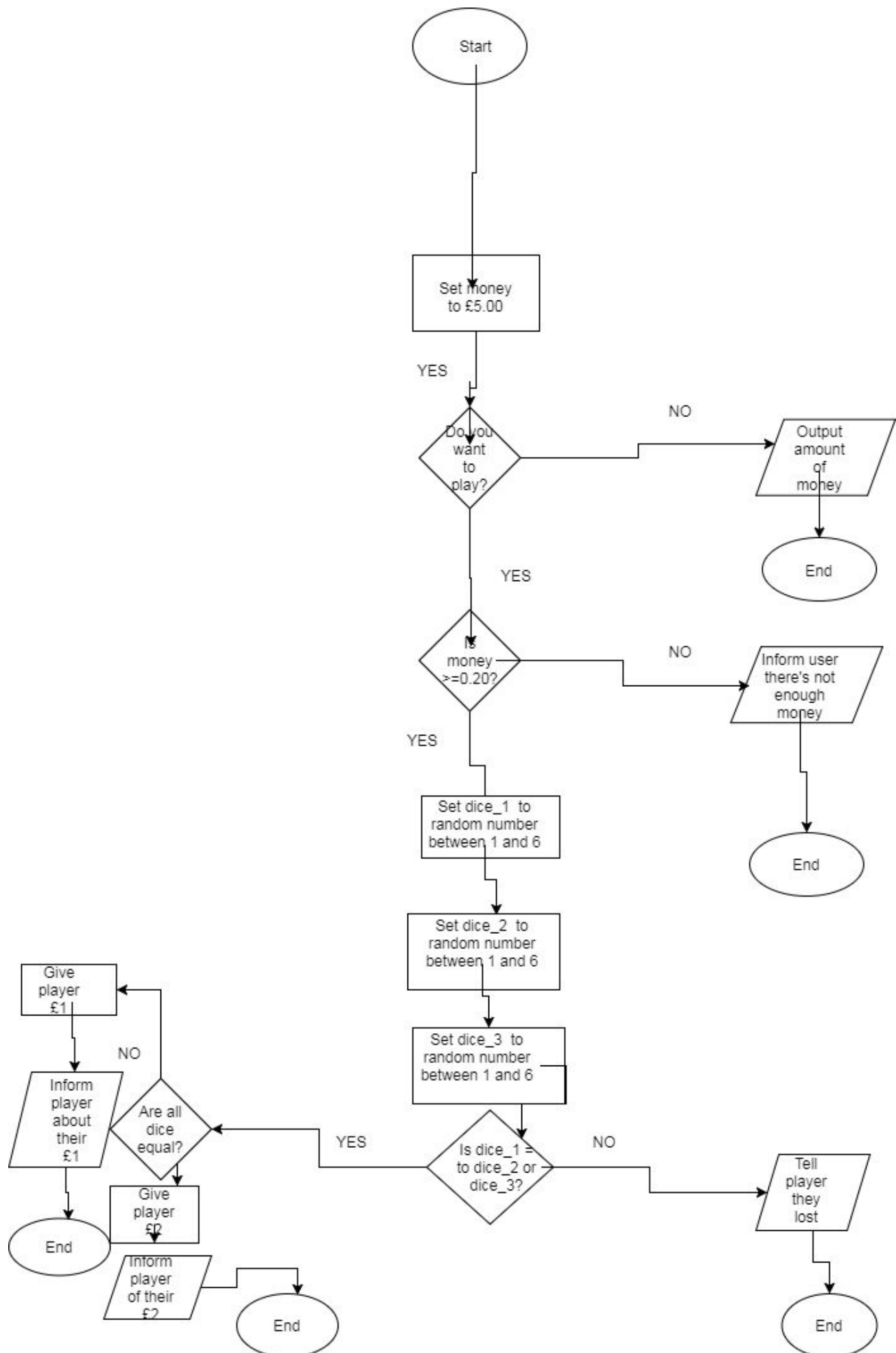Chapter 2: Iteration Final Task

Using the information on page 43 of the Computer Science textbook complete the following three tasks.

