RD412:SUMMATIVE

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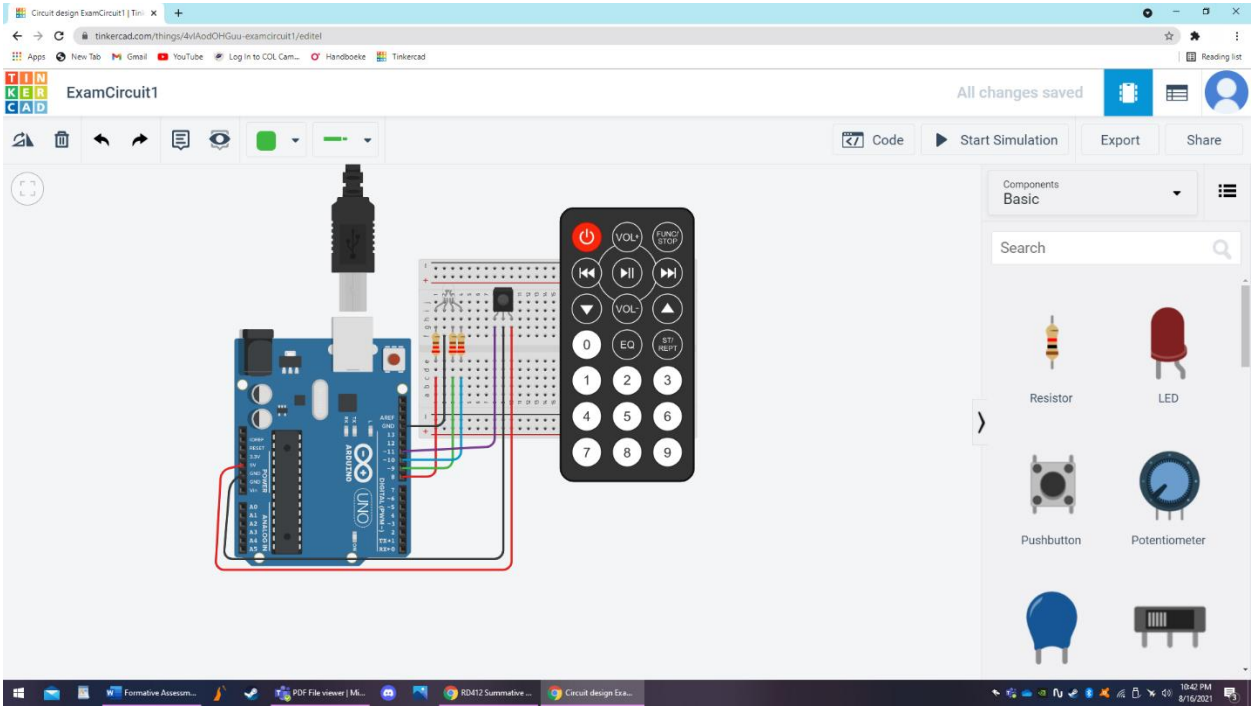
10395

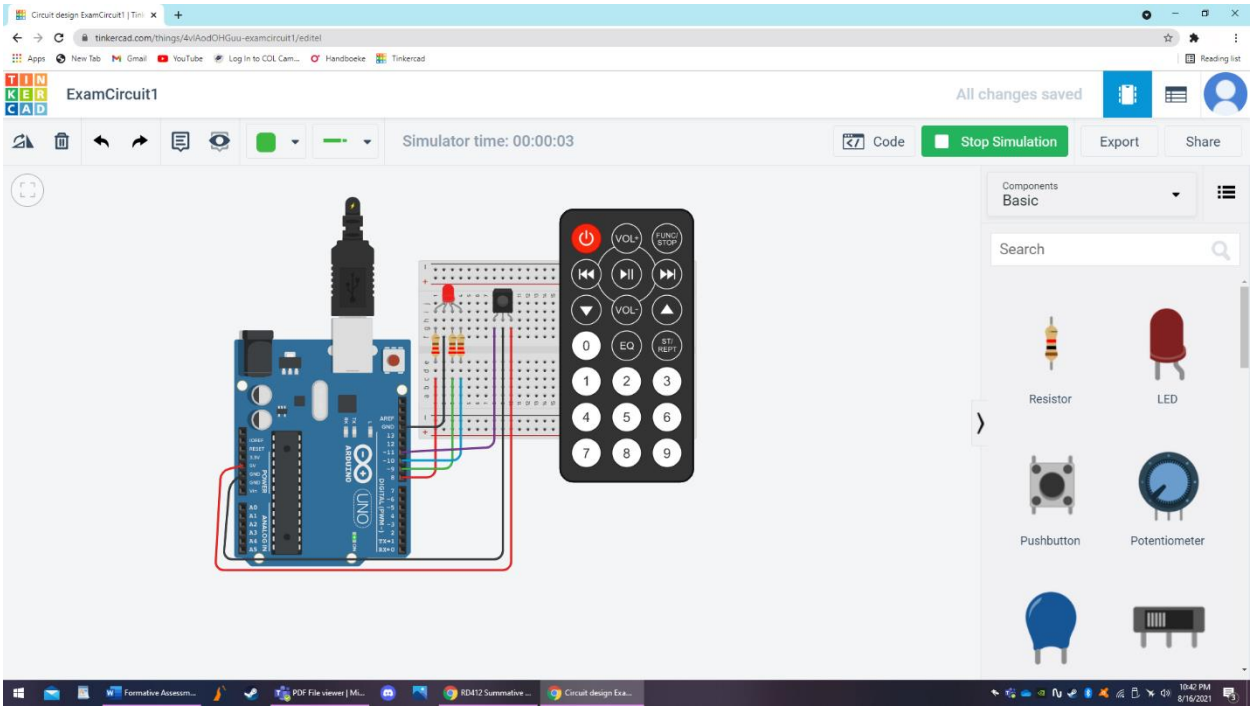
Contents

ExamCircuit1

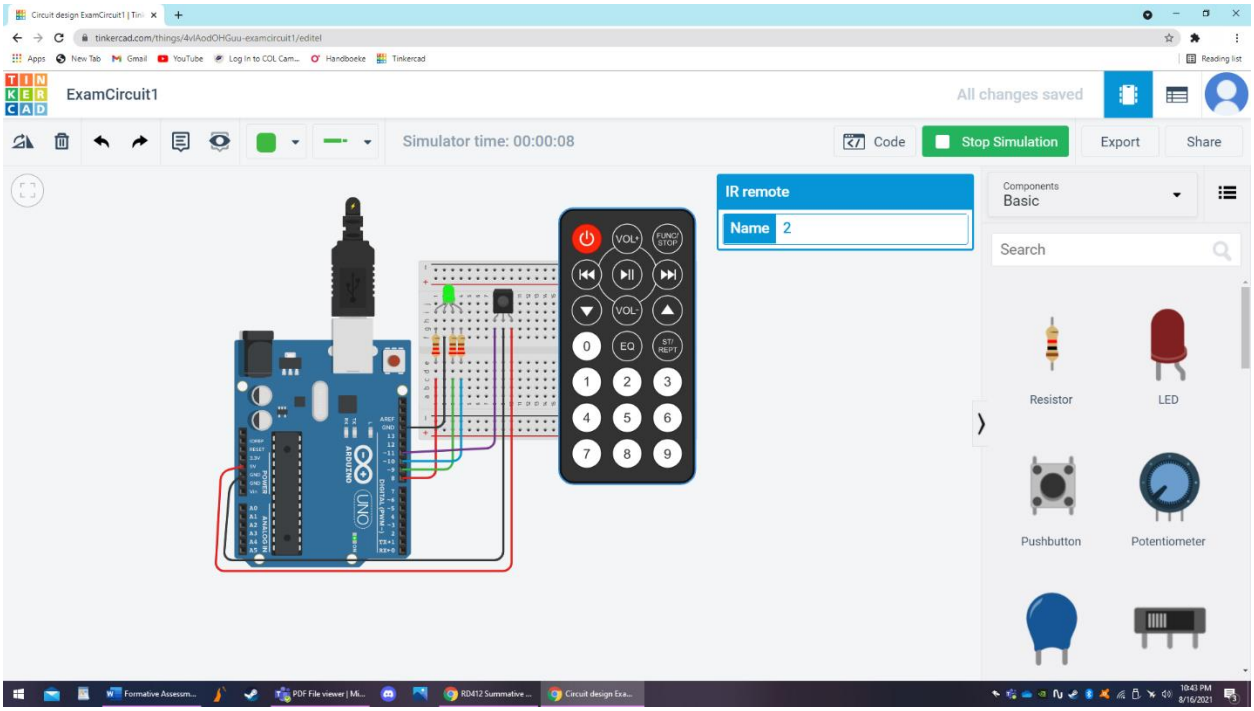
Format:



