

Name: Yaseen Islam

Code: 60

My code :

```
#include <Keypad.h> // call for the keypad  
library  
#include <LiquidCrystal.h> //call for the LCD  
library  
#include <Servo.h> //call for the servo motor  
library
```

```
LiquidCrystal lcd(A0, A1, A2, A3, A4, A5); // lcd  
pins initialization
```

```
int led_redlight=255; // maximum bright
```

```
int counter=0,i=0,check=1;  
char pass_nums[1000]; //to store the digits the  
user will write
```

```
char password[8]={'7','4','6','2','1','6','5','8'}; // the  
correct password to compare with  
const byte ROWS = 4; // keypad four rows  
const byte COLS = 4; //keypad four columns  
char keys[ROWS][COLS] = {  
    {'1','2','3','A'},  
    {'4','5','6','B'},  
    {'7','8','9','C'},  
    {'*','0','#','D'}  
}; // values of each button in the keypad  
byte rowPins[ROWS] = {9, 8, 7, 6}; //connect to  
the row pinouts of the keypad  
byte colPins[COLS] = {5, 4, 3, 2}; //connect to  
the column pinouts of the keypad  
Servo Door; // creating object for the servo  
motor  
Keypad keypad = Keypad( makeKeymap(keys),  
rowPins, colPins, ROWS, COLS );///// creating  
object for the keypad  
  
void setup(){
```

```
lcd.begin(16, 2); // initialize the lcd  
// Print a message to the LCD.
```

```
lcd.setCursor(0,0); // set the cursor of the lcd  
at row 0 column 0
```

```
lcd.print("enter password");
```

```
lcd.setCursor(0,1);  
pinMode(12,OUTPUT); // buzzer initialization  
Door.attach(13); //servo motor initialization  
pinMode(10,OUTPUT); // Green led  
intialization  
pinMode(11,OUTPUT); // Red led intialization  
  
}
```

```
void loop(){
```

```
delay(10); // delay to avoid bouncing  
char key = keypad.getKey(); // to get the  
password digits from the user
```

if (key){ // to store the digits of the written password and display the digits the user write in the form of #

if(key!='9')// to avoid printing # when preessing number 9 because number 9 is an enter

{lcd.print('#');}

pass_nums[counter++]=key;

}

if(key=='9'&&counter==9)// check wheather the entered password equal to the right one

{

for(i;i<8&&check!=0;++i)

{if (pass_nums[i]==password[i])

{check=1;}

else

{check=0;}

}

}

if (check==1&&key=='9'&&counter==9)

//if he entered the right 8 digits then presed 9

as the enter button the green light will light up and the door will open

```
{digitalWrite(10,HIGH);  
  Door.write(180); // to open the door  
  delay(2000);    // waiting for 2 seconds  
  Door.write(90); // for the door to lock again  
  digitalWrite(10,LOW);  
  delay(500);  
  counter=0;  
  i=0;  
  pass_nums[100]={0}; // to allow more trials  
  lcd.clear();// to clear the lcd from the old try  
  lcd.setCursor(0,0);  
  lcd.print("enter password");  
  lcd.setCursor(0,1);  
}
```

