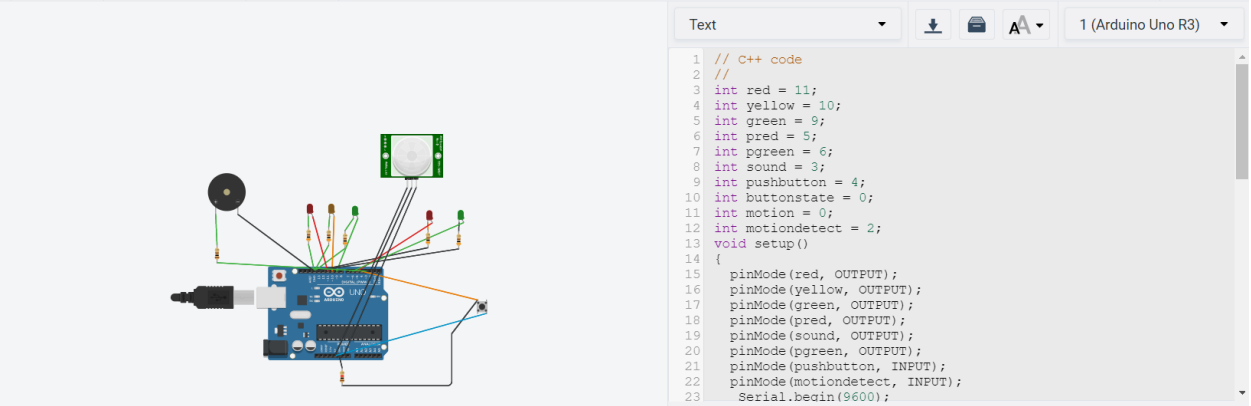
Question 1




```
// C++ code
//
int red = 11;
int yellow = 10;
int green = 9;
int pred = 5;
int pgreen = 6;
int sound = 3;
int pushbutton = 4;
int buttonstate = 0;
int motion = 0;
int motiondetect = 2;
void setup()
{
  pinMode(red, OUTPUT);
  pinMode(yellow, OUTPUT);
  pinMode(green, OUTPUT);
  pinMode(pred, OUTPUT);
  pinMode(sound, OUTPUT);
  pinMode(pgreen, OUTPUT);
```

```
  pinMode(pushbutton, INPUT);
  pinMode(motiondetect, INPUT);
   Serial.begin(9600);
}

void loop() {
  trafficLights();



}

void trafficLights(){
  buttonstate = digitalRead(4);
  motion = digitalRead(2);
  Serial.println(motion);
  digitalWrite(green, HIGH);
   digitalWrite(pred, LOW);

  if(buttonstate || motion){
   delay(2000);
    digitalWrite(green, LOW);
   digitalWrite(yellow, HIGH);

   delay(3000);
   digitalWrite(yellow, LOW);
   digitalWrite(red, HIGH);
   digitalWrite(pgreen, HIGH);

   delay(5000);
```

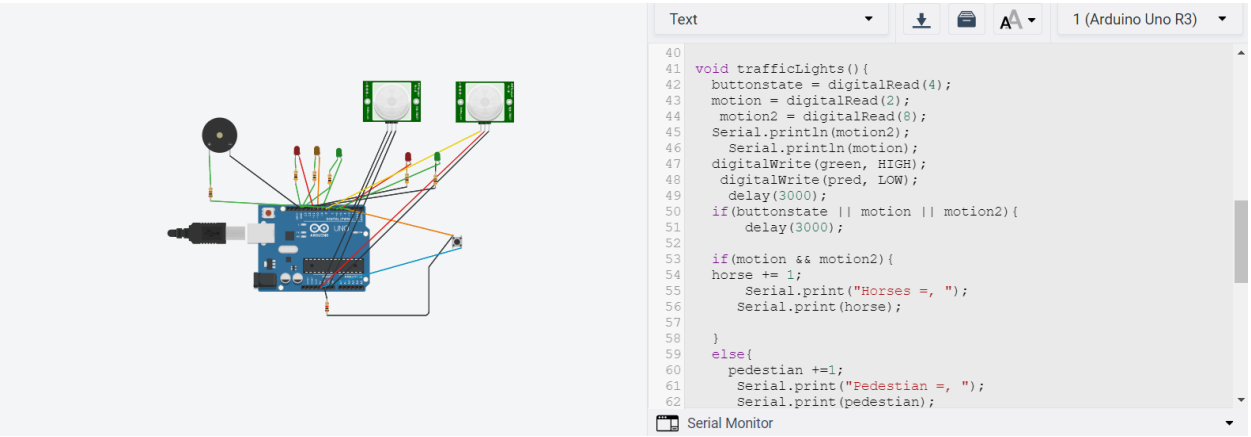
```
  digitalWrite(red, LOW);
  digitalWrite(pgreen, LOW);
  digitalWrite(pred, HIGH);
    delay(5000);
  delay(10000);

 }




}
```

Question 2

We can use two motion detectors.

If both the motion detectors detect ‘1’ we can confirm that it is a horse or if only one motion detector is detected then it is a pedestrian.

Question 3



// C++ code

//

int red = 11;

int yellow = 10;

int green = 9;

int pred = 5;

int pgreen = 6;

int sound = 3;

int pushbutton = 4;

int buttonstate = 0;

int motion = 0;

int motion2 = 0;

int motiondetect = 2;

int distance = 0;

```
int pedestian  = 0;
int horse  = 0;



void setup()
{
  pinMode(red, OUTPUT);
  pinMode(yellow, OUTPUT);
  pinMode(green, OUTPUT);
  pinMode(pred, OUTPUT);
  pinMode(sound, OUTPUT);
  pinMode(pgreen, OUTPUT);
  pinMode(pushbutton, INPUT);
  pinMode(motiondetect, INPUT);
   pinMode(7, INPUT);
     pinMode(8, INPUT);
   Serial.begin(9600);
}

void loop() {
  trafficLights();



}

void trafficLights(){
  buttonstate = digitalRead(4);
  motion = digitalRead(2);
```

```
 motion2 = digitalRead(8);
Serial.println(motion2);
 Serial.println(motion);
digitalWrite(green, HIGH);
 digitalWrite(pred, LOW);
 delay(3000);
if(buttonstate || motion || motion2){
   delay(3000);

if(motion && motion2){
horse += 1;
   Serial.print("Horses =, ");
  Serial.print(horse);


}
else{
 pedestian +=1;
  Serial.print("Pedestian =, ");
  Serial.print(pedestian);
}
delay(100); // Wait for 100 millisecond(s)
 delay(2000);
 digitalWrite(green, LOW);
 digitalWrite(yellow, HIGH);

 delay(3000);
 digitalWrite(yellow, LOW);
 digitalWrite(red, HIGH);
 digitalWrite(pgreen, HIGH);
```

```
 tone(sound,988,5000);
 /*for (long i=500; i<10000; i++)
{
tone(sound, i, 5000);
}*/
 delay(5000);

 digitalWrite(red, LOW);
 digitalWrite(pgreen, LOW);
 digitalWrite(pred, HIGH);
   delay(5000);
 delay(10000);

 }




}
```