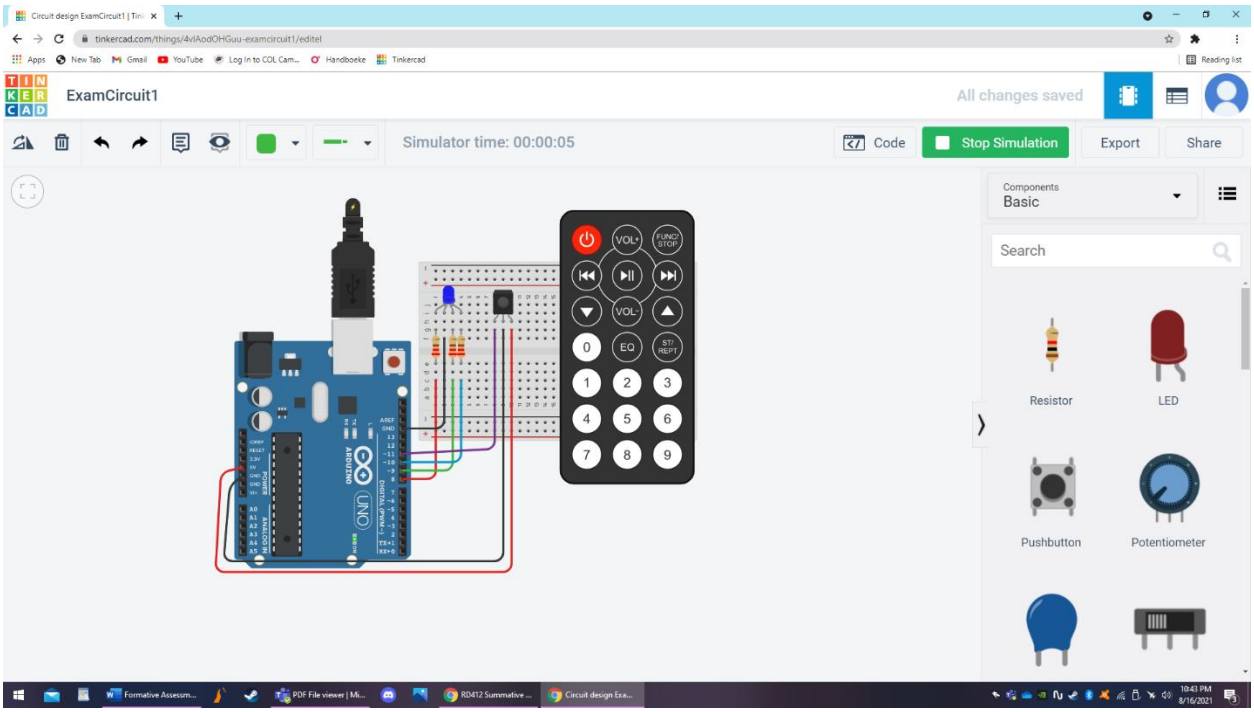
Pressing 1 on IR remote:



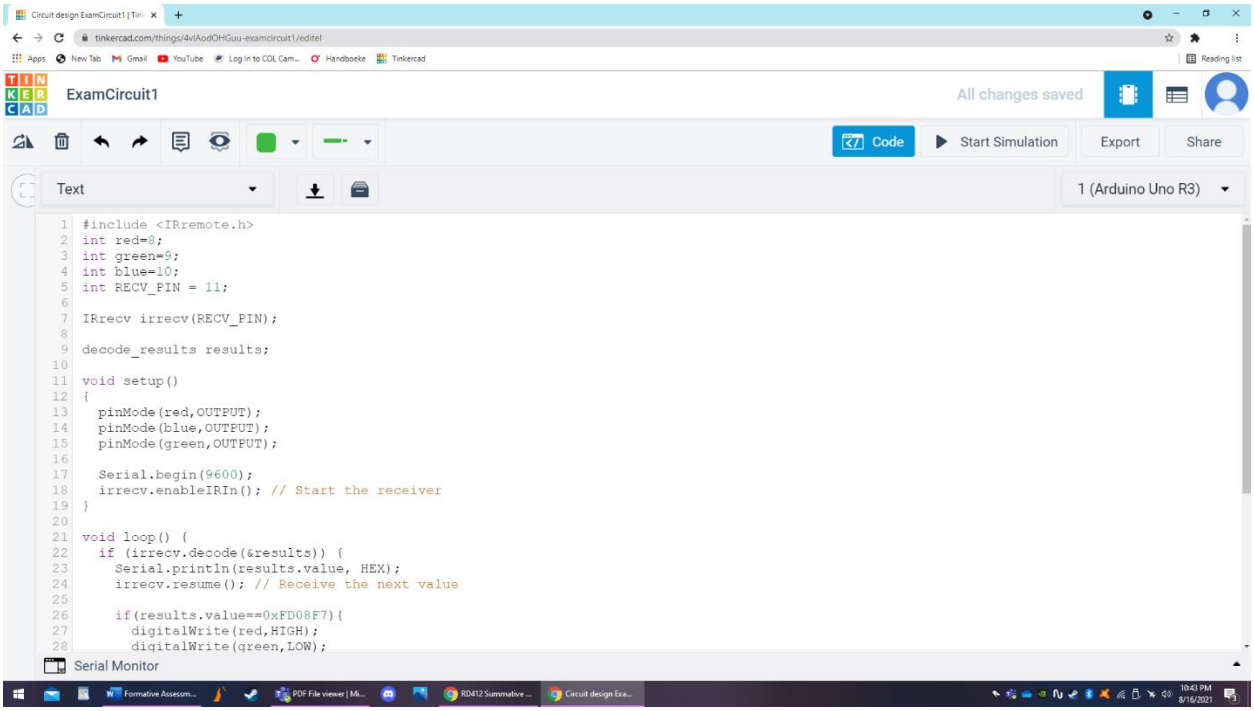
Pressing 2 on IR remote:



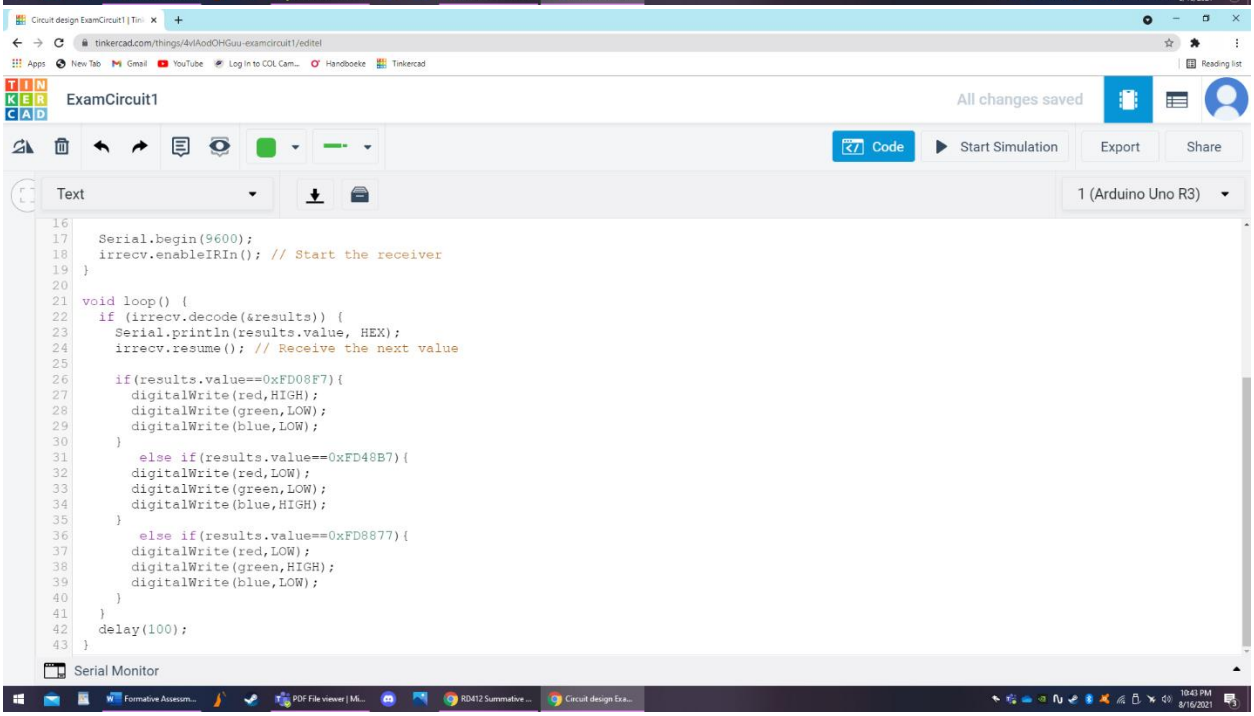
Pressing 3 on IR remote:



Code:



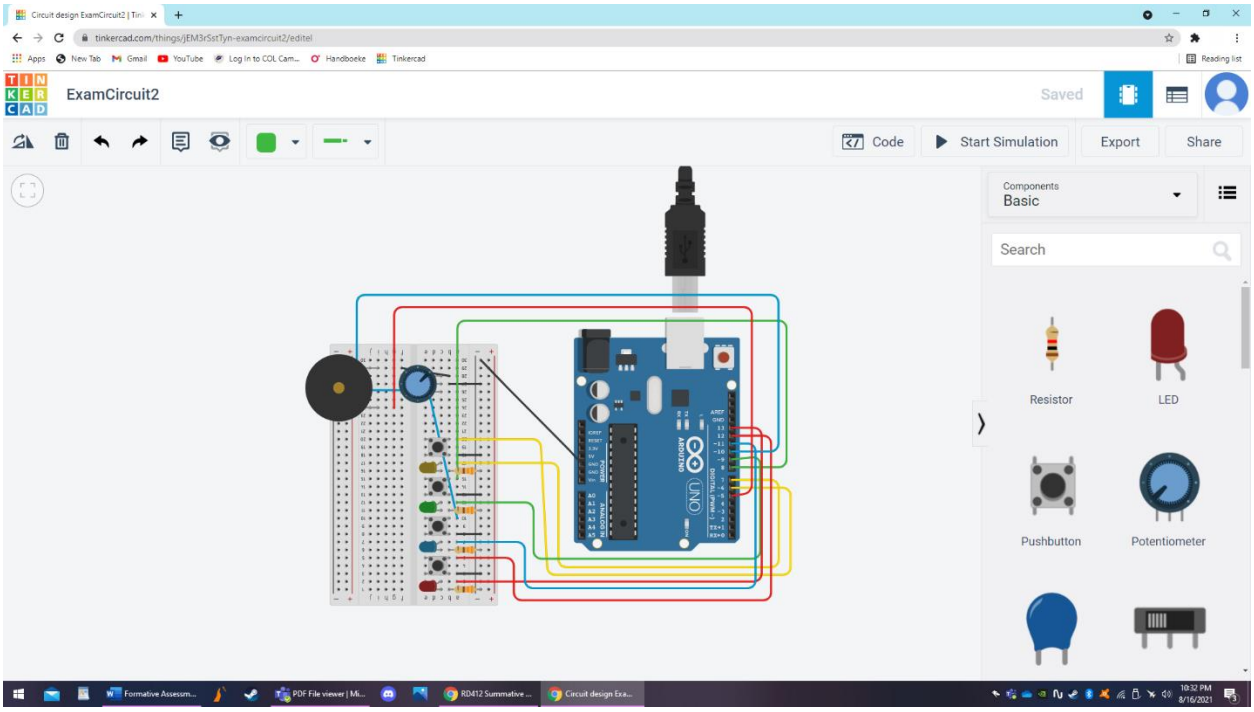

```
#include <IRremote.h>
int red=8;
int green=9;
int blue=10;
int RECV_PIN = 11;

IRrecv irrecv(RECV_PIN);

decode_results results;

void setup()
{
  pinMode(red,OUTPUT);
  pinMode(blue,OUTPUT);
  pinMode(green,OUTPUT);

  Serial.begin(9600);
  irrecv.enableIRIn(); // Start the receiver
}

void loop() {
  if (irrecv.decode(&results)) {
    Serial.println(results.value, HEX);
    irrecv.resume(); // Receive the next value

    if(results.value==0xFD08F7){
      digitalWrite(red,HIGH);
      digitalWrite(green,LOW);
```



