

IBM ASSIGNMENT-3

Assignment Date	06 October 2022
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Maximum Marks	2marks

ASSIGNMENT DETAILS:

Technology: IOT

Domain: Smart solution for railways

ASSIGNMENT QUESTION

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

CODE:

1. Blinking LED

```
import RPi.GPIO as GPIO          #Import raspberry Pi GPIO library
from time import sleep           #Import the sleep function from the time module

GPIO.setwarnings(False)          #Ignore warning for now
GPIO.setmode(GPIO.BOARD)         #use physical pin numbering
GPIO.setup(8, GPIO.OUT , initial=GPIO.LOW) #Set pin 8 to be an output pin and set initial value to low (off)

while True:                      #Run forever
    GPIO.output(8, GPIO.HIGH)     #Turn on
    sleep(1)                     #Sleep for 1 second
    GPIO.output(8,GPIO.LOW)       #Turn off
    sleep(1)                     #sleep for 1 second
```

2. Traffic lights

```
import RPi.GPIO as GPIO
import time
import signal
import sys

#Setup
GPIO.setmode(GPIO.BCM)
GPIO.setup(9, GPIO.OUT)
GPIO.setup(10, GPIO.OUT)
GPIO.setup(11, GPIO.OUT)

#Turn off all lights when user ends demo
def allLightsoff(signal, frame):
    GPIO.output(9, False)
    GPIO.output(10, False)
    GPIO.output(11, False)
    GPIO.cleanup()
    sys.exit(0)
signal.signal(signal.SIGINT, allLightsoff)

#Loop forever
while True:
    #Red
    GPIO.output(9, True)
    time.sleep(3)
    #Red and yellow
    GPIO.output(10, True)
    time.sleep(1)
    #Yellow
    GPIO.output(11, False)
    GPIO.output(10, True)
    time.sleep(2)
    #Yellow off(red comes on at top of loop)
    GPIO.output(10, False)
    #Green
    GPIO.output(9, False)
    GPIO.output(10, False)
    GPIO.output(11, True)
    time.sleep(5)
```

Screenshot of code for Blinking LED

```
in: blinking_led.py - C:/Users/yikes/AppData/Local/Programs/Python/Python310/blinking_led.py (3.10.0)
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import RPi.GPIO as GPIO
import time
import sys

GPIO.setwarnings(False)
GPIO.setmode(GPIO.BOARD)
GPIO.setup(8, GPIO.OUT, initial=GPIO.LOW)

while True:
    GPIO.output(8, GPIO.HIGH)
    sleep(1)
    GPIO.output(8, GPIO.LOW)
    sleep(1)
    |

#Import Raspberry Pi GPIO library
#Import the sleep function from the time module

#Pin we waiting for now
#Set physical pin numbering
#Set pin 8 to be an output pin and we's initial value to low (OFF)

#Run forever
#Turn on
#Sleep for 1 second
#Turn off
#Sleep for 1 second
```

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Screenshot of code for Traffic lights code

in: traffic_light.py - C:/Users/yikes/AppData/Local/Programs/Python/Python310/traffic_light.py (3.10.0)

```
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import RPi.GPIO as GPIO
import time
import signal
import sys

#Setup
GPIO.setmode(GPIO.BOARD)
GPIO.setup(9, GPIO.OUT)
GPIO.setup(10, GPIO.OUT)
GPIO.setup(11, GPIO.OUT)

#Turn off all lights when user mode done
def allLightsoff(signal, frame):
    GPIO.output(9, False)
    GPIO.output(10, False)
    GPIO.output(11, False)
    GPIO.cleanup()
    sys.exit(0)

signal.signal(signal.SIGINT, allLightsoff)

#Loop forever
while True:
    #Red
    GPIO.output(9, True)
    time.sleep(1)
    #Red and yellow
    GPIO.output(10, True)
    time.sleep(1)
    #Green
    GPIO.output(9, False)
    GPIO.output(10, False)
    GPIO.output(11, True)
    time.sleep(1)
    #Yellow
    GPIO.output(11, False)
    GPIO.output(10, True)
    time.sleep(1)
    #Yellow off and red comes on at top of loop
    GPIO.output(10, False)
```

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