

Assignment -3
Python Programming

Assignment Date	6 October 2022
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Maximum Marks	2 Marks

Question-1:

Write a python code to blink LED for Raspberry pi

Solution:

```
import RPi.GPIO as GPIO#RPi.GPIO can be referred as GPIO from now on

import time

ledPin = 22  #pin22

def setup():

    GPIO.setmode(GPIO.BOARD)    #GPIO Numbering of Pins

    GPIO.setup(ledPin, GPIO.OUT) #Set ledPin as output

    GPIO.output(ledPin, GPIO.LOW) #Set ledPin to LOW to turn Off the LED

def loop():

    while True:

        print 'LED on'

        GPIO.output(ledPin, GPIO.HIGH) #LED On

        time.sleep(1.0)          #wait 1 sec

        print 'LED off'

        GPIO.output(ledPin, GPIO.LOW) #LEDOff

        time.sleep(1.0)          #wait 1 sec

def endprogram():

    GPIO.output(ledPin, GPIO.LOW)  #LEDOff
```

```

GPIO.cleanup()          #Release resources

if __name__ == '__main__':    #Program starts from here
    setup()
    try:
        loop()
    except KeyboardInterrupt: #When 'Ctrl+C' is pressed, the destroy() will be executed.
        endprogram()

```

Question-2:

Write a python code for traffic lights for Raspberry pi

SOLUTION:

```

import RPi.GPIO as GPIO
import time
try:
    def lightTraffic(led1, led2, led3, delay):
        GPIO.output(led1, 1)
        time.sleep(delay)
        GPIO.output(led1, 0)
        GPIO.output(led2, 1)
        time.sleep(delay)
        GPIO.output(led2, 0)
        GPIO.output(led3, 1)
        time.sleep(delay)
        GPIO.output(led3, 0)
    GPIO.setmode(GPIO.BCM)
    button = 19
    GPIO.setup(button, GPIO.IN, pull_up_down=GPIO.PUD_UP)
    ledGreen = 16
    ledYellow = 12
    ledRed = 23
    GPIO.setup(ledGreen, GPIO.OUT)
    GPIO.setup(ledYellow, GPIO.OUT)
    GPIO.setup(ledRed, GPIO.OUT)
    while True:

```

```
input_state = GPIO.input(button)
if input_state == False:
    print('Button Pressed')
    lightTraffic(ledGreen, ledYellow, ledRed, 1)
else:
    GPIO.output(ledGreen, 0)
    GPIO.output(ledYellow, 0)
    GPIO.output(ledRed, 0)
except KeyboardInterrupt:
    print "You've exited the program"
finally:
    GPIO.cleanup()
```