

PROGRAMMING CONSTRUCTS

Sequence



A Sequence is when there are programming steps that are carried out one after another.

Selection



Selection is where there are different paths in your code eg: IF, ELIF, ELSE

Iteration



Iteration is when there is repetition (loops) in code. This could be a WHILE loop (do something WHILE a condition is met) or a FOR loop (do something for a set number of times)

TYPES OF ERRORS

Syntax Error – something which doesn't fit the rules or grammar of the programming language.

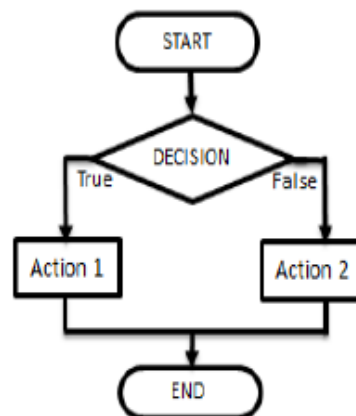
Logic Error – the program runs but produces an unexpected outcome. Eg: < user instead of >.

DATA TYPES

Data Type	Definition
String	Text eg: "Hello"
Integer	Whole number eg: 32
Float/Real	Decimal number eg: 1.2
Boolean	Two values eg: true or false
Character	A single character eg: b

WRITING ALGORITHMS

FLOWCHART



PSEUDO CODE

```
START
IF the Decision =
TRUE THEN:
    Perform Action 1
ELSE
    Perform Action 2
ENDIF
END
```

PROBLEM SOLVING

Focussing on just the important details of a problem

Breaking a problem down into smaller parts so that it is easier to solve

Creating a step by step solution to a problem

VARIABLES

A variable is something that can be used to store information or a value. The information that is stored can be changed throughout a program.

Variables should be given suitable names so they are easily identified and to help debugging of programs.

Value



INPUT STATEMENTS

Using `var = input()` we can ask a user to input some information.
We can then print this back to the console window.

```
userName = input("what is your name?")  
print ("Welcome ", userName)
```

`userName` is a variable. This means we can change the information stored. We can also name it whatever we want.

PRINT STATEMENTS

In order to display text in the shell, you need to use a Print statement

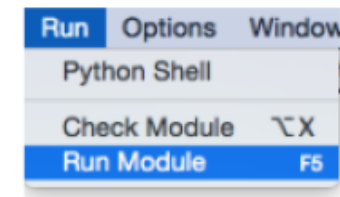
```
print ("Hello World")  
print ("I am a programmer")
```

This is the output:

```
Hello World  
I am a programmer
```

EXECUTING A PROGRAM

In order to run or test a program written in Python the user needs to go to Run and then Run Module. (F5)



IF STATEMENTS

IF statements can be used to select different options in a program depending on a condition.
Also known as selection.

```
question = input("Are you revising?")  
if question == "yes":  
    print ("Well done!")  
elif question == "no":  
    print("Oh dear!")  
else:  
    print("I don't understand")
```

FOR LOOP

Used to repeat things a certain number of times.

```
for x in range(4):  
    print("Hello")
```

Hello
Hello
Hello
Hello

OPERATORS

<code>==</code>	Is equal to
<code>! or <></code>	Is not equal to
<code><</code>	Is less than
<code>></code>	Is more than
<code>>=</code>	Is more than or equal to
<code><=</code>	Is less than or equal to

WHILE LOOP

Performs a task while a certain condition is TRUE