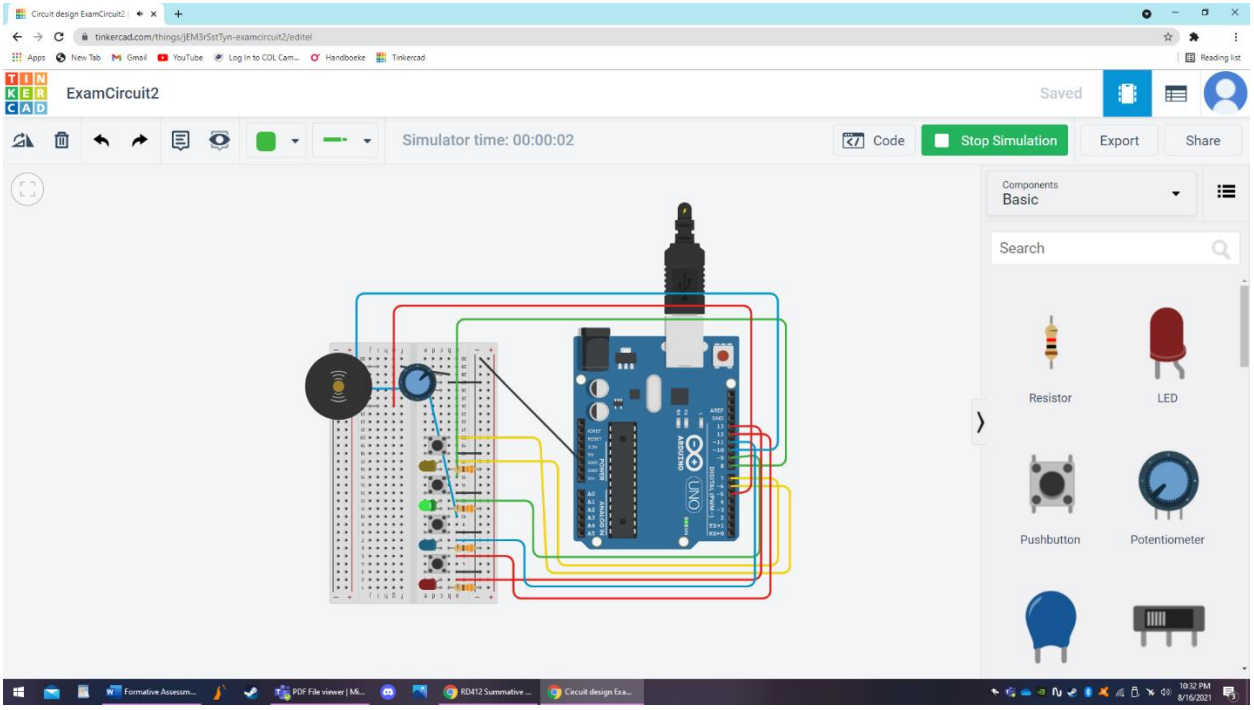

```
  Serial.begin(9600);
  irrecv.enableIRIn(); // Start the receiver
}

void loop() {
  if (irrecv.decode(&results)) {
    Serial.println(results.value, HEX);
    irrecv.resume(); // Receive the next value

    if(results.value==0xFD08F7){
      digitalWrite(red,HIGH);
      digitalWrite(green,LOW);
      digitalWrite(blue,LOW);
    }
     else if(results.value==0xFD48B7){
      digitalWrite(red,LOW);
      digitalWrite(green,LOW);
      digitalWrite(blue,HIGH);
    }
     else if(results.value==0xFD8877){
      digitalWrite(red,LOW);
      digitalWrite(green,HIGH);
      digitalWrite(blue,LOW);
    }
  }
  delay(100);
}
```

ExamCircuit2

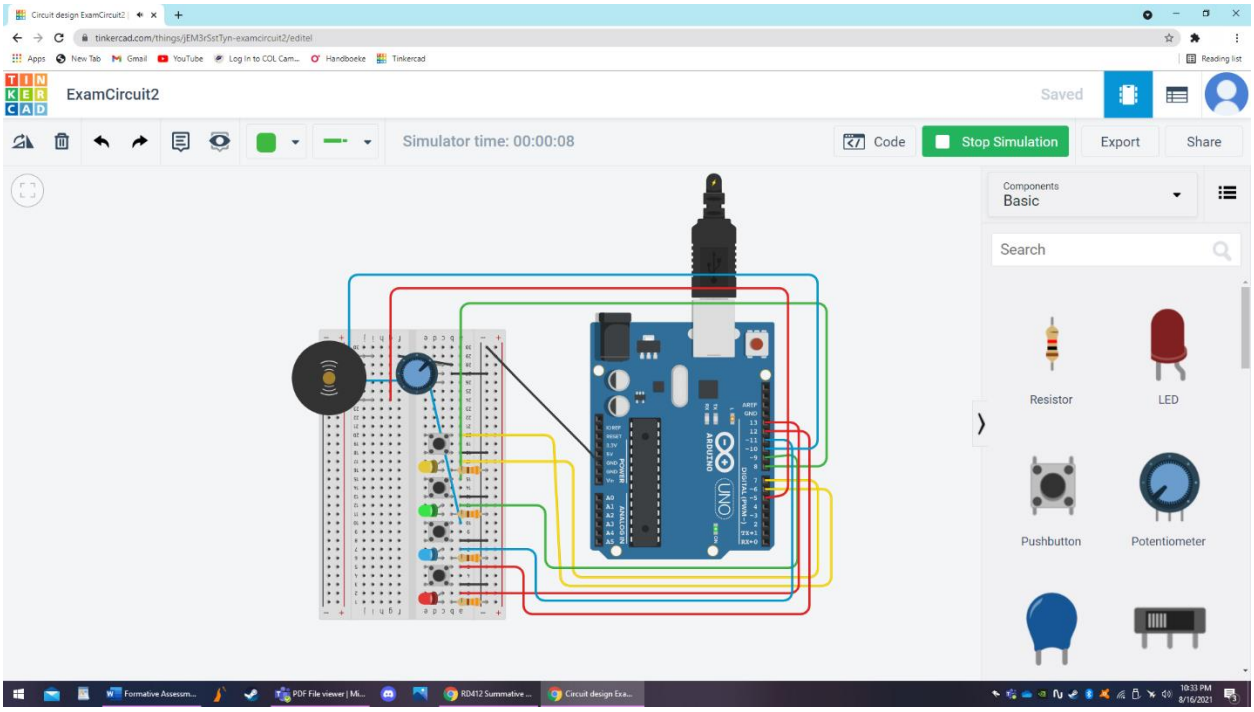
Format:



