Lab 7

Handwritten Codes for initial run:

```
DATA SEGMENT                          JMP START
PORTA EQU 00H                         ORG 1000H
PORTB EQU 02H                         SI DB 11000000B
PORTC EQU 04H                         DB 11111001B
PORT_CON EQU 06H                      DB 10100100B
DATA ENDS                             DB 10110000B
CODE SEGMENT                          DB 10011001B
MOV AX, DATA                          DB 10010010B
MOV DS, AX                            DB 10000010B
ORG 0000H                             DB 11011000B
START:                                DB 10000000B
MOV DX, PORT_CON                      DB 10010000B
MOV AL, 10000000B                     DB 10001000B
OUT DX, AL                            DB 10000011B
MOV SI, 0                             DB 11000110B
MOV DI, 0                             DB 10100001B
L0: MOV CX, 1FFFH                     DB 10000110B
L1: MOV AL, SI[SI]                    DB 10001110B
MOV DX, PORTA                         CODE ENDS
OUT DX, AL                            END
LOOP L1
INC SI
CMP SI, 16
JL L0
MOV DX, PORT_CON
MOV AL, 10000000B
OUT DX, AL
```

Changes for the second run:

```
JMP START
ORG 1000H
SI DB 10001110B
DB 10000110B
DB 10100001B
DB 11000110B
DB 10000011B
DB 10001000B
DB 10010000B
DB 10000000B
DB 11011000B
DB 10000010B
DB 10010010B
DB 10011001B
DB 10110000B
DB 10100100B
DB 11111001B
DB 11000000B
CODE ENDS
END
```
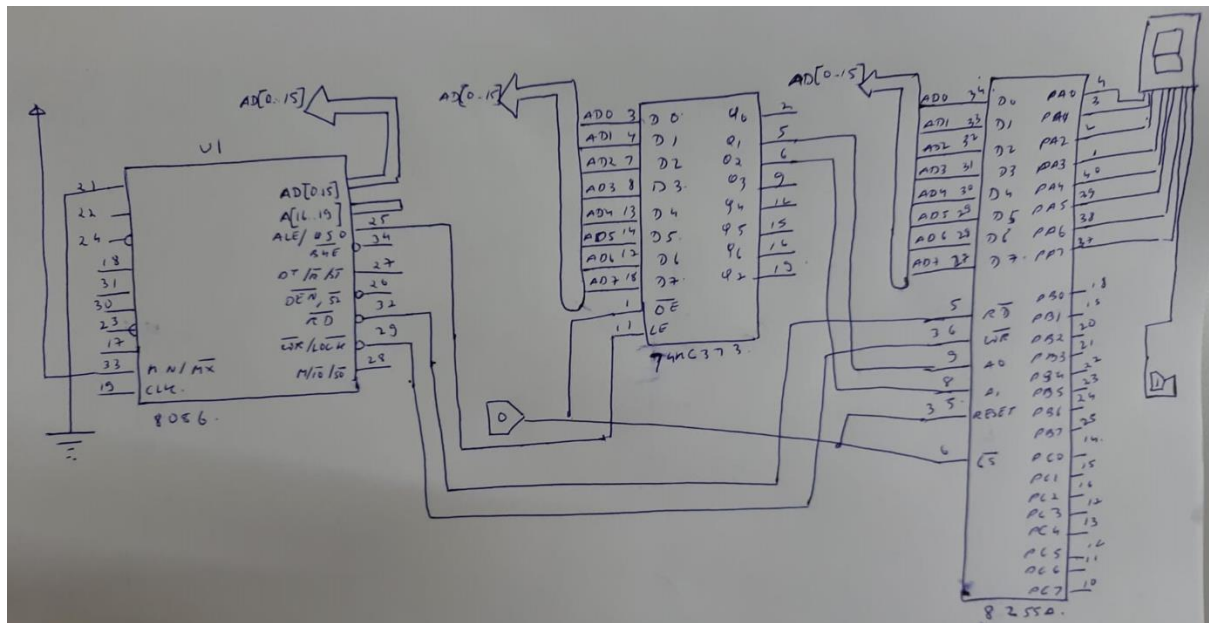
Screen Shots:

Schematic:

Code:

```asm
13  PORTA EQU 00H
14  PORTB EQU 02H
15  PORTC EQU 04H
16  PORT_CON EQU 06H
17  DATA ENDS
18  CODE SEGMENT
19  MOV AX, DATA
20  MOV DS, AX
21  ORG 0000H
22  START:
23  MOV DX, PORT_CON
24  MOV AL, 10000000B
25  OUT DX, AL
26  MOV SI, 0
27  MOV DI, 0
28  L0: MOV CX, 1FFFH
29  L1: MOV AL, S1[SI]
30  MOV DX, PORTA
31  OUT DX, AL
32  LOOP L1
33  INC SI
34  CMP SI, 10
35  JL L0
36  MOV DX, PORT_CON
37  MOV AL, 10000000B
38  OUT DX, AL
39  JMP START
40  ORG 1000H
41  S1 DB 10001110B
42  DB 10000110B
43  DB 10100001B
44  DB 11000110B
45  DB 10000011B
46  DB 10001000B
47  DB 10010000B
48  DB 10000000B
49  DB 11011000B
50  DB 10000010B
51  DB 10010010B
52  DB 10011001B
53  DB 10110000B
54  DB 10100100B
55  DB 11111001B
56  DB 11000000B
57  CODE ENDS
58  END
```

Schematic Diagram:

Video of the run:

Uploaded on the submission page.