CODE 1

```
#Final Project Program-1/1Movement Detection
import RPi.GPIO as GPIO
import time
from picamera import PiCamera
import os
import yagmail

#burglar alarm
import pygame
path="/home/admin/Desktop/Final-Project/sound/"
sound_file="siren.wav"
pygame.mixer.init()
speaker_volume=0.5 #50% volume
pygame.mixer.music.set_volume(speaker_volume)
pygame.mixer.music.load(path + sound_file)

PIR PIN=4
LED PIN - 17
LOG_FILE_NAME = "/home/admin/Camera/photo_logs.txt"

# Setup camera
camera PiCamera()
camera.resolution = (720, 480)
#camera.rotation = 180
print("Waiting 2 seconds to init the camera...")
time.sleep(2)
print("Camera setup OK.")
```

```
def take_photo(camera):
    file_name = "/home/admin/Camera/img_"+str(time.time()) + ".jpg"
    camera.capture(file name)
    return file_name

def update_photo_log_file(photo_file_name):
    with open(LOG_FILE_NAME, "a") as f
        fwrite(photo_file_name)
        f.write("\n")

def send email with photo(yagmail_client, file name);
   yagmail client.send(to="abhipandit1972001@gmail.com",
                subject="Movement detected!",
                contents="Here's a photo taken by your Raspberry Pi",
                attachments-file_name)

#Remove log file
if os.path.exists(LOG_FILE_NAME):
   os.remove(LOG_FILE_NAME)
   print("Log file removed.")

# Setup yagmail
password = ""
with open("/home/admin/.local/share/.email_password", "r") as f:
   password = f.read()
yag = yagmail.SMTP("office.secproject@gmail.com", password)
print("Email sender setup OK.")

# Setup GPIOS
GPIO.setmode(GPIO.BCM)
GPIO.setup(PIR_PIN, GPIO.IN)
```

```
GPIO.setup(LED_PIN, GPIO.OUT)
GPIO output(LED PIN, GPIO LOW)
print("GPIOs setup OK)

MOV_DETECT_TRESHOLD - 1.0
last pir state GPIO.input(PIR PIN)
movement timer time.time()
MIN DURATION BETWEEN 2 PHOTOS 10.0.
last_time_photo_taken = 0

print("Everything has been setup.")

try:
    while True:
       time.sleep(0.01)
       pir_state = GPIO.input(PIR_PIN)
       if pir_state = GPIO.HIGH:
          if pir state GPIO.HIGH:
            GPIO.output(LED_PIN, GPIO.HIGH)
else:
   GPIO.output(LED_PIN, GPIO.LOW)
if last pir_state = GPIO LOW and pir_state = GPIO.HIGH:
   movement_timer = time.time()
if last pir_state GPIO.HIGH and pir_state = GPIO.HIGH:
   if time.time() - movement_timer > MOV_DETECT_TRESHOLD:
     if time.time() - last_time_photo_taken >

MIN_DURATION_BETWEEN_2_PHOTOS:
                print("Took photo and sent it by email")
                photo_file_name = take_photo(camera)
                update_photo_log_file(photo_file_name)
```

```
            send_email_with_photo(yag, photo_file_name)
            last_time_photo_taken = time.time()
            pygame.mixer.music.play()
            last pir state pir state
        except KeyboardInterrupt
          GPIO.cleanup()
```

CODE 2

```
#Final Project Program-1/2 Web Server App
from flask import Flask
import os

CAMERA FOLDER PATH = "/home/admin/Camera"
- CAMERA FOLDER PATH "/photo_Jogatit
photo counter = (0)

app = Flask(_name_,static_url_path=CAMERA_FOLDER_PATH,static_folder-CAMERA_FOLDER_PATH)
 @app.route("/")
def index():
   return "Hello"

@app.route("/check-movement")
def check_movement():
   message = ""
   line counter=0
   last_photo_file_name = ""
   if os.path.exists(LOG_FILE_NAME):
     with open(LOG_FILE_NAME, "r") as f
       for line in f:
          line_counter += 1
```

```
            last_photo_file_name = line
    global photo_counter
    difference = line_counter - photo_counter
    message = str(difference) + " photos were taken since you last checked. <br/><br/>"
    message += "Last photo: " + last_photo_file_name + "<br/>"
    message += "<img src=\"" + last_photo_file_name + "\">"
    photo_counter = line_counter
else:
   message = "Nothing new"
return message


app.run(host="0.0.0.0")
```