Session 3 Exercises

Exercise 3.1

You have a budget of £10 and want to write a program to decide which burger restaurant to go to.

1. Input the **price** of a burger using **input()**
2. Check whether the **price** is less than or equal (**<=**) **10.00**
3. Print the result in the format below

```
Burger is within budget: True
```

Hint: remember to convert the input from a string to a decimal with **float()**

Exercise 3.2

Add code to your burger program to input whether the restaurant has a vegetarian option

The output should say whether the cost is within budget **AND** has a vegetarian option

```
Restaurant meets criteria: True
```

Extension: Add a check to see it the restaurant's rating is 3 or more

Exercise 3.3

Rewrite the output of your burger program to use if statements

If it is a good choice it should be:

```
This restaurant is a great choice!
```

If it is **not** a good choice it should be:

```
Probably not a good idea
```

Exercise 3.4

Now that you've finished your burger, you want to pay for your food. Let's write a program to calculate your meal and apply a discount if applicable.

If your total meal costs more than £20 and you have a discount, the price will be reduced by 10%. The program should print "Discount applied" or "No discount" depending on whether the discount criteria was met.

```
meal_price = float(input('How much did the meal cost? '))

discount_choice = input('Do you have a discount? y/n ')
discount_applicable = discount_choice == 'y'
```

Exercise 3.5

You're cooking a pizza and need to check that the oven is at the right temperature.

Write a program to:

- Ask the user to input the temperature
- Prints "The oven is too hot" if the temperature is over 200
- Prints "The oven is too cold" if the temperature is under 150
- Prints "The oven is at the perfect temperature" if the temperature is 180
- Prints "The temperature is close enough" for any other temperature

Extension: Ask at the start of the program whether you're cooking a cake or a pizza. The suggested temperatures for a cake should be different from the pizza.

Exercises 3.6-3.8

To practice if statements choose one of the following exercises:

- Exercise 3.6: Flip a coin
- Exercise 3.7: Rock, Scissors, Paper
- Exercise 3.8: Roulette

Exercise 3.6

This program uses random to simulate a coin flip.

To finish the program you will need to add the following:

- If the random coin flip matches the choice input by the user then they win
- Otherwise if the random coin flip does not match the choice input by the user then they lose

```
import random
```

```
def flip_coin():
    random_number = random.randint(1, 2)
    if random_number == 1:
        side = 'heads'
    else:
        side = 'tails'
    return side

choice = input('heads or tails: ')
result = flip_coin()

print('The coin landed on {}'.format(result))
```

Extension: The program should show a message to the user if they enter a choice that isn't heads or tails

Exercise 3.7

This program simulates rock, paper, scissors. The first winning condition has been added. To finish the program you'll need to add all of the other winning and losing conditions.

```
import random

def random_choice():
    choice_number = random.randint(1, 3)

    if choice_number == 1:
        choice = 'rock'
    elif choice_number == 2:
        choice = 'scissors'
    else:
        choice = 'paper'

    return choice

my_choice = input('Choose rock, scissors or paper: ')
opponent_choice = random_choice()

print('Your opponent chose {}'.format(opponent_choice))
```

```
if my_choice == 'rock' and opponent_choice == 'scissors':
    print('You win!')
```

Extension: the program should show a message to the user if they enter a choice that isn't rock, paper or scissors

Exercise 3.8

Not Quite Roulette

Ask the user to enter the following three things using **input()**:

- The amount they want to bet
- A colour (red or black)
- A number between 1 and 100

After generating a random number and colour:

- If the colour matches, the users keeps the amount that was bet
- If the number matches, the users wins double the amount that was bet
- If the colour and number matches, the users wins 100 times the amount that was bet
- When neither the colour or number matches the user wins 0
- Output the amount the user won

The following code will generate a random number and colour:

```
import random


def colour():
    random_number = random.randint(1, 2)

    if random_number == 1:
        colour = 'red'
    else:
        colour = 'black'

    return colour


random_number = random.randint(1, 100)
random_colour = colour()
```