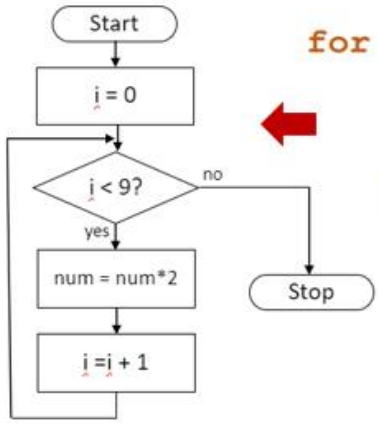
Pattern Recognition

ⓘ *You don't need to produce any evidence for 'Pattern Recognition' at this point. It's just worth thinking about!*

1.) On looking at the brief, can you spot any opportunities to use loops to repeat sections of code?

FOR (Counter Controlled) Loops

- Typical examples of FOR loops:
  - Iterating through an array/list
  - Reading lines from a text file
  - Reading records from a database

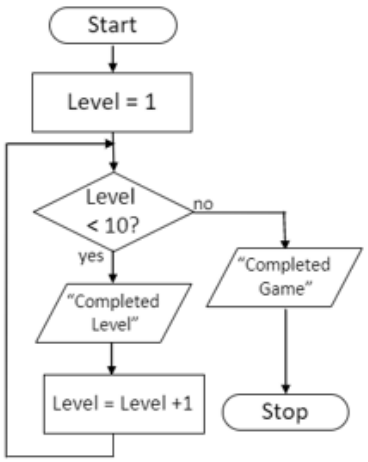



```
for i in range(0, 9):
    num = num * 2
    print("Multiplied by two is " + num)
```

WHILE (Condition Controlled) Loops

- Typical examples of WHILE Loops
  - Asking the user to re-enter their login details until they are invalid
  - Asking the user to re-enter any input until it's valid or between a given range (e.g. - until the user enters chooses a number between 1-10)
  - Allowing a user to continue playing WHILE they still have some '>0' lives left
  - A main loop in a GUI waiting for an event to happen (e.g. the user clicking a button)

```
while level < 10:
    level = level + 1
    print("Completed Level " + level)
```

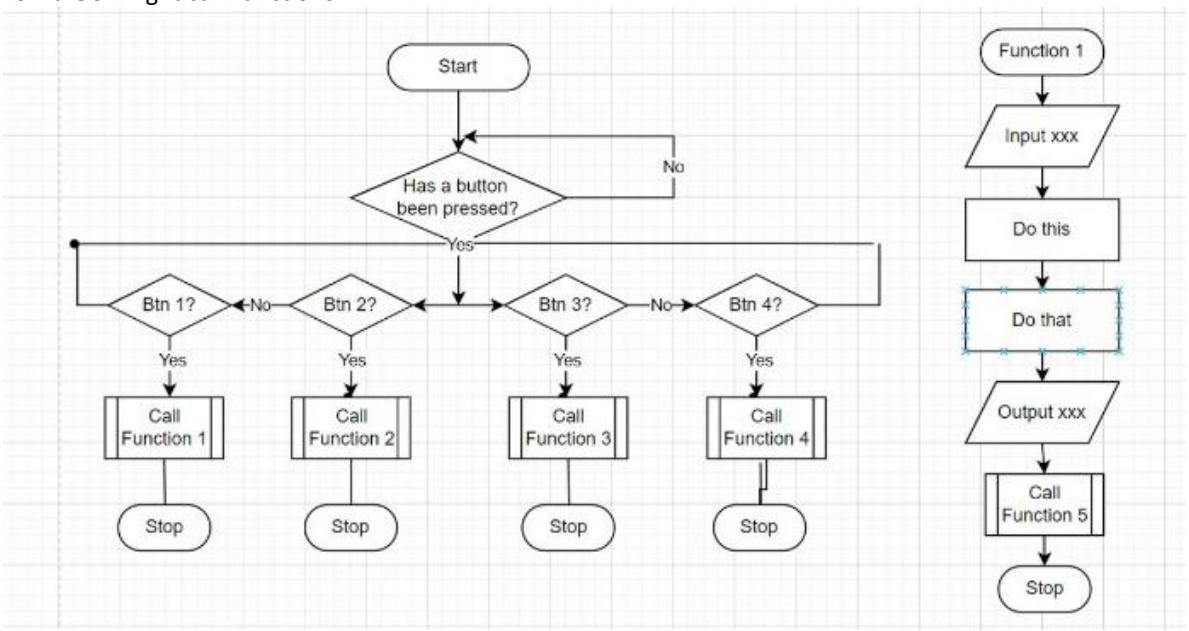


2.) On looking at the brief, can you spot any opportunities to break your solution into logical sections?

