

## Assignment-3

### Python Programming

Assignment Date	3 October 2022
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Marks	2 Marks

Question-1:

Write a python code for blinking LED for Raspberry pi.

Solution:

```
#!/user/bin/env python
import RPi.GPIO as GPIO # RPi.GPIO can be referred as GPIO from now
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) # LED Off
```

```
        time.sleep(1.0) # wait 1 sec
```

```
def endprogram():
```

```
    GPIO.output(ledPin, GPIO.LOW) # LED Off
```

```
    GPIO.cleanup() # Release resources
```

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

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#### Question-2:

Write a python code for Traffic lights for Raspberry pi.

#### Solution:

```
#!/usr/bin/python3.4
import RPi.GPIO as GPIO
import time

GPIO.setmode(GPIO.BCM)
GPIO.setwarnings(False)
GPIO.setup(4, GPIO.IN, pull_up_down = GPIO.PUD_DOWN) # Button
GPIO.setup(17, GPIO.OUT, initial = GPIO.HIGH)        # RED
GPIO.setup(27, GPIO.OUT, initial = GPIO.HIGH)        # YELLOW
GPIO.setup(18, GPIO.OUT, initial = GPIO.HIGH)        # GREEN
GPIO.setup(22, GPIO.OUT, initial = GPIO.LOW)         # Buzzer

x = 1 # Variable to control traffic light system
try:
    while True:
        if(GPIO.input(4) == True):
            while(x == 1):
                GPIO.output(17, GPIO.LOW)
                GPIO.output(22, GPIO.HIGH)
```

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```
        time.sleep(2)
        GPIO.output(22, GPIO.LOW)
        GPIO.output(27, GPIO.LOW)
        time.sleep(3)
        GPIO.output(17, GPIO.HIGH)
        GPIO.output(27,GPIO.HIGH)
        GPIO.output(18, GPIO.LOW)
        time.sleep(5)
        GPIO.output(18, GPIO.HIGH)
        time.sleep(2)
except Exception as ex:
    print("error occured",ex)
finally:
    GPIO.cleanup()
```

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