

Department of Mechanical, Materials and Manufacturing Engineering

The University of
Nottingham

Computer Engineering and Mechatronics MMME3085

Solution Sheet 4: **State Tables and Finite State Machine****Q1. State table**

a)

		Value to be displayed									
Seg't	Bit	0	1	2	3	4	5	6	7	8	9
-	0	0	0	0	0	0	0	0	0	0	0
1	1	1	0	1	1	0	1	1	1	1	1
2	2	1	1	1	1	1	0	0	1	1	1
3	3	1	1	0	1	1	1	1	1	1	1
4	4	1	0	1	1	0	1	1	0	1	0
5	5	1	0	1	0	0	0	1	0	1	0
6	6	1	0	0	0	1	1	1	0	1	1
7	7	0	0	1	1	1	1	1	0	1	1
Hex value		7E	0C	B6	9E	CC	DA	FA	0E	FE	CE

b)

Program

byte outTable [10] = {7E, 0C, B6, 9E, CC, DA, FA, 0E, FE, CE};

void setup()

```
{
    DDRA = 0xFF;
    DDRC = 0xFF;
    DDRK = 0x00;
```

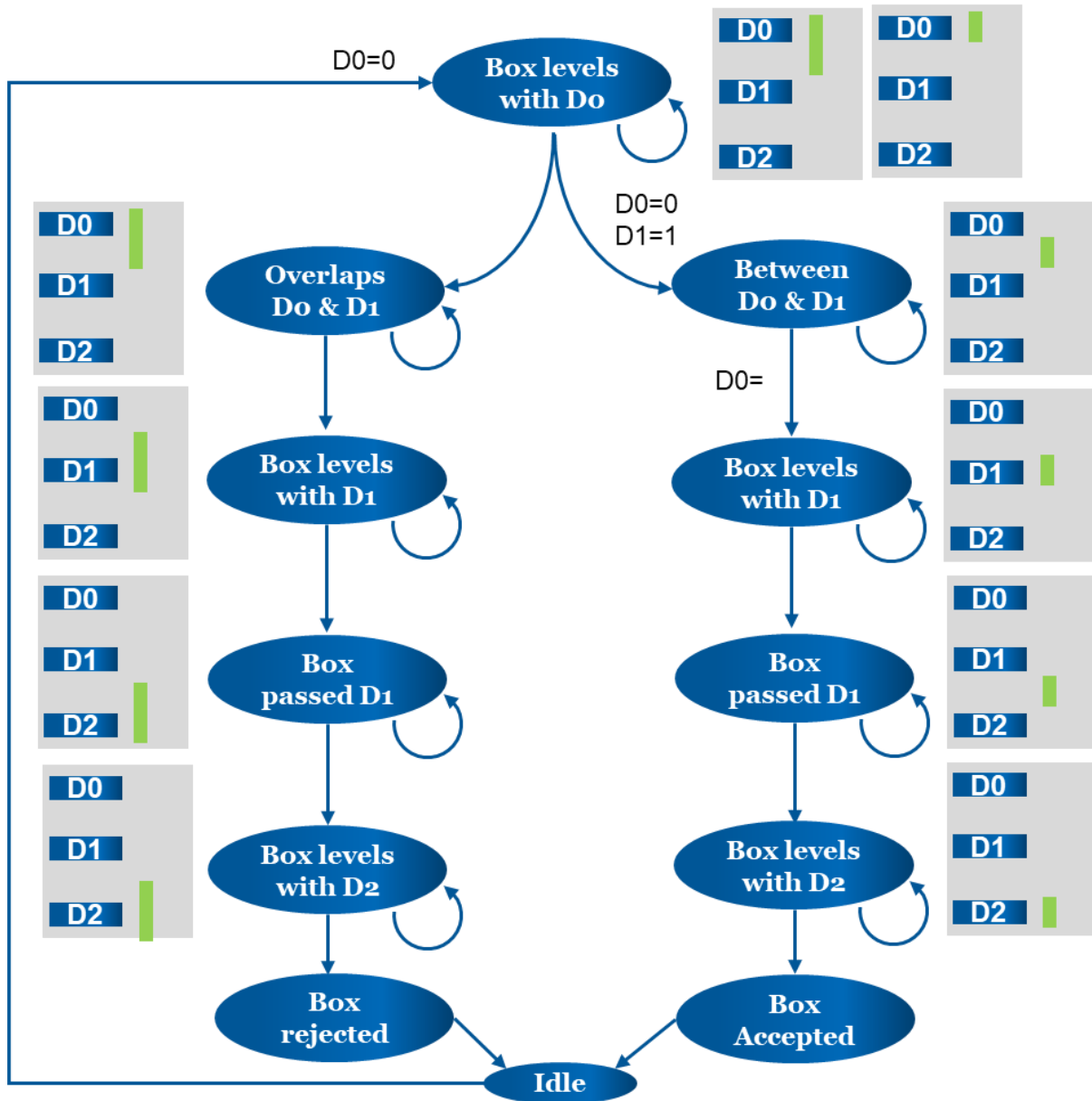
}

void loop()

```
{
    byte inpByte = PINK;
    PORTA = outTable [inpByte % 10];
    PORTC = outTable [inpByte / 10];
```

}

Q2.



Above gives a partial solution considering all cases, your task is to complete all the missed transition condition from state to another.