EX NO: Date:	**DEVELOP AN APPLICATION USING SEVEN SEGMENT DISPLAY WITHPUSH BUTTON**

AIM:

To Write a program to display the seven-segment display when pushbutton is pressed.

COMPONENTS REQUIRED:

COMPONENTS	NOS
Arduino Uno	1
7-Segment-Display	1
Push Button	1

PROCEDURE:

Step 1: Open Arduino IDE, File-> New Project

Step 2:Select the Arduino uno broad from the device list, 7-segment display, push button, ground.

Step 3:Write the code to display the seven-segment display using push button.

Step 4:Connect the push buttonto the 2nd digital pin on the Arduino and another side to the ground.

Step 5:Connect the 7-Segment Display to Arduino Pins:

- Segment a → Arduino Pin 3
- Segment b → Arduino Pin 4
- Segment c → Arduino Pin 5
- Segment d → Arduino Pin 6
- Segment e → Arduino Pin 7
- Segment f → Arduino Pin 8
- Segment g → Arduino Pin 9

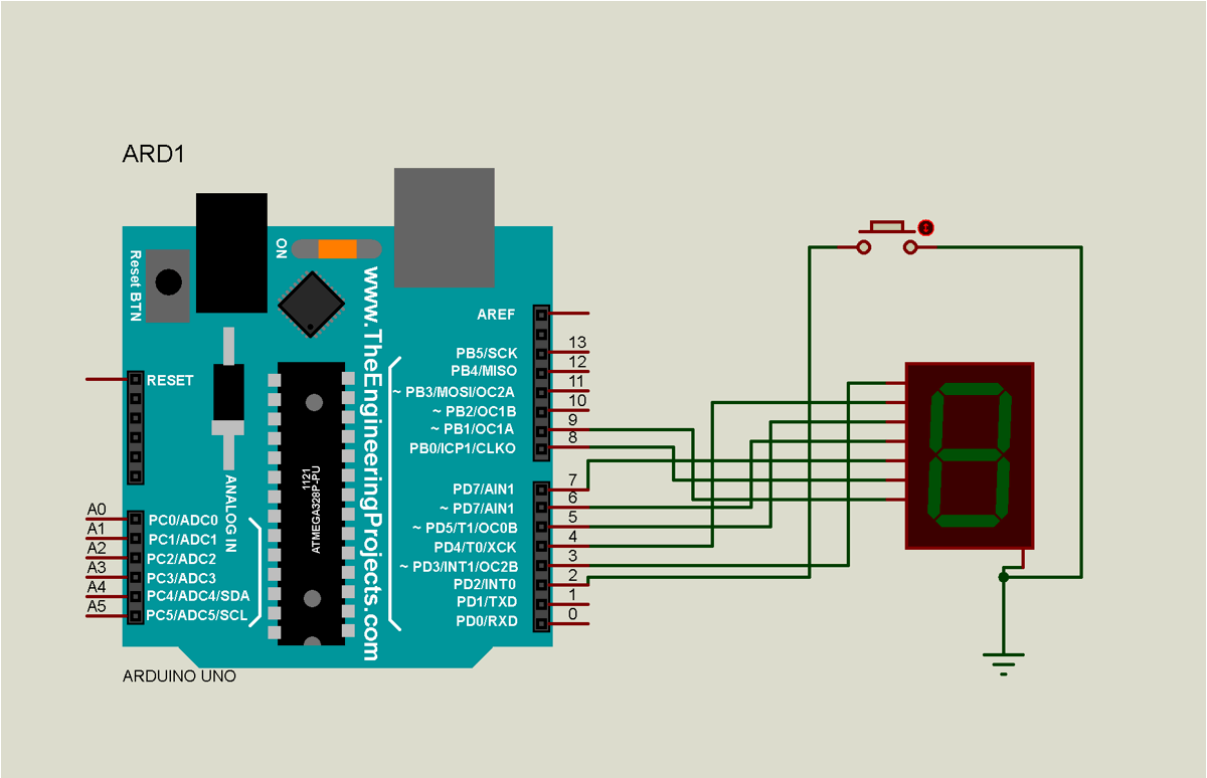
Step 6:Compile the program and copy the .hex file location in the Arduino terminal after compilation.

Step 7:Double-click on it. In the properties window, paste the .hex file path in the “Program File” field. Click OK to close the window.

Step 8: Run the simulation by clicking on the play button. You should see the output according to the sketch.

Step 9: Press the Push Button to Test the Display.