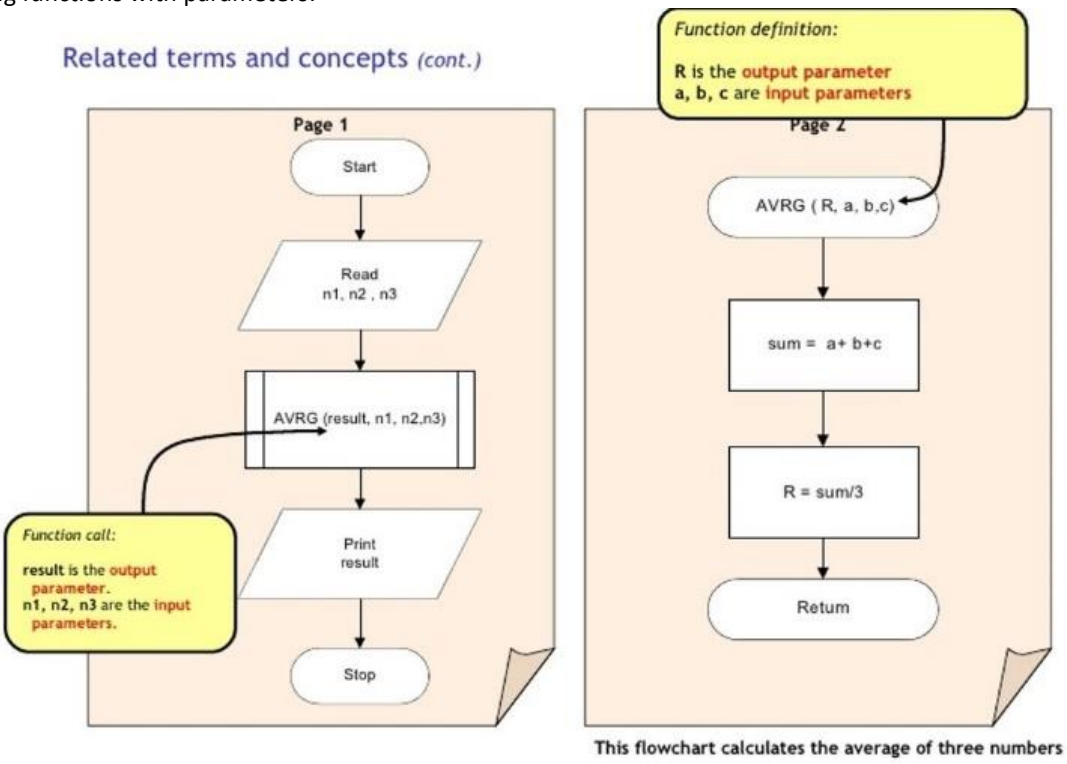
Functions

- Typical examples of Functions
  - `MainMenu():` a function which gets called whenever the user returns back to the menu
  - `Calculate(x,y):` a function which returns the answer to a calculation

How a GUI might call Functions:



Calling functions with parameters:



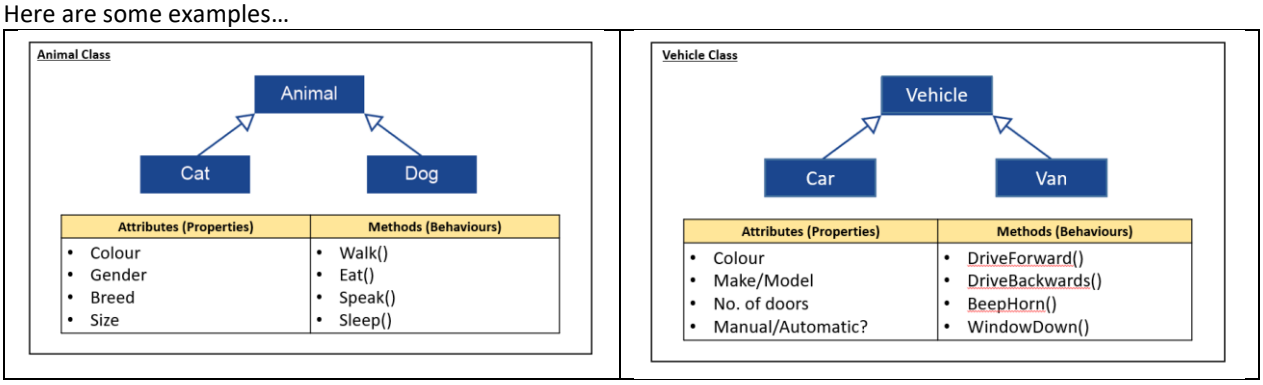
Pattern Recognition

3.) Can you spot any opportunities to use OOP (Object-Oriented Programming)?

OOP (Object-Oriented Programming)

Using OOP, you can create your own CLASSES & OBJECTS. Each object can then be assigned ATTRIBUTES (properties) and METHODS (behaviours). This can be a very efficient programming technique if used effectively.

Here are some examples…



- What CLASSES/OBJECTS could you create?
- What ATTRIBUTES & BEHAVIOURS COULD you give them?

4.) Can you spot any opportunities to use CSS (Cascading Style Sheets)

CSS (Cascading Style Sheets)

Try to imagine what your solution might look like. Are there any similarities or opportunities for duplication?
CSS can be used to define the appearance/styling of a web-based solution including COLOURS, Font STYLES etc.
There's also a strong chance that your menu bar will be virtually identical on every page - Pattern Recognition!