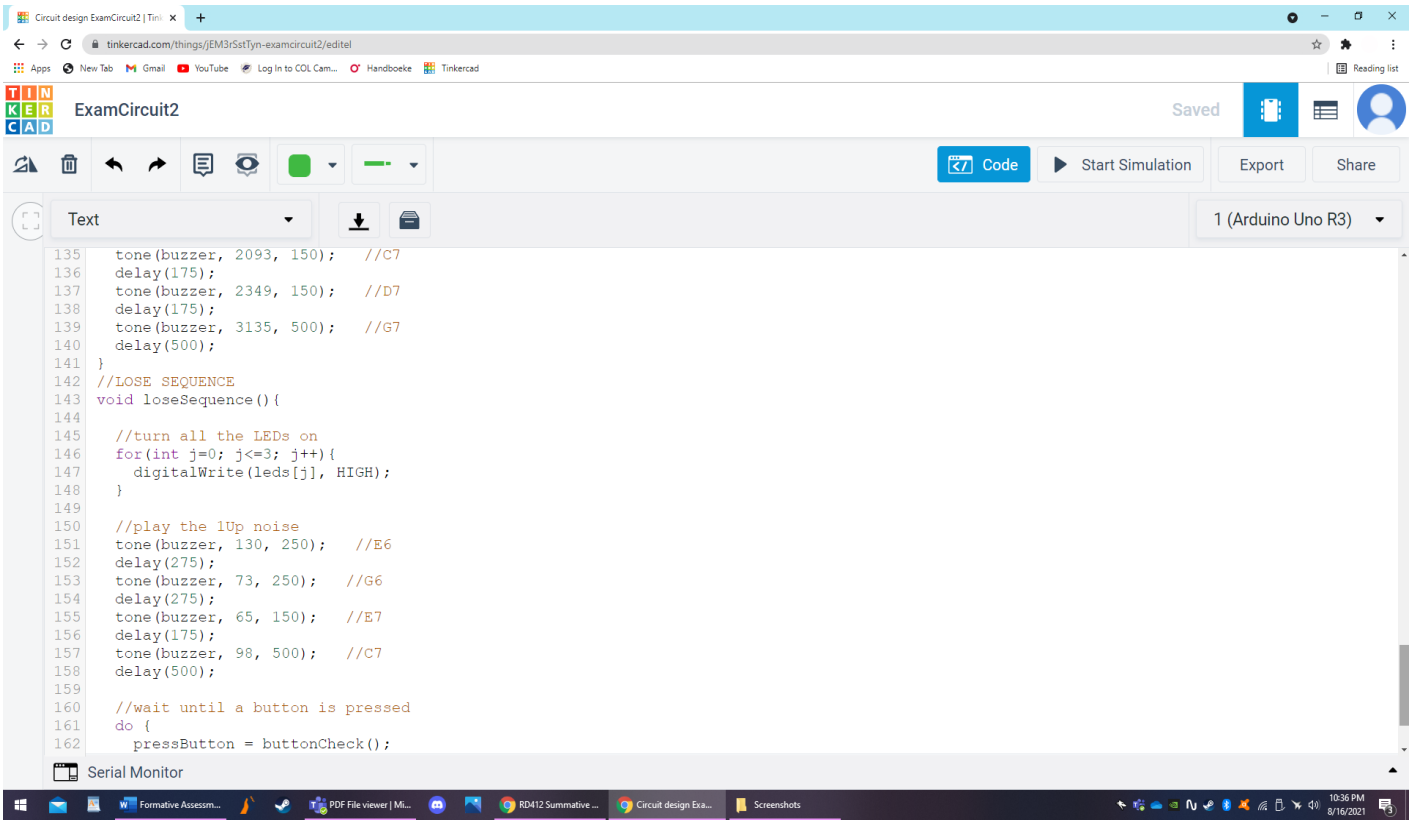
Follow pattern exactly:

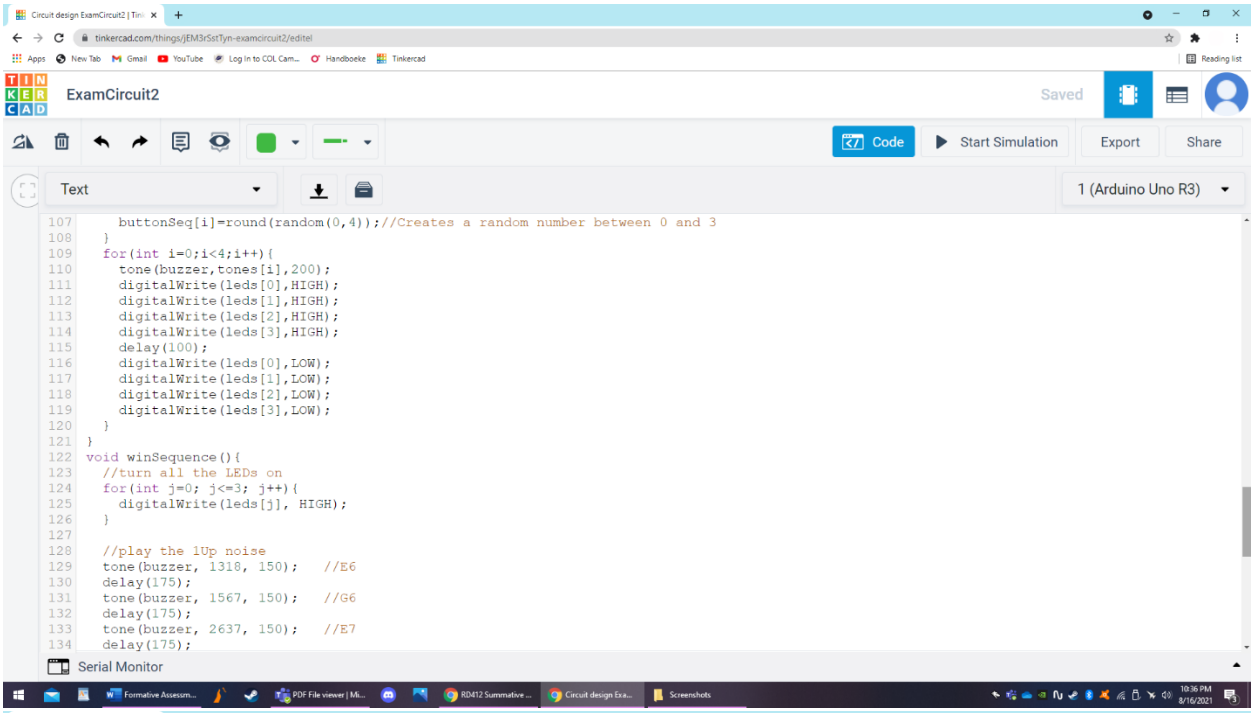


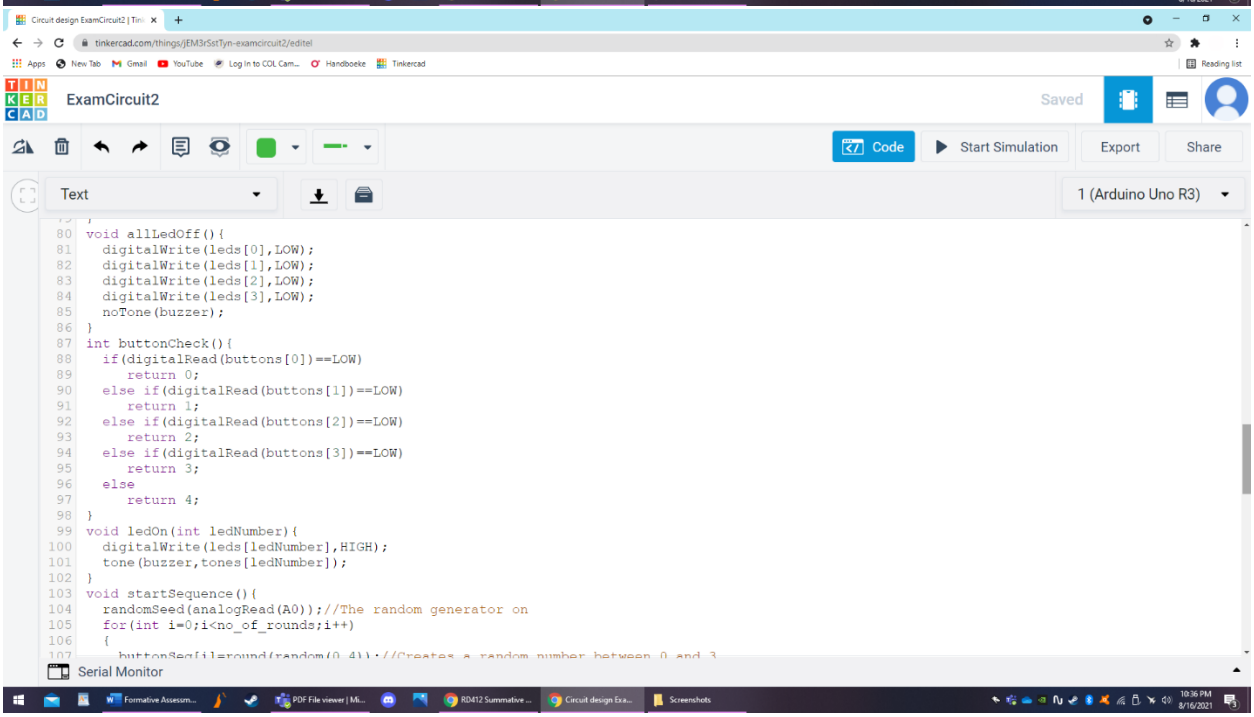
If incorrect all LED’s shine:

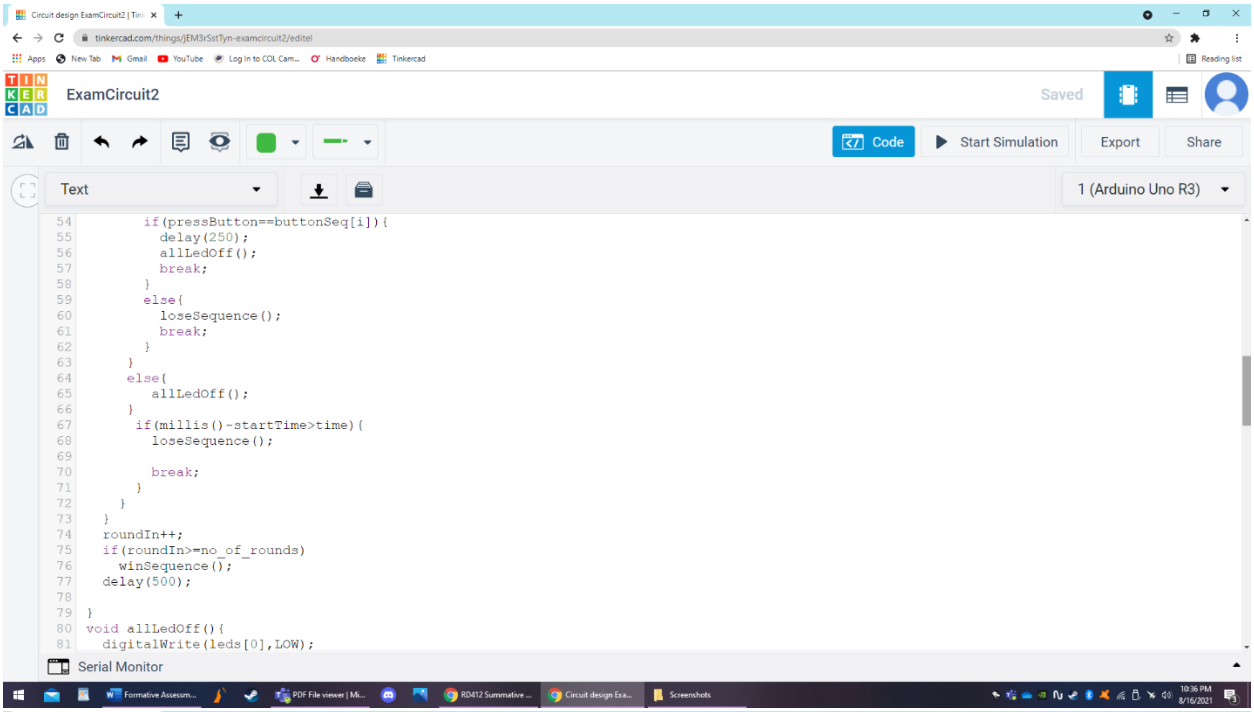


Code:

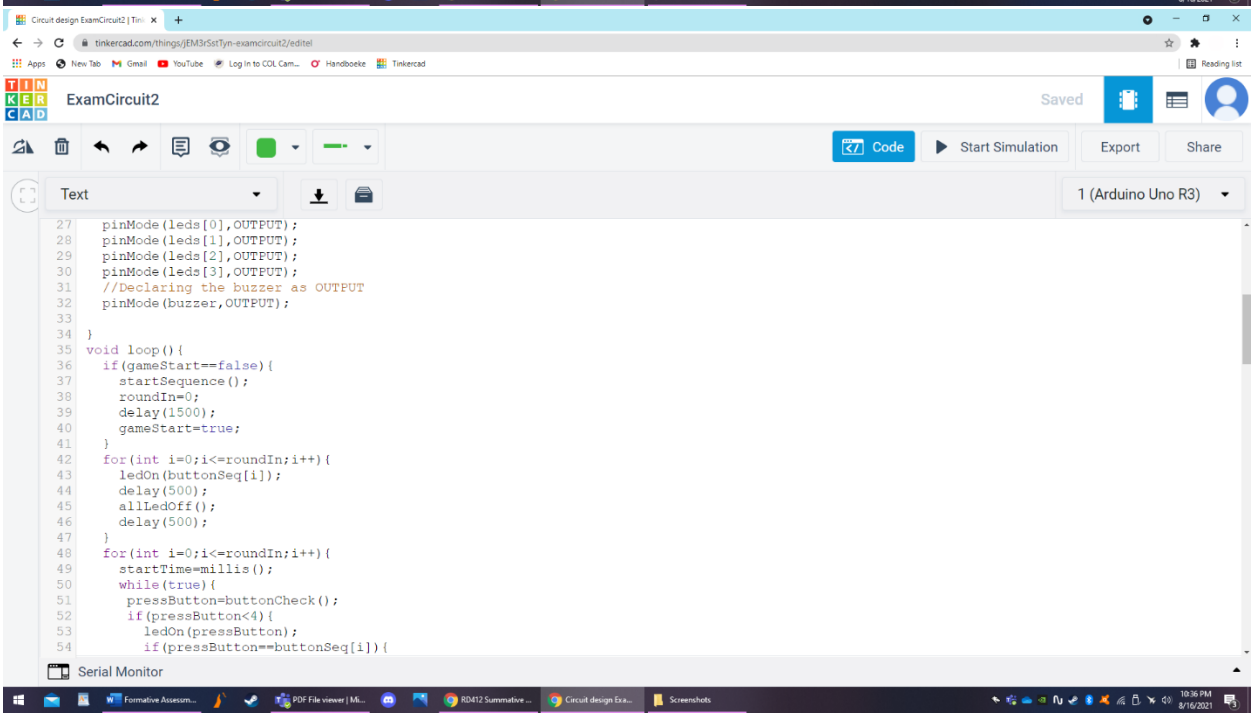



ExamCircuit2
Saved
Code
Start Simulation
Export
Share
Text
1 (Arduino Uno R3)
buttonSeq[i]=round(random(0,4));//Creates a random number between 0 and 3
}
for(int i=0;i<4;i++){
tone(buzzer,tones[i],200);
digitalWrite(leds[0],HIGH);
digitalWrite(leds[1],HIGH);
digitalWrite(leds[2],HIGH);
digitalWrite(leds[3],HIGH);
delay(100);
digitalWrite(leds[0],LOW);
digitalWrite(leds[1],LOW);
digitalWrite(leds[2],LOW);
digitalWrite(leds[3],LOW);
}
}
void winSequence(){
//turn all the LEDs on
for(int j=0; j<=3; j++){
digitalWrite(leds[j], HIGH);
}
//play the 1Up noise
tone(buzzer, 1318, 150); //E6
delay(175);
tone(buzzer, 1567, 150); //G6
delay(175);
tone(buzzer, 2637, 150); //E7
delay(175);
Serial Monitor

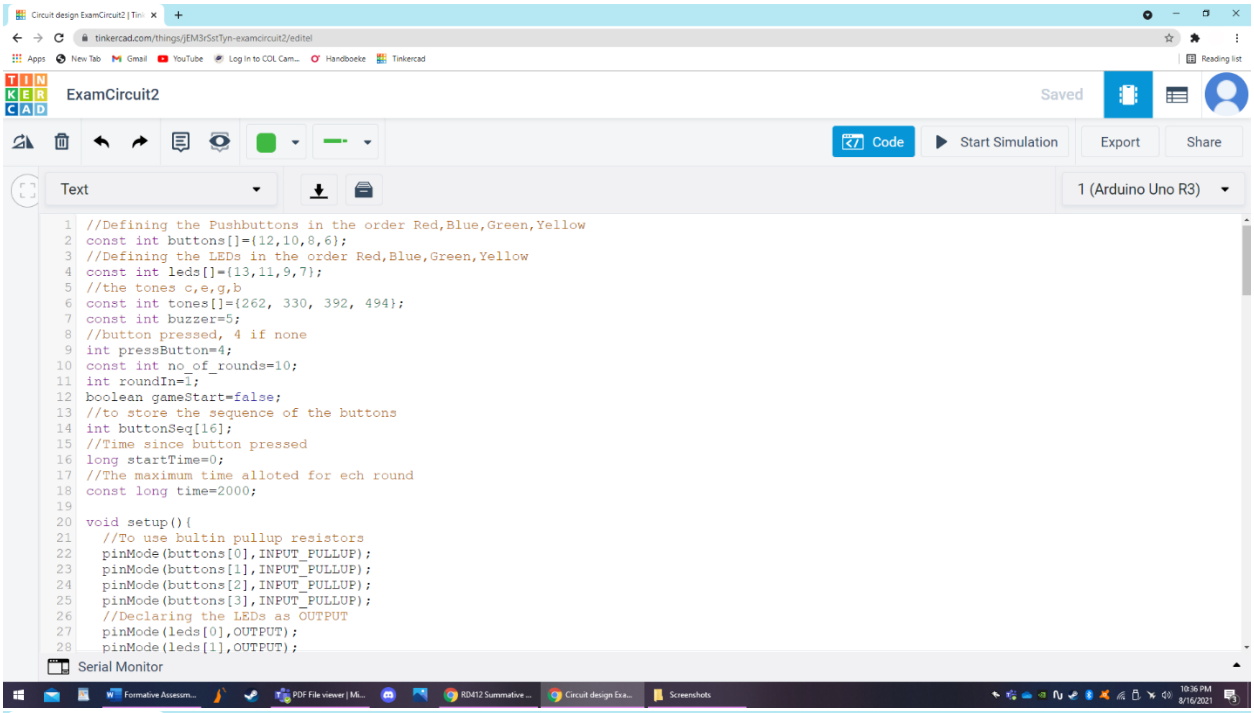

ExamCircuit2
Saved
Code
Start Simulation
Export
Share
Text
1 (Arduino Uno R3)
void allLedOff(){
digitalWrite(leds[0],LOW);
digitalWrite(leds[1],LOW);
digitalWrite(leds[2],LOW);
digitalWrite(leds[3],LOW);
noTone(buzzer);
}
int buttonCheck(){
if(digitalRead(buttons[0])==LOW)
return 0;
else if(digitalRead(buttons[1])==LOW)
return 1;
else if(digitalRead(buttons[2])==LOW)
return 2;
else if(digitalRead(buttons[3])==LOW)
return 3;
else
return 4;
}
void ledOn(int ledNumber){
digitalWrite(leds[ledNumber],HIGH);
tone(buzzer,tones[ledNumber]);
}
void startSequence(){
randomSeed(analogRead(A0));//The random generator on
for(int i=0;i<no_of_rounds;i++)
{
Serial Monitor