Schematic diagram:

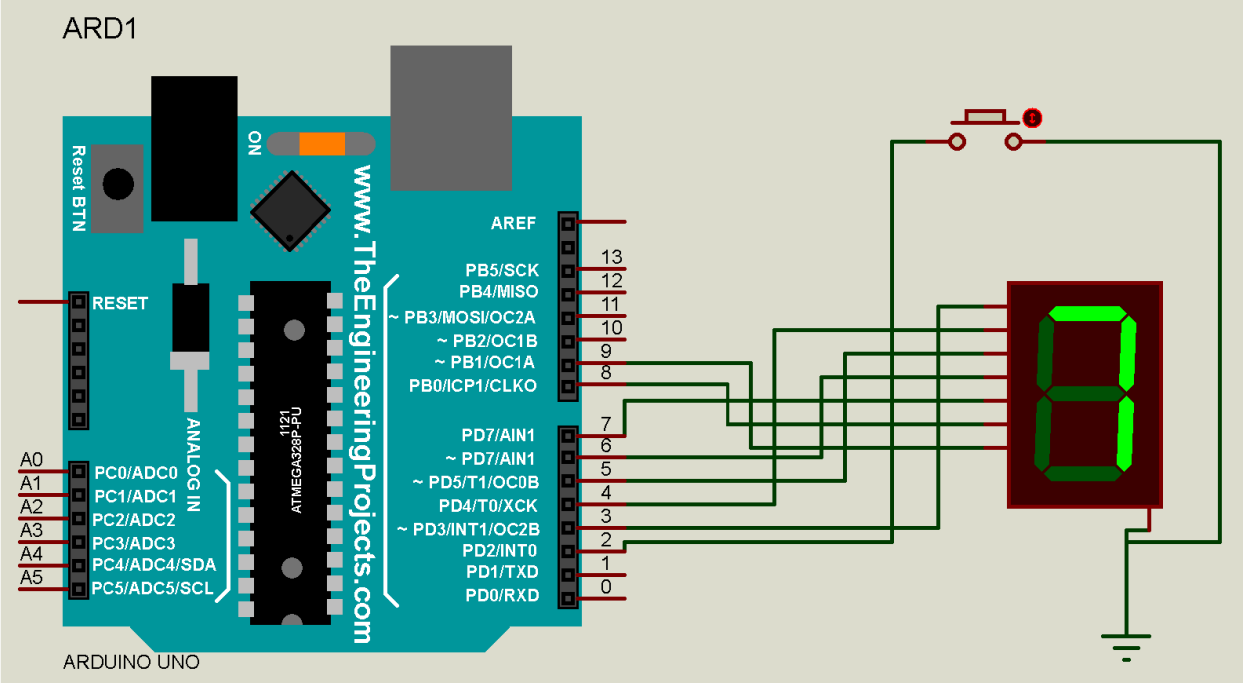


Program:

```
int buttonPin = 2;              // Push button connected to digital pin 2
int segmentPins[7] = {3, 4, 5, 6, 7, 8, 9};  // Pins connected to segments a, b, c, d, e, f, g
int numbers[10][7] = {          // Array defining segments for each number 0-9
  {1, 1, 1, 1, 1, 1, 0},        // 0
  {0, 1, 1, 0, 0, 0, 0},        // 1
  {1, 1, 0, 1, 1, 0, 1},        // 2
  {1, 1, 1, 1, 0, 0, 1},        // 3
  {0, 1, 1, 0, 0, 1, 1},        // 4
  {1, 0, 1, 1, 0, 1, 1},        // 5
  {1, 0, 1, 1, 1, 1, 1},        // 6
  {1, 1, 1, 0, 0, 0, 0},        // 7
```

```
  {1, 1, 1, 1, 1, 1, 1},        // 8
  {1, 1, 1, 1, 0, 1, 1}         // 9
};

int currentNumber = 0;

void setup() {
  pinMode(buttonPin, INPUT);
  for (int i = 0; i< 7; i++) {
    pinMode(segmentPins[i], OUTPUT);
  }
}

void loop() {
  if (digitalRead(buttonPin) == HIGH) {
    delay(200); // debounce delay
    displayNumber(currentNumber);
    currentNumber = (currentNumber + 1) % 10;  // cycle through numbers 0-9
  }
}

void displayNumber(int num) {
  for (int i = 0; i< 7; i++) {
    digitalWrite(segmentPins[i], numbers[num][i]);
  }
}
```

Output:



Result:

Thus the above program to simulate 7-segment display using Arduino UNO board and Proteus 8 was executed and the output verified successfully.