

Assignment 3

Python code for blinking LED and Traffic lights for Raspberry Pi.

Assignment Date	5 October 2022
Student Name	Deepika.J
Student Roll Number	511919106002
Team ID	PNT2022TMID40121

Question:

Write python code for blinking LED and Traffic lights for Raspberry pi.

Only python code is enough, no need to execute in raspberry pi.

Solution :

```
import RPi.GPIO as GPIO
import time

#assign numbering for the GPIO using BCM
GPIO.setmode(GPIO.BCM)

#assignn number for the GPIO using Board
#GPIO.setmode(GPIO.BOARD)

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()


import time
import board
import digitalio
import pwmio

red_led = digitalio.DigitalInOut(board.GP11)
red_led.direction = digitalio.Direction.OUTPUT
amber_led = digitalio.DigitalInOut(board.GP14)
amber_led.direction = digitalio.Direction.OUTPUT
green_led = digitalio.DigitalInOut(board.GP13)
green_led.direction = digitalio.Direction.OUTPUT
button = digitalio.DigitalInOut(board.GP16)
button.switch_to_input(pull=digitalio.Pull.DOWN)

buzzer = pwmio.PWMOut(board.GP12, frequency=660, duty_cycle=0,
variable_frequency=True)

button_pressed = False

def waiting_for_button(duration):
    global button_pressed # pylint: disable=global-statement
    end = time.monotonic() + duration
    while time.monotonic() < end:
        if button.value:
            button_pressed = True
while True:
    if button_pressed:
        red_led.value = True
        for _ in range(10):
            buzzer.duty_cycle = 2 ** 15
```

```
    waiting_for_button(0.2)
    buzzer.duty_cycle = 0
    waiting_for_button(0.2)
    button_pressed = False
red_led.value = True
waiting_for_button(5)
amber_led.value = True
waiting_for_button(2)
red_led.value = False
amber_led.value = False
green_led.value = True
waiting_for_button(5)
green_led.value = False
amber_led.value = True
waiting_for_button(3)
amber_led.value = False
```