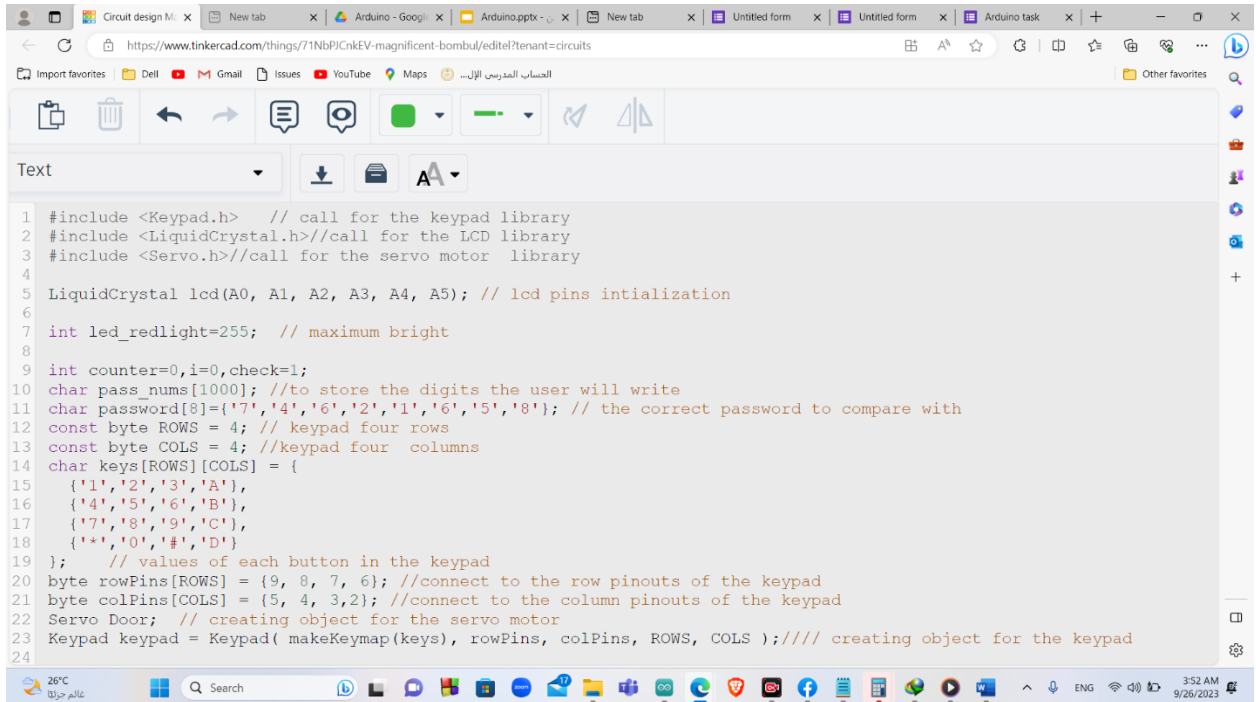
**else if (key=='9'&&(counter!=9||check==0))
// if he entered less than 8 digits then the
password is wrong or if he entered the wrong
8 digits the password also is wrong**

```
{//digitalWrite(11,HIGH);  
  tone(12,200,1000);  
  digitalWrite(12,HIGH);
```

```
    for (led_redlight;led_redlight>=0;--  
led_redlight)  
{digitalWrite(11,led_redlight);  
  delay(25); // to decrease its brightness  
gradually  
}
```

```
digitalWrite(12,LOW); // to stop the buzzer
```

```
delay(500);  
counter=0;  
i=0;  
pass_nums[100]={0};  
  lcd.clear();  
  lcd.setCursor(0,0);  
  lcd.print("enter password");  
  lcd.setCursor(0,1);  
  led_redlight=255;// to reset if he entered  
wrong password again  
}  
}
```



