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LAB-2

Components:

1. Arduino Board
2. Led
3. Breadboard

Aim:

1. Write a program to find the prime factors of a given number in Arduino
2. Simulate the Traffic light using Arduino
3. Simulate Traffic light programming using Node Red and indicate each light indication and notification through dashboard in Node Red

Procedure :

- 1) Draw the flow in nodered as shown in the nodered diagram.
- 2) Connect the Arduino and the LEDs as shown in the circuit image below.
- 3) Upload the code from the Arduino IDE to the Arduino UNO.
- 4) Deploy the flow in the nodered and observe the results in the dashboard.

1) Code:

```
void setup() {  
  
    // put your setup code here, to run once:  
  
    Serial.begin(9600);  
  
}  
  
void loop() {  
  
    // put your main code here, to run repeatedly:  
  
    int a=25;  
  
    int flag=0;  
  
  
    for(int i=2;i<a;i++){  
  
        if(a%i==0){  
  
            for(int j=2;j<i;j++){  
  
                if(i%j==0)  
  
                {  
  
                    flag=1;  
  

```

```

    }
}
if(flag==0)
{
    Serial.println(i);
}
}
}
exit(0);
}

```

Output:



2) Code:

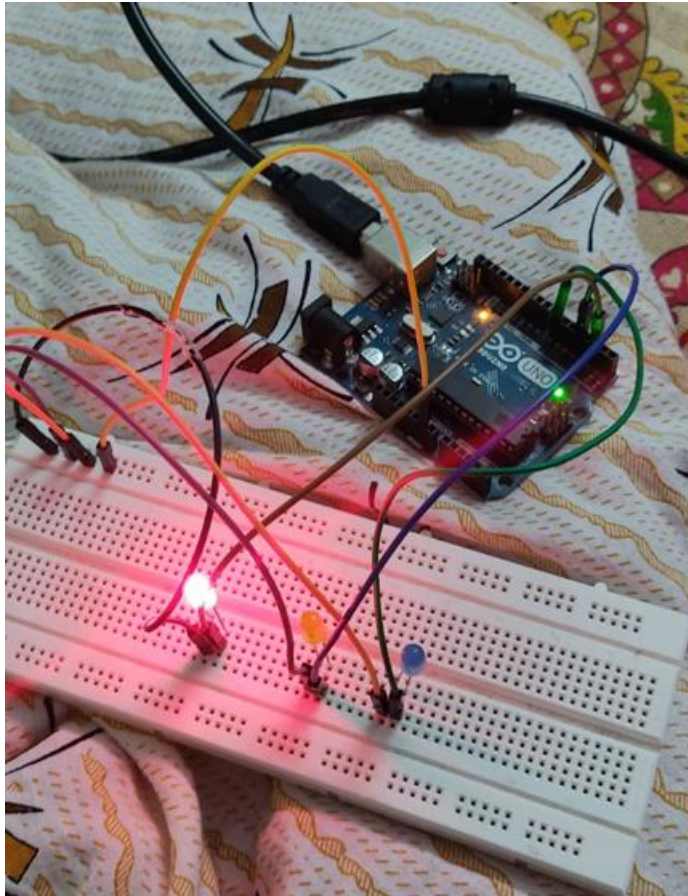
```

void setup() { // initialize digital pin 13 as an output.
    pinMode(2, OUTPUT);
    pinMode(4, OUTPUT);
    pinMode(7, OUTPUT);
} // the loop function runs over and over again forever
void loop() {
    digitalWrite(2, HIGH); // turn the LED on (HIGH is the voltage level)
    delay(5000); // wait for a second
    digitalWrite(2, LOW); // turn the LED off by making the voltage LOW
    delay(1000); // wait for a second
    digitalWrite(4, HIGH);
    delay(2000);
    digitalWrite(4, LOW);
    digitalWrite(7, HIGH);
}

```

```
delay(5000);  
digitalWrite(7, LOW);  
}
```

Output:



Working videos:

https://drive.google.com/file/d/1LR77p5N0JOpOZGqHBiZOo-oApZQCofKd/view?usp=share_link

3)Code:

```
void setup() { // initialize digital pin 13 as an output.  
  pinMode(2, OUTPUT);  
  pinMode(4, OUTPUT);  
  pinMode(7, OUTPUT);  
} // the loop function runs over and over again forever  
void loop() {  
  digitalWrite(2, HIGH); // turn the LED on (HIGH is the voltage level)  
  delay(5000); // wait for a second  
  digitalWrite(2, LOW); // turn the LED off by making the voltage LOW  
  delay(1000); // wait for a second
```

```
digitalWrite(4, HIGH);  
delay(2000);  
digitalWrite(4, LOW);  
digitalWrite(7, HIGH);
```

Function:

```
var a="red light";  
msg.payload=a;  
return a;
```

Output:

red light



Welcome to the Node-RED Dashboard

Please add some UI nodes to your flow and redeploy.

The image shows the Node-RED Dashboard interface. In the top-left corner, there is a small black box with the text "yellow light" in white. The main area of the dashboard is a light gray background. In the center, there is a red icon representing a flow graph, consisting of a square node connected to two circular nodes. Below the icon, the text "Welcome to the Node-RED Dashboard" is displayed in a bold, dark gray font. Underneath this, a smaller line of text reads "Please add some UI nodes to your flow and redeploy."



Welcome to the Node-RED Dashboard

Please add some UI nodes to your flow and redeploy.

A screenshot of the Node-RED Dashboard interface. In the top-left corner, there is a grey rectangular box with a black border containing the text 'green light'. The main area of the dashboard is light grey and contains a large red icon of a circuit board with a loop. Below the icon, the text 'Welcome to the Node-RED Dashboard' is displayed in a bold, dark grey font. Underneath this, a smaller line of text reads 'Please add some UI nodes to your flow and redeploy.'



Welcome to the Node-RED Dashboard

Please add some UI nodes to your flow and redeploy.