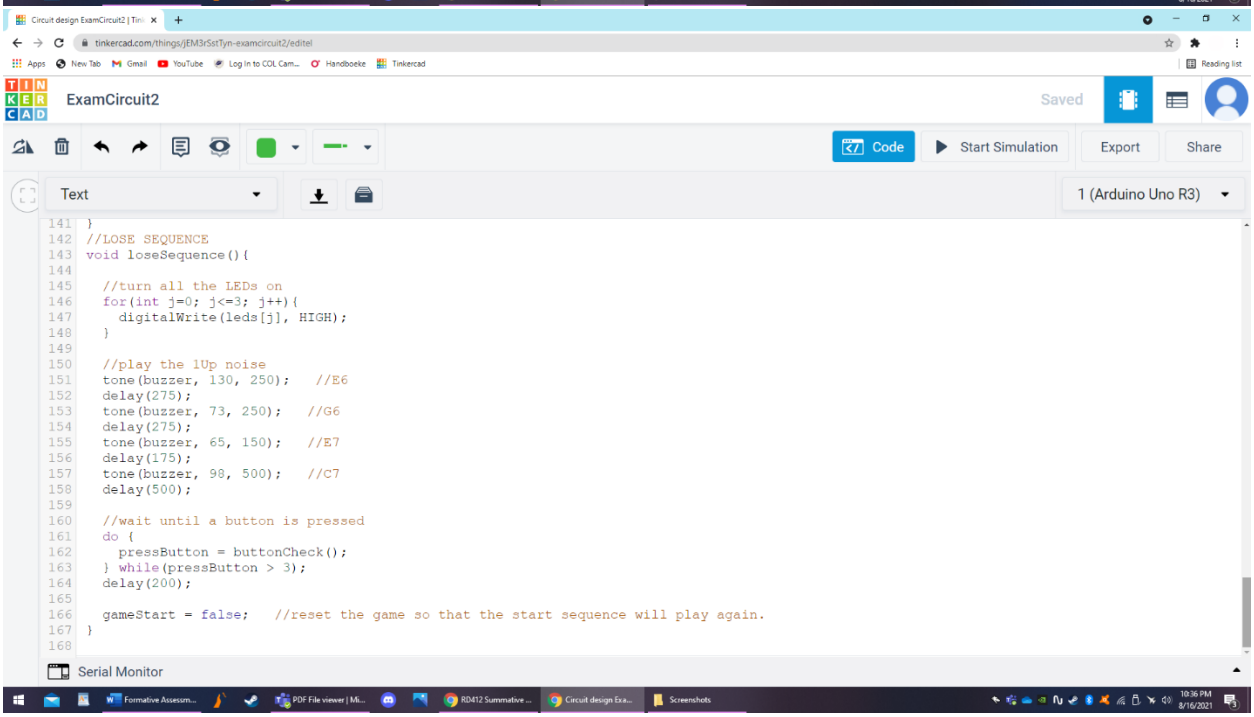

```
      if(pressButton==buttonSeq[i]){
        delay(250);
        allLedOff();
        break;
      }
      else{
        loseSequence();
        break;
      }
    }
    else{
      allLedOff();
    }
     if(millis()-startTime>time){
       loseSequence();

       break;
     }
   }
  }
  roundIn++;
  if(roundIn>=no_of_rounds)
    winSequence();
  delay(500);

}
void allLedOff(){
  digitalWrite(leds[0],LOW);
```




```
  pinMode(leds[0],OUTPUT);
  pinMode(leds[1],OUTPUT);
  pinMode(leds[2],OUTPUT);
  pinMode(leds[3],OUTPUT);
  //Declaring the buzzer as OUTPUT
  pinMode(buzzer,OUTPUT);

}
void loop(){
  if(gameStart==false){
    startSequence();
    roundIn=0;
    delay(1500);
    gameStart=true;
  }
  for(int i=0;i<=roundIn;i++){
    ledOn(buttonSeq[i]);
    delay(500);
    allLedOff();
    delay(500);
  }
  for(int i=0;i<=roundIn;i++){
    startTime=millis();
    while(true){
     pressButton=buttonCheck();
     if(pressButton<4){
       ledOn(pressButton);
       if(pressButton==buttonSeq[i]){
```



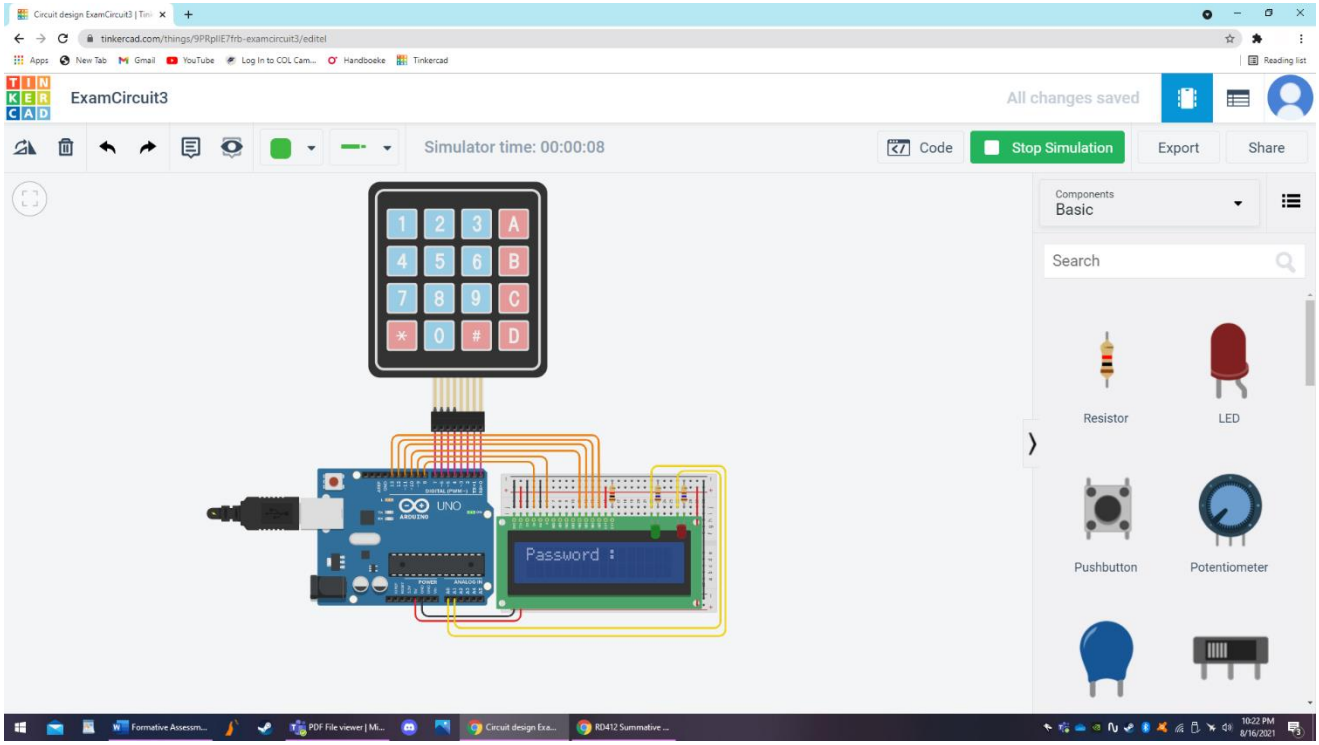

```
//Defining the Pushbuttons in the order Red,Blue,Green,Yellow
const int buttons[]={12,10,8,6};
//Defining the LEDs in the order Red,Blue,Green,Yellow
const int leds[]={13,11,9,7};
//the tones c,e,g,b
const int tones[]={262, 330, 392, 494};
const int buzzer=5;
//button pressed, 4 if none
int pressButton=4;
const int no_of_rounds=10;
int roundIn=1;
boolean gameStart=false;
//to store the sequence of the buttons
int buttonSeq[16];
//Time since button pressed
long startTime=0;
//The maximum time alloted for ech round
const long time=2000;

void setup(){
  //To use bultin pullup resistors
  pinMode(buttons[0],INPUT_PULLUP);
  pinMode(buttons[1],INPUT_PULLUP);
  pinMode(buttons[2],INPUT_PULLUP);
  pinMode(buttons[3],INPUT_PULLUP);
  //Declaring the LEDs as OUTPUT
  pinMode(leds[0],OUTPUT);
  pinMode(leds[1],OUTPUT);
```



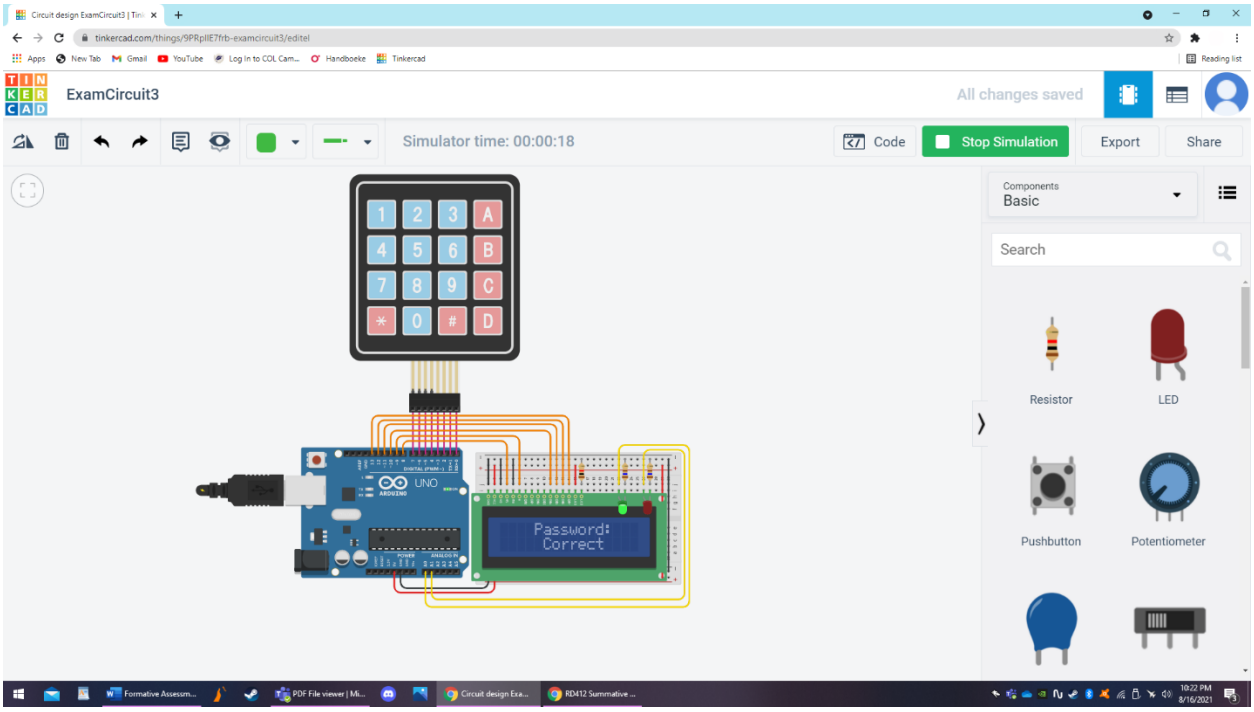

```
}
//LOSE SEQUENCE
void loseSequence(){

  //turn all the LEDs on
  for(int j=0; j<=3; j++){
    digitalWrite(leds[j], HIGH);
  }

  //play the 1Up noise
  tone(buzzer, 130, 250);   //E6
  delay(275);
  tone(buzzer, 73, 250);   //G6
  delay(275);
  tone(buzzer, 65, 150);   //E7
  delay(175);
  tone(buzzer, 98, 500);   //C7
  delay(500);

  //wait until a button is pressed
  do {
    pressButton = buttonCheck();
  } while(pressButton > 3);
  delay(200);

  gameStart = false;   //reset the game so that the start sequence will play again.
}
```