The image shows a web browser window with the Tinkercad editor. The address bar shows the URL: <https://www.tinkercad.com/things/71NbPJCNkEV-magnificent-bombul/editel?tenant=circuits>. The browser tabs include "Circuit design M...", "New tab", "Arduino - Google...", "Arduino.pptx - ...", "New tab", "Untitled form", "Untitled form", and "Arduino task". The Tinkercad interface shows a toolbar with various icons for editing and simulation. The main workspace displays a text editor with the following code:

```
1 #include <Keypad.h> // call for the keypad library
2 #include <LiquidCrystal.h> // call for the LCD library
3 #include <Servo.h> // call for the servo motor library
4
5 LiquidCrystal lcd(A0, A1, A2, A3, A4, A5); // lcd pins initialization
6
7 int led_redlight=255; // maximum bright
8
9 int counter=0,i=0,check=1;
10 char pass_nums[1000]; //to store the digits the user will write
11 char password[8]={'7','4','6','2','1','6','5','8'}; // the correct password to compare with
12 const byte ROWS = 4; // keypad four rows
13 const byte COLS = 4; // keypad four columns
14 char keys[ROWS][COLS] = {
15   {'1','2','3','A'},
16   {'4','5','6','B'},
17   {'7','8','9','C'},
18   {'*','0','#','D'}
19 }; // values of each button in the keypad
20 byte rowPins[ROWS] = {9, 8, 7, 6}; //connect to the row pinouts of the keypad
21 byte colPins[COLS] = {5, 4, 3, 2}; //connect to the column pinouts of the keypad
22 Servo Door; // creating object for the servo motor
23 Keypad keypad = Keypad( makeKeymap(keys), rowPins, colPins, ROWS, COLS ); // creating object for the keypad
24
```

The Windows taskbar at the bottom shows the system clock as 3:52 AM on 9/26/2023, and the temperature as 26°C.

Circuit design M... x New tab x Arduino - Google x Arduino.pptx x New tab x Untitled form x Untitled form x Arduino task x + -

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```
{ '1', '2', '3', 'A' },
{ '4', '5', '6', 'B' },
{ '7', '8', '9', 'C' },
{ '*', '0', '#', 'D' }
}; // values of each button in the keypad
byte rowPins[ROWS] = {9, 8, 7, 6}; //connect to the row pinouts of the keypad
byte colPins[COLS] = {5, 4, 3, 2}; //connect to the column pinouts of the keypad
Servo Door; // creating object for the servo motor
Keypad keypad = Keypad( makeKeymap(keys), rowPins, colPins, ROWS, COLS );//// creating object for the keypad

void setup() {

  lcd.begin(16, 2); // initialize the lcd // Print a message to the LCD.

  lcd.setCursor(0,0); // set the cursor of the lcd at row 0 column 0

  lcd.print("enter password");

  lcd.setCursor(0,1);
  pinMode(12,OUTPUT); // buzzer initialization
  Door.attach(13); //servo motor initialization
  pinMode(10,OUTPUT); // Green led initialization
  pinMode(11,OUTPUT); // Red led initialization
}
```

26°C عالم جويلا

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Code Start Simulation Send To

1 (Arduino Uno R3)

