Name: THIYANESH S **Reg. No:** GCTC1918141

Degree & Branch: B.Tech - Final Year - Information Technology

College: Government College of Technology, Coimbatore – 641 013

Subject: Professional Readiness for Innovation, Employability & Entrepreneurship (Nalaiya Thiran)

Assignment – 3 Python Program for Raspberry Pi

Task – 1:

Write a python code for running in Raspberry Pi for Blinking of LED

Solution:

Program:

```
import RPi.GPIO as GPIO
import time
GPIO.setmode(GPIO.BCM)
cnt = 0
MAIL_CHECK_FREQ = 1 # change LED status every 1 seconds
RED_LED = 4
GPIO.setup(RED_LED, GPIO.OUT)
while True:
    if cnt == 0 :
        GPIO.output(RED_LED, False)
        cnt = 1
    else:
        GPIO.output(RED_LED, True)
        cnt = 0
    time.sleep(MAIL_CHECK_FREQ)
    GPIO.cleanup()
```

Explanation of Program:

Initially, we have imported the RPi module to get connected with the raspberry pi and time module to create a time delay. Then, cnt variable which act as a LED Switch as ON/OFF state is declared then the pin where the LED is connected is initialized with a variable and setup() function is used with it to make the pin mode as output

Then, An Infinite While Loop is declared. And the cnt variable is checked for the ON/OFF state using an if condition and output is set to false and cnt to 1, if cnt is 0, else output is set to true and cnt to 0 is set. Now the sleep() function is called to create a 1 second delay.

Task – 2:

Write a python code for running in Raspberry Pi for Traffic Lights

Solution:

Program:

```
from gpiozero import TrafficLights
from time import sleep
lights = TrafficLights(25, 8, 7)
while True:
    lights.green.on()
    sleep(5)
    lights.amber.on()
    sleep(1)
    lights.red.on()
    sleep(5)
```

Explanation of Program:

Initially, we have imported the RPi module to get connected with the raspberry pi and time module to create a time delay. Then we have imported the TrafficLights module. The Red, Amber and Green LEDS are connected to the Raspberry Pi board and the pins where the LEDs are connected are initialized with the TrafficLights Module.

Then, An Infinite While Loop is initialized. Inside the Loop, Green Light is turned on and a delay of 5 seconds is made using sleep() Function then amber light is turned on and delayed for 1 second then red light is turned on and delayed for 5 seconds. This is repeated for the traffic light to make traffic stop, wait and go.

References:

1) https://www.c-sharpcorner.com/UploadFile/015c2d/raspberry-pi-simple-led-blinking-program-using-python/
2) https://www.c-sharpcorner.com/article/traffic-light-system-using-raspberry-pi/