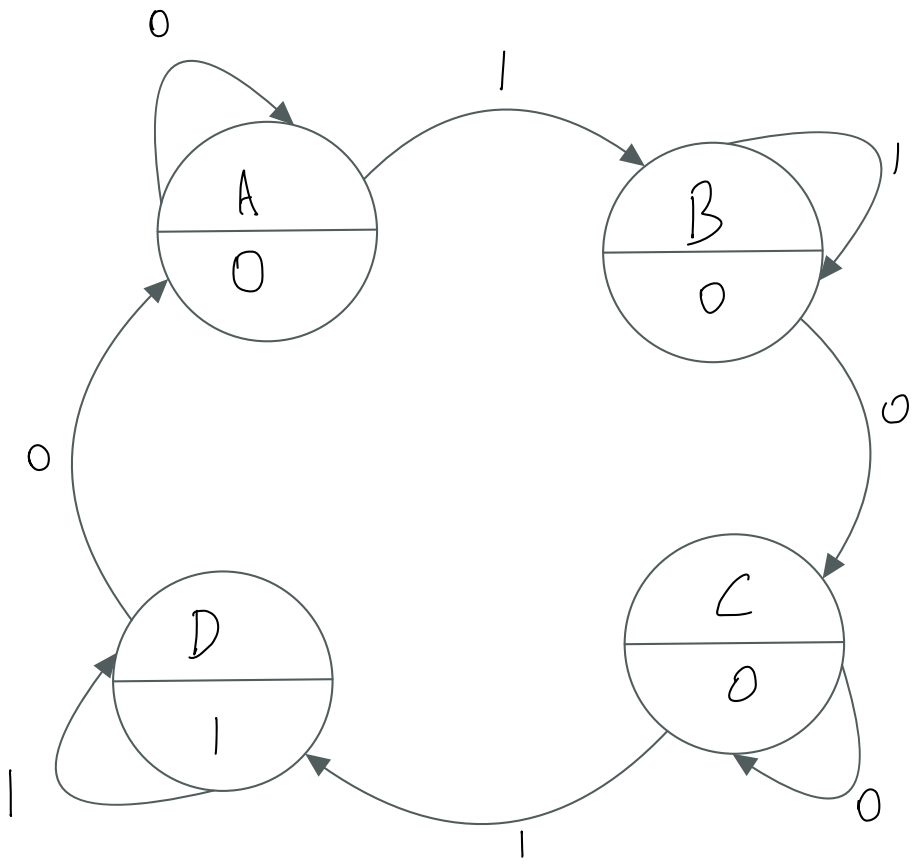
The input alternates every time a 50p is inserted. Initially the input is 0 (no money inserted); state A. When 50p is inserted, the input becomes high; state B. When the second 50p is added the input is low (£1 in total); state C. When the final 50p is added, the input is once again high; state D.

The states are:
No money inserted: A/00
First 50p inserted: B/01
Second 50p inserted: C/10
Final 50p inserted: D/11

State Transition Diagram:
One input: 50p



Excitation Tables

I_n \ Current State	A	B	C	D
0	A	C	C	A
1	B	B	D	D

I_n \ Current State	00	01	11	10
0	00	10	00	10
1	01	01	11	11

Q_1

I_n \ Current State	00	01	11	10
0	0	1	0	1
1	0	0	1	1

$\overline{Q_1} \cdot Q_0 \cdot \overline{I_n} + Q_1 \cdot \overline{Q_0} + Q_1 \cdot I_n$

Q_0

I_n \ Current State	00	01	11	10
0	0	0	0	0
1	1	1	1	1

I_n

Instructions

The file "F028130_task6" was my attempt upto task 6. The following are the instructions:

1. Press spacebar to enter 50p, a probe will light up to confirm this.
2. Press spacebar again to insert another 50p, a different probe will confirm that a total of £1 has been entered.
3. Press spacebar again to enter the final 50p.
4. Press T to decide the drink. When T=0, coffee will be dispensed. When T=1, tea is dispensed.

The file "F028130_complete" is my attempt at all the tasks. Note that the user can only input one £1 coin. There are only two combinations of inputs that will result in the output to equal 1:
Firstly, like before, the user can input three 50p coins. The other option is to enter one 50p coin, and one £1 coin.

The folllowing are the instrucions for this file:

1. Either press spacebar three times to enter three 50p coins (like preiously), or press spacebar once and press 1 once to enter one 50p and one £1 coin.
2. The next instructions are for milk and sugar options: Note that all three options can be chosen, which only makes sense if the user chooses both sugar and milk.
    A. Press M for milk
    B. Press S for sugar
    C. Press P for plain
3. Press T for either tea or coffee. whe T=0, coffee is dispensed. when T=1, tea is dispensed.
4. Press D to dispense

The excitation tables below are the designs for “F028130_1pound_try". I took an approach to allow the user to input multiple £1 coins, however I couldn't get it to work.

State / In_2 In_1	A	B	C	D
00	A	B	C	D
01	B	C	D	B
11	X	X	X	X
10	C	D	B	C

State / In_2 In_1	00	01	11	10
00	00	01	11	10
01	01	10	01	11
11	X	X	X	X
10	10	11	10	01

Q.

$In_2\ In_1$ \ State	00	01	11	10
00	0	0	1	1
01	0	1	0	1
11	X	X	X	X
10	1	1	1	0

$\overline{In_2} \cdot \overline{In_1} \cdot Q_1 + \overline{In_2} \cdot In_1 \cdot \overline{Q_1} \cdot Q_0 + \overline{In_2} \cdot In_1 \cdot Q_1 \cdot \overline{Q_0} +$

$In_2 \cdot \overline{In_1} \cdot \overline{Q_1} + In_2 \cdot \overline{In_1} \cdot Q_1 \cdot Q_0$

$\hookrightarrow (In_1 \text{ NOR } In_2) \cdot Q_1$

$In_2\ In_1$ \ State	00	01	11	10
00	0	1	1	0
01	1	0	1	1
11	X	X	X	X
10	0	1	0	1

$\overline{In_2} \cdot In_1 \cdot \overline{Q_1} \cdot \overline{Q_0} + \overline{In_2} \cdot \overline{In_1} \cdot \overline{Q_1} \cdot Q_0 +$

$\overline{In_2} \cdot Q_1 \cdot Q_0 + \overline{In_2} \cdot In_1 \cdot Q_1 + In_2 \cdot \overline{In_1} \cdot \overline{Q_1} \cdot Q_0 +$

$In_2 \cdot \overline{In_1} \cdot Q_1 \cdot \overline{Q_0}$