```
41 void loop() {
42   delay(10); // delay to avoid bouncing
43   char key = keypad.getKey(); // to get the password digits from the user
44
45   if (key) { // to store the digits of the written password and display the digits the user write in the form of #
46     if (key != '9') // to avoid printing # when pressing number 9 because number 9 is an enter
47       lcd.print('#');
48     pass_nums[counter++] = key;
49   }
50   if (key == '9' && counter == 9) // check wheather the entered password equal to the right one
51   {
52     for (i; i < 8 && check == 0; ++i)
53       if (pass_nums[i] == password[i])
54         (check = 1);
55     else
56       (check = 0);
57   }
58   if (check == 1 && key == '9' && counter == 9) //if he entered the right 8 digits then presed 9 as the enter button the green light will light up and the door will open
59   {
60     digitalWrite(10, HIGH);
61     Door.write(180); // to open the door
62     delay(2000); // waiting for 2 seconds
63     Door.write(90); // for the door to lock again
64     digitalWrite(10, LOW);
65     delay(500);
66     counter = 0;
67     pass_nums[100] = 0; // to allow more trials
68     lcd.clear(); // to clear the lcd from the old try
69     lcd.setCursor(0,0);
70     lcd.print("enter password");
71     lcd.setCursor(0,1);
72   }
73   else if (key == '9' && (counter != 9) | check == 0) // if he entered less than 8 digits then the password is wrong or if he entered the wrong 8 digits the password also is wrong
```

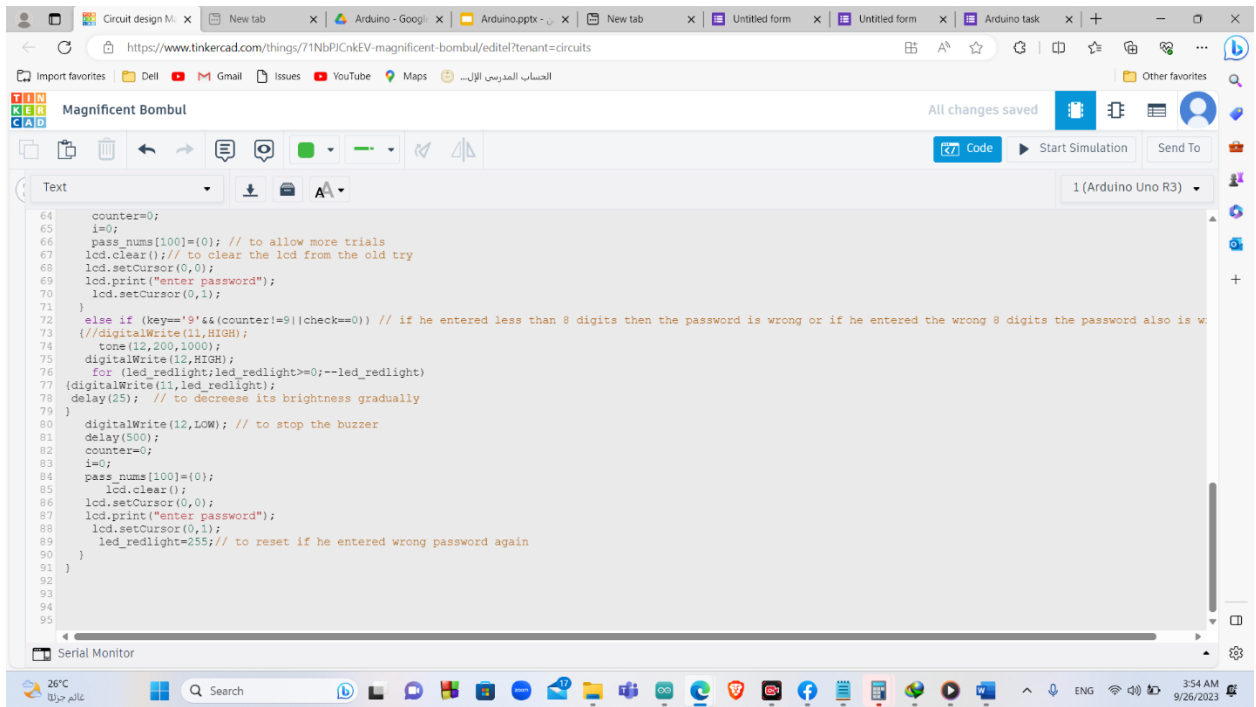
Serial Monitor

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Search

3:53 AM 9/25/2023

3:54 AM 9/26/2023



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Code Start Simulation Send To

Text 1 (Arduino Uno R3)

