**5th Lab –** **7 Segment Display Control Using AT89C51**

**Implementation:**

**Keil:**

Open Keil µVision → Go to Project → New µVision Project → Set a project name and save it → In the Select Device for Target window, search and select AT89C51 → Click OK → When prompted, click No → In Project window, right-click Source Group 1 under Target 1 → Select Add New Item to Group 'Source Group 1' → Create and save a new C file → Write the code below and save:

**Source Code:**

#include <reg51.h>

void Delay(int timer)

{

    int i, j;

    for (i = 0; i < timer; i++)

    {

        for (j = 0; j < 1275; j++)

        {}

    }

}

void main()

{

    char number[] = {0x3F, 0x86, 0x5B, 0x4F, 0x66, 0x6D, 0x7D, 0x07, 0x7F, 0x6F};

    int i, j;

    P2 = 0x00;

    P3 = 0x00;

    while (1)

    {

        for (i = 0; i <= 9; i++)

        {

            P2 = number[i];

            for (j = 0; j <= 9; j++)

            {

                P3 = number[j];

                Delay(50);

            }

        }

    }

}

→ Right-click Source Group 1 → Add Existing Files to Group → Select the saved .c file → Click Add and Close → Right-click Target 1 → Options for Target → Go to Output tab → Check "Create Hex File" → Go to Target tab → Set Xtal (MHz) to 11.0592 → Click OK → Press F7 to build the project → If there are no errors or warnings, your code is okay.

**Proteus:**

Open Proteus → Click New Project → Set project name → Keep clicking Next until Finish → Click Finish → From the left sidebar, select Component Mode → Click P → Search and add AT89C51 → Add 7SEG-COM-CAT-GRN ×2→ From the sidebar, select Terminals Mode → Add Ground

**Component Placement:**

Click **P** → Add **AT89C51** & 7SEG-COM-CAT-GRN ×2 → Place on workspace.

**Wiring:**

Connect **P2.0–P2.6** to first 7-segment → Connect **P3.0–P3.6** to second 7-segment → Connect common cathodes to GND.

**Programming:**

Double-click U1 → Set clock frequency = 11.0592MHz → Browse and select U1's HEX file → Click OK

**Simulation:**

Click the Play button → Observe: First display counts 0–9, second display counts 9–0 → Save the project

**A screenshot of a computer

AI-generated content may be incorrect.Diagram:**