginLeft="130dp"
        android:text="Buah"
        android:layout_alignParentLeft="true"
        android:textSize="25dp"
        android:textStyle="bold"
        android:textColor="@color/black"/>

    <ImageView
        android:layout_width="80dp"
        android:layout_height="80dp"
        android:layout_alignParentRight="true"
        android:layout_centerVertical="true"
        android:src="@drawable/indikatormerah"
        android:contentDescription="red" />

</RelativeLayout>
</androidx.cardview.widget.CardView>

```



```

<!-- CardView 3 -->
<androidx.cardview.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="120dp"
    android:layout_marginStart="24dp"
    android:layout_marginEnd="24dp"
    android:layout_marginTop="30dp"
    app:cardCornerRadius="8dp"
    app:cardElevation="8dp"
    app:layout_constraintBottom_toBottomOf="@+id/view"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/view">

    <RelativeLayout
        android:layout_width="match_parent"
        android:padding="20dp"
        android:layout_height="match_parent">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Nanas Sedang"
            android:layout_alignParentLeft="true"
            android:textSize="25dp"
            android:textStyle="bold"
            android:textColor="@color/black"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="50dp"
            android:text="Total : "
            android:layout_alignParentLeft="true"
            android:textSize="25dp"
            android:textStyle="bold"
            android:textColor="@color/black"/>

        <TextView
            android:id="@+id/tvnanassedang"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="50dp"
            android:layout_marginLeft="90dp"
            android:text="78"
            android:layout_alignParentLeft="true"
            android:textSize="25dp"
            android:textStyle="bold"
            android:textColor="@color/biru"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="50dp"
            android:layout_marginLeft="130dp"
            android:text="Buah"
            android:layout_alignParentLeft="true"
            android:textSize="25dp"
            android:textStyle="bold"
            android:textColor="@color/black"/>

        <ImageView
            android:layout_width="80dp"
            android:layout_height="80dp"
            android:layout_alignParentRight="true"
            android:layout_centerVertical="true"
            android:src="@drawable/indikatorbiru" />

    </RelativeLayout>
</androidx.cardview.widget.CardView>

```

```

<!-- CardView 4 -->
<androidx.cardview.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="120dp"
    android:layout_marginStart="24dp"
    android:layout_marginEnd="24dp"
    android:layout_marginTop="30dp"
    app:cardCornerRadius="8dp"
    app:cardElevation="8dp"
    app:layout_constraintBottom_toBottomOf="@+id/view"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/view">

    <RelativeLayout
        android:layout_width="match_parent"
        android:padding="20dp"
        android:layout_height="match_parent">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Nanas Kecil"
            android:layout_alignParentLeft="true"
            android:textSize="25dp"
            android:textStyle="bold"
            android:textColor="@color/black"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="50dp"
            android:text="Total : "
            android:layout_alignParentLeft="true"
            android:textSize="25dp"
            android:textStyle="bold"
            android:textColor="@color/black"/>

        <TextView
            android:id="@+id/tvnanaskecil"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="50dp"
            android:layout_marginLeft="90dp"
            android:text="78"
            android:layout_alignParentLeft="true"
            android:textSize="25dp"
            android:textStyle="bold"
            android:textColor="@color/hijau"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="50dp"
            android:layout_marginLeft="130dp"
            android:text="Buah"
            android:layout_alignParentLeft="true"
            android:textSize="25dp"
            android:textStyle="bold"
            android:textColor="@color/black"/>

        <ImageView
            android:layout_width="80dp"
            android:layout_height="80dp"
            android:layout_alignParentRight="true"
            android:layout_centerVertical="true"
            android:src="@drawable/indikatorhijau" />
    </RelativeLayout>

```

```
        </androidx.cardview.widget.CardView>
    </LinearLayout>
</ScrollView>
</FrameLayout>
```