```
1 #include <Keypad.h> // call for the keypad library
2 #include <LiquidCrystal.h> // call for the LCD library
3 #include <Servo.h> // call for the servo motor library
4
5 LiquidCrystal lcd(A0, A1, A2, A3, A4, A5); // lcd pins initialization
6
7 int led_redlight=255; // maximum bright
8
9 int counter=0,i=0,check=1;
10 char pass_nums[1000]; //to store the digits the user will write
11 char password[8]={'7','4','6','2','1','6','5','8'}; // the correct password
12 const byte ROWS = 4; // keypad four rows
13 const byte COLS = 4; // keypad four columns
14 char keys[ROWS][COLS] = {
15   {'1','2','3','A'},
16   {'4','5','6','B'},
17   {'7','8','9','C'},
18   {'*','0','#','D'}
19 }; // values of each button in the keypad
20 byte rowPins[ROWS] = {9, 8, 7, 6}; //connect to the row pinouts of keypad
21 byte colPins[COLS] = {5, 4, 3, 2}; //connect to the column pinouts of keypad
22 Servo Door; // creating object for the servo motor
23 Keypad keypad = Keypad( makeKeymap(keys), rowPins, colPins, ROWS, COLS);
24
25 void setup() {
26   lcd.begin(16, 2); // initialize the lcd
27   lcd.setCursor(0,0); // set the cursor of the lcd at row 0 column 0
28   lcd.print("enter password");
29 }
30
31
32
33
```

Serial Monitor

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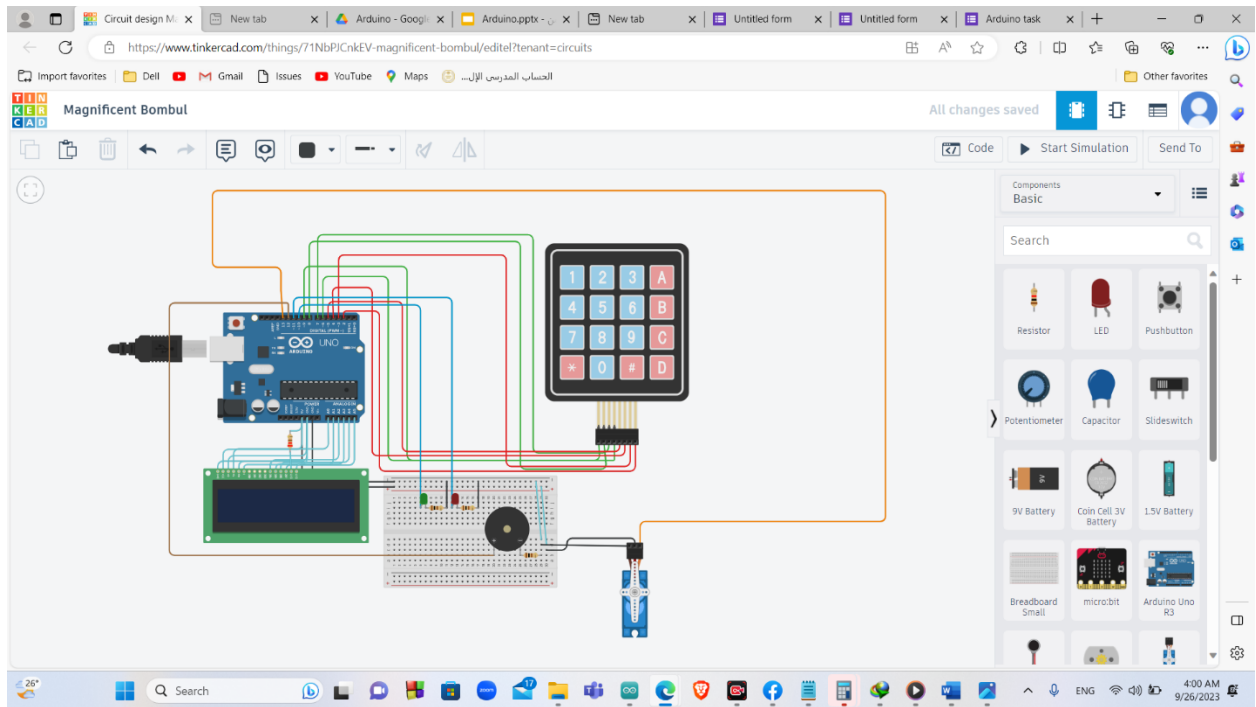
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Components Basic

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Resistor LED Pushbutton Potentiometer Capacitor Slideswitch 9V Battery Coin Cell 3V Battery 1.5V Battery Breadboard Small micro:bit Arduino Uno R3



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