HOMEWORK WEEK 3
(handout for students)

TASK 1 (Conditional flow)

Question 1

Create a program that tells you whether or not you need an umbrella when you leave the house.

The program should:

1. Ask you if it is raining using input()

2. If the input is 'y', it should output 'Take an umbrella'

3. If the input is 'n', it should output 'You don't need an umbrella'

Question 2

I'm on holiday and want to hire a boat. The boat hire costs £20 + a refundable £5 deposit. I've written a program to check that I can afford the cost, but something doesn't seem right. Have a look at my program and work out what I've done wrong

```
my_money = input('How much money do you have? ')

boat cost = 20 + 5


if my_money < boat_cost:

        print('You can afford the boat hire')

else :

        print('You cannot afford the board hire'
```

Question 3

Your friend works for an antique book shop that sells books between **1800** and **1950** and wants to quickly categorise books by the century and decade that they were written. Write a program that takes a year (e.g. 1872) and outputs the century and decade (e.g. "Eighteenth Century, Seventies")

TASK 2 (Lists and Dictionaries)

Question 1

I have a list of things I need to buy from my supermarket of choice.

```
shopping_list = [
        "oranges",
        "cat food",
        "sponge cake",
        "long-grain rice",
        "cheese board",
]
print(shopping_list[1])
```

I want to know what the first thing I need to buy is. However, when I run the program it shows me a different answer to what I was expecting? What is the mistake? How do I fix it.

Question 2

I'm setting up my own market stall to sell chocolates. I need a basic till to check the prices of different chocolates that I sell. I've started the program and included the chocolates and their prices. Finish the program by **asking the user to input an item and then output its price**.

```
chocolates = {
        'white': 1.50,
        'milk': 1.20,
        'dark': 1.80,
        'vegan': 2.00,
}
```

Question 3

Write a program that simulates a lottery. The program should have a list of seven numbers that represent a lottery ticket. It should then generate seven random numbers. After comparing the two sets of numbers, the program should output a prize based on the number of matches:

- £20 for three matching numbers
- £40 for four matching numbers
- £100 for five matching numbers
- £10000 for six matching numbers
- £1000000 for seven matching numbers

TASK 3 (Read and Write files)

Question 1

You're having coffee/tea/beverage of your choice with a friend that is learning to program in Python. They're curious about why they would use pip. Explain what pip is and one benefit of using pip.

Question 2

This program should save my data to a file, but it doesn't work when I run it. What is the problem and how do I fix it?

```
poem = 'I like Python and I am not very good at poems'

with open('poem.txt', 'r') as poem_file:

        poem_file.write(poem)
```

Question 3

Here is a snippet of Elton John's song "I'm Still Standing"

You could never know what it's like

Your blood like winter freezes just like ice

And there's a cold lonely light that shines from you

You'll wind up like the wreck you hide behind that mask you use

And did you think this fool could never win?

Well look at me, I'm coming back again

I got a taste of love in a simple way

And if you need to know while I'm still standing, you just fade away

Don't you know I'm still standing better than I ever did

Looking like a true survivor, feeling like a little kid

I'm still standing after all this time

Picking up the pieces of my life without you on my mind

I'm still standing (Yeah, yeah, yeah)

I'm still standing (Yeah, yeah, yeah)

Tasks:

1. Write the lyrics to a new file called song.txt
2. Check that a file has been created successfully.
3. The read lines from this file and print out ONLY those lines that have a word 'still' in them.

TASK 4 (API)

Question 1

In this session you used the Pokémon API to retrieve a single Pokémon.

I want a program that can retrieve multiple Pokémon and save their names and moves to a file.

Use a list to store about 6 Pokémon IDs. Then in a for loop call the API to retrieve the data for each Pokémon. Save their names and moves into a file called 'pokemon.txt'

Question 2 (optional)

Here is a link to a really cool API: https://opentdb.com/

Answer the following questions:

- What is the name of this API?
- What does it do?
- Example URL to make a call to this API?
- Example output?