ExamCircuit3

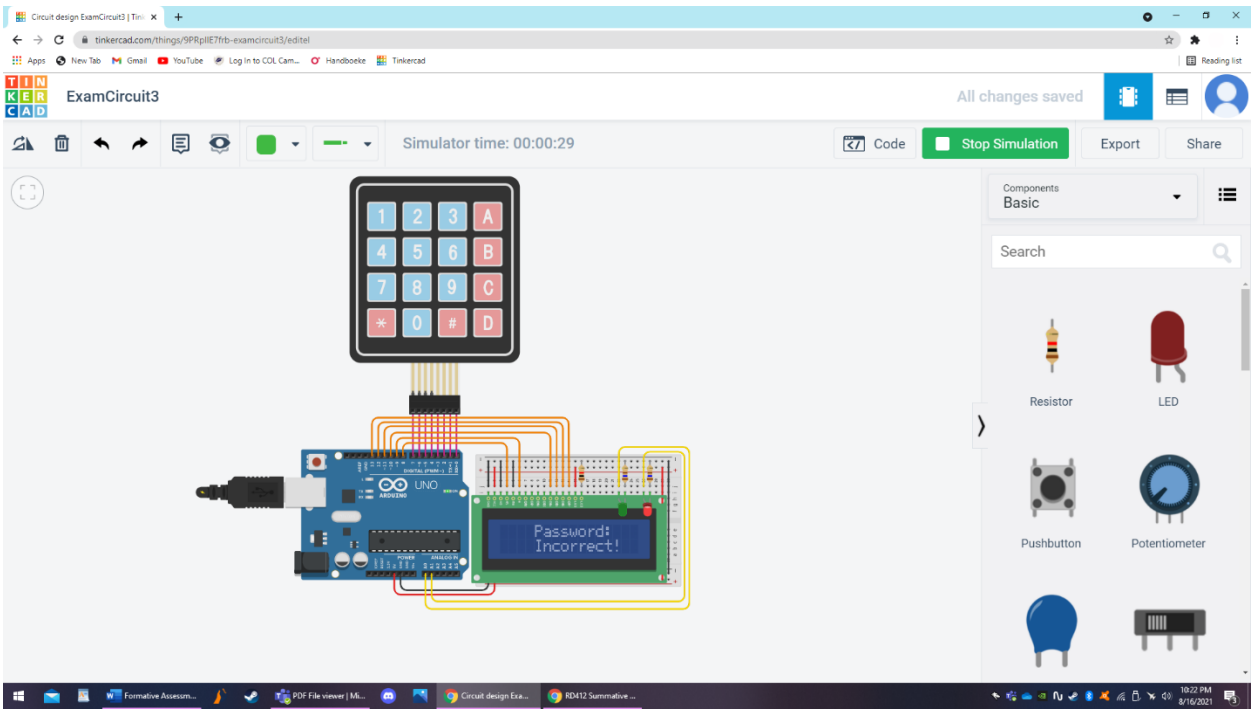
Format:



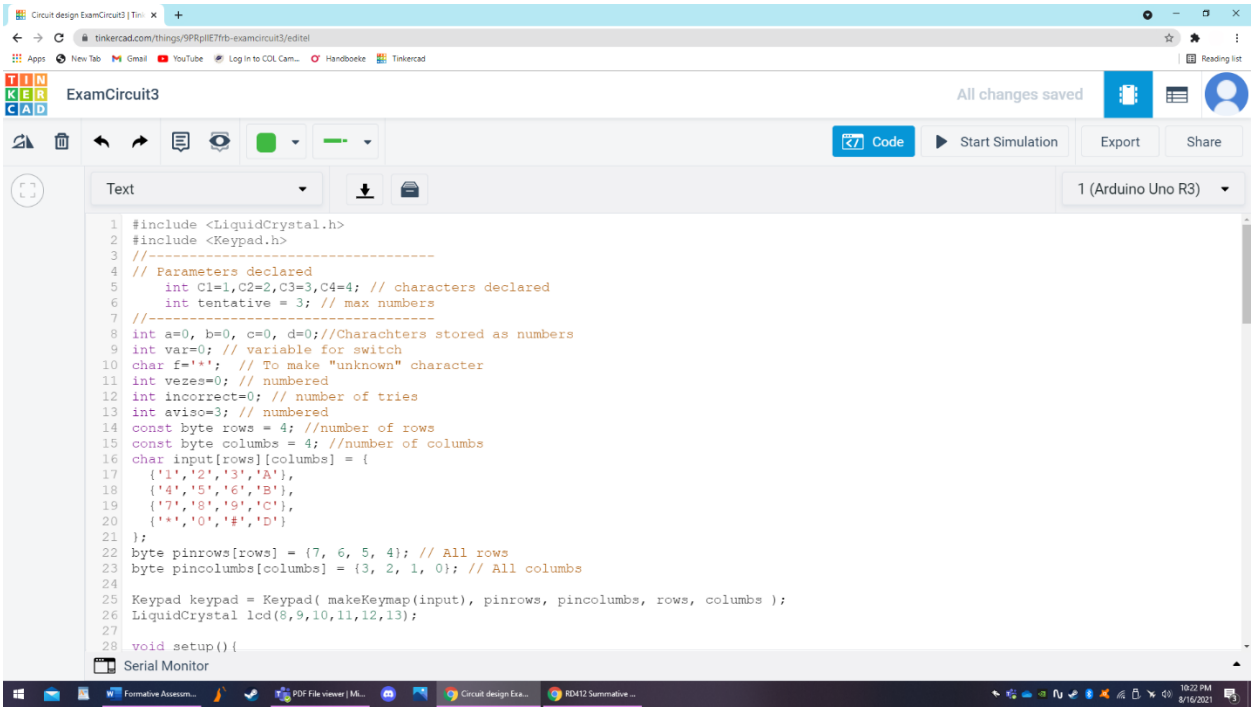
Correct Password:

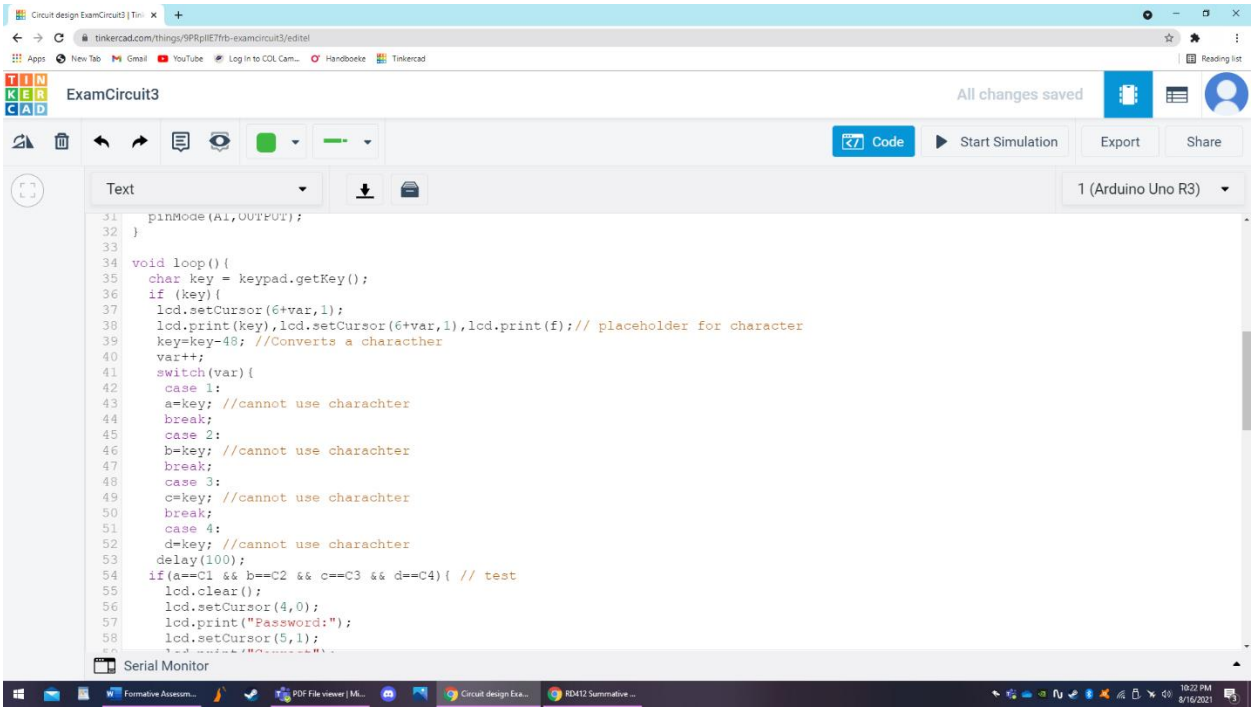


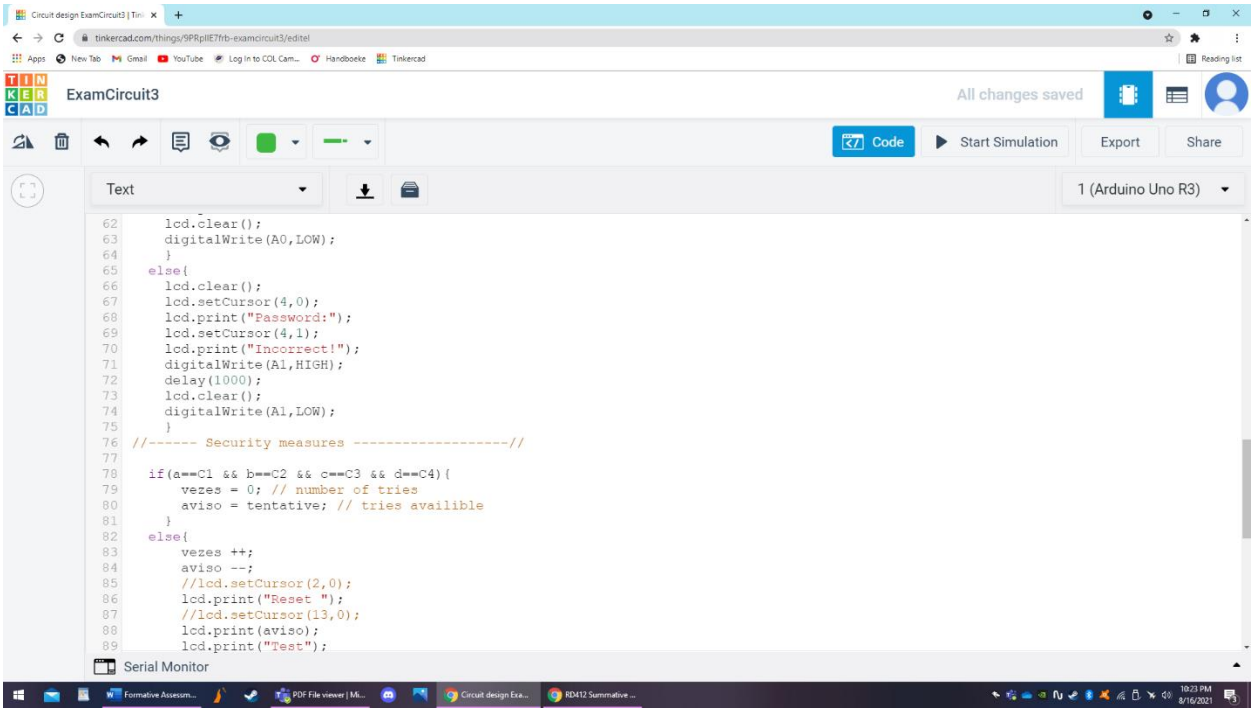
Incorrect Password:

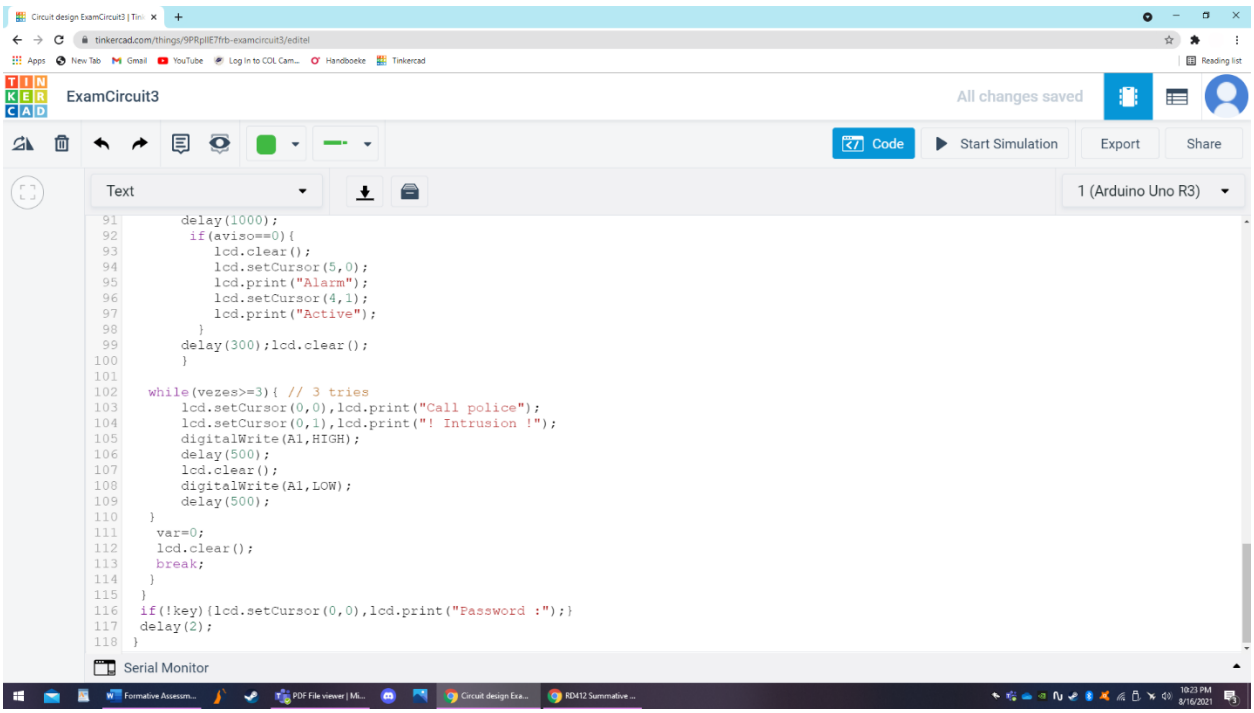


Code:


ExamCircuit3
All changes saved
Code
Start Simulation
Export
Share
Text
1 (Arduino Uno R3)
#include <LiquidCrystal.h>
#include <Keypad.h>
//-----------------------------------
// Parameters declared
int C1=1,C2=2,C3=3,C4=4; // characters declared
int tentative = 3; // max numbers
//-----------------------------------
int a=0, b=0, c=0, d=0;//Charachters stored as numbers
int var=0; // variable for switch
char f='*'; // To make "unknown" character
int vezes=0; // numbered
int incorrect=0; // number of tries
int aviso=3; // numbered
const byte rows = 4; //number of rows
const byte columbs = 4; //number of columbs
char input[rows][columbs] = {
{'1','2','3','A'},
{'4','5','6','B'},
{'7','8','9','C'},
{'*','0','#','D'}
};
byte pinrows[rows] = {7, 6, 5, 4}; // All rows
byte pincolumbs[columbs] = {3, 2, 1, 0}; // All columbs
Keypad keypad = Keypad(makeKeymap(input), pinrows, pincolumbs, rows, columbs);
LiquidCrystal lcd(8,9,10,11,12,13);
void setup(){
Serial Monitor


ExamCircuit3
All changes saved
Code
Start Simulation
Export
Share
Text
1 (Arduino Uno R3)
pinMode(A1,OUTPUT);
}
void loop(){
char key = keypad.getKey();
if (key){
lcd.setCursor(6+var,1);
lcd.print(key),lcd.setCursor(6+var,1),lcd.print(f);// placeholder for character
key=key-48; //Converts a charachter
var++;
switch(var){
case 1:
a=key; //cannot use charachter
break;
case 2:
b=key; //cannot use charachter
break;
case 3:
c=key; //cannot use charachter
break;
case 4:
d=key; //cannot use charachter
delay(100);
if(a==C1 && b==C2 && c==C3 && d==C4){ // test
lcd.clear();
lcd.setCursor(4,0);
lcd.print("Password:");
lcd.setCursor(5,1);
Serial Monitor


ExamCircuit3
All changes saved
Code
Start Simulation
Export
Share
Text
1 (Arduino Uno R3)
lcd.clear();
digitalWrite(A0,LOW);
}
else{
lcd.clear();
lcd.setCursor(4,0);
lcd.print("Password:");
lcd.setCursor(4,1);
lcd.print("Incorrect!");
digitalWrite(A1,HIGH);
delay(1000);
lcd.clear();
digitalWrite(A1,LOW);
}
//------ Security measures ------------------//
if(a==C1 && b==C2 && c==C3 && d==C4){
vezes = 0; // number of tries
aviso = tentative; // tries availible
}
else{
vezes ++;
aviso --;
//lcd.setCursor(2,0);
lcd.print("Reset ");
//lcd.setCursor(13,0);
lcd.print(aviso);
lcd.print("Test");
Serial Monitor


ExamCircuit3
All changes saved
Code
Start Simulation
Export
Share
Text
1 (Arduino Uno R3)
delay(1000);
if(aviso==0){
lcd.clear();
lcd.setCursor(5,0);
lcd.print("Alarm");
lcd.setCursor(4,1);
lcd.print("Active");
}
delay(300);lcd.clear();
}
while(vezes>=3){ // 3 tries
lcd.setCursor(0,0),lcd.print("Call police");
lcd.setCursor(0,1),lcd.print("! Intrusion !");
digitalWrite(A1,HIGH);
delay(500);
lcd.clear();
digitalWrite(A1,LOW);
delay(500);
}
var=0;
lcd.clear();
break;
}
}
if(!key){lcd.setCursor(0,0),lcd.print("Password :");}
delay(2);
}
Serial Monitor