1: In the box below complete the flowchart on page 43 to finish the problem (design) of the program.
(The quickest and neatest way to do this will be on paper using a ruler and pencil and scan using the pool
printers) **Scroll down**

```
                                    ( Start )
                                        │
                                        ▼
                              ┌──────────────────┐
                              │    Set money     │
                              │    to £5.00      │
                              └──────────────────┘
                                        │
           YES                          │                      NO
                                        ▼                              ┌──────────────┐
                                   ╱Do you╲                            │   Output     │
                                  ╱  want   ╲──────────────────────────│   amount     │
                                  ╲   to    ╱                          │     of       │
                                   ╲ play? ╱                           │   money      │
                                        │                              └──────────────┘
                                        │ YES                                 │
                                        ▼                                     ▼
                                     ╱  Is  ╲                              ( End )
                                    ╱ money  ╲           NO         ┌──────────────┐
                                    ╲>=0.20? ╱──────────────────────│ Inform user  │
                                     ╲      ╱                       │ there's not  │
                                        │                          │   enough     │
                                        │ YES                      │    money     │
                                        ▼                          └──────────────┘
                              ┌──────────────────┐                        │
                              │  Set dice_1 to   │                        ▼
                              │  random number   │                     ( End )
                              │ between 1 and 6  │
                              └──────────────────┘
                                        │
                                        ▼
                              ┌──────────────────┐
                              │  Set dice_2 to   │
                              │  random number   │
   ┌──────────┐               │ between 1 and 6  │
   │  Give    │               └──────────────────┘
   │ player   │◄──┐                    │
   │   £1     │   │                    ▼
   └──────────┘   │           ┌──────────────────┐
        │         │           │  Set dice_3 to   │
        ▼      NO │           │  random number   │
   ┌──────────┐   │           │ between 1 and 6  │
   │ Inform   │  ╱ Are all╲   └──────────────────┘
   │ player   │ ╱  dice    ╲          │
   │ about    │ ╲  equal?  ╱          ▼
   │ their    │  ╲        ╱      ╱ Is dice_1 = ╲      NO      ┌──────────┐
   │   £1     │      │   ◄───YES─╲ to dice_2 or╱─────────────│   Tell   │
   └──────────┘      │           ╲  dice_3?   ╱              │  player  │
        │            ▼                                       │  they    │
        ▼       ┌──────────┐                                 │  lost    │
    ( End )     │  Give    │                                 └──────────┘
                │ player   │                                      │
                │   £2     │                                      ▼
                └──────────┘                                  ( End )
                ┌──────────┐
                │ Inform   │
                │ player   │───┐
                │ of their │   │
                │   £2     │   ▼
                └──────────┘ ( End )
```

2: Looking at your completed flowchart do the design as pseudocode. Remember to look out for the obvious clues. If there is a loop or a decision (selection) in your flowchart there is going to be a indent (loop) in the pseudocode. Look for the areas of your flowchart that are sequence as these will just be each line of your pseudocode etc. Capitalise keywords etc

```
money=£5.00
answer = input("Do you want to play")
If answer = "no":
  Quit
If answer = "yes":
  Answer2= Input ("Do you have £0.20?")
  If answer = "no":
    Quit
  If answer = "yes":
    Money = money - 0.20
    Dice_1 = random in range (1,6)
    Dice_2 = random in range (1,6)
    Dice_3 = random in range (1,6)
    If dice_1 = dice_2 or dice_3:
      Money = money+£1
      print("You have gained one pound")
      If dice_1 = dice_2 and dice_1 = dice_3:
        money= money+£1
        print("You have won another one pound")
      Else:
        Do nothing
    Else:
      print(" You have lost the game")
```

3: Produce a trace table based on your design. Remember your trace table will list the variables you have stated and show the value of each variable at each line of your design as it would work through step by step if you actually created it.

Dice_1	Dice_2	Dice_3	End total of money(£)
1	1	1	6.80
1	1	2	5.80
1	1	3	5.80
1	1	4	5.80

1	1	5	5.80
1	1	6	5.80
1	2	1	5.80
1	2	2	5.80
1	2	3	4.80
1	2	4	4.80
1	2	5	4.80
1	2	6	4.80
1	3	1	5.80
1	3	2	4.80
1	3	3	5.80
1	3	4	4.80
1	3	5	4.80
1	3	6	4.80
1	4	6	4.80
1	5	1	5.80
1	5	2	4.80
1	5	3	4.80

Because this trace table will be extremely long, if two of the numbers rolled are the same you get one pound added to 4.80 and if all three numbers are the same you get 6.80. If they are all different you stay with 4.80

If you have completed all of the three tasks above and if you have time you might as well show off your programming skills and code it up as well. Just for the FUN OF IT!!!1 :) :) :)