

Revision Slides - Y7

Contents

| Slide No. | Topic |
|-----------|--|
| 3 | General Information about Python and Programming |
| 4 | Arithmetic Operators |
| 5 | Boolean Operators |
| 6 | Datatypes |
| 7 | Programs and Variables |
| 8 | Programs - IF Statement - SELECTION Statement |
| 9 | Programs - 1-D Arrays or Lists |
| 10 | Programs - Syntax Errors |

General Information about Programming

(1) We are programming in the programming language Python.

**(2) We are writing the Python programs in the Python IDLE editor.
IDLE stands for Integrated Development Learning Environment.**

**(3) There are numerous other programming languages such as Java,
Visual Basic, C#, C++, R.**

(4) Python is an example of a High Level Programming Language.

**(5) Now, the Computer actually does not understand High Level Languages
And they have to be translated into Low Level Language/Machine Code/Binary
And it is that the computer understands.**

Arithmetic Operators

| No. | Symbol | Information | Example | Answers |
|-----|--------|------------------|---------|---|
| 1 | + | Addition | 6+2 | 8 |
| 2 | - | Substraction | 10 - 6 | 4 |
| 3 | * | Multiplication | 4 * 5 | 20 |
| 4 | / | Division | 10/2 | 5 |
| 5 | ** | Exponent | 2**3 | 2*2*2 = 8 |
| 6 | ** | Exponent | 4**2 | 4*4 = 16 |
| 7 | % | Modulus | 10%3 | 1 (This is the <u>remainder</u> when one number is divided by another). |
| 8 | % | Modulus | 20%5 | 0 |
| 9 | // | Integer Division | 9//2 | 4 (This is the <u>quotient</u> when one number is divided by another). |
| 10 | // | Integer Division | 10//2 | 5 |

Boolean Expressions

| No. | Symbol | Information | Example | Answers |
|-----|--------|-------------|---------|---------|
|-----|--------|-------------|---------|---------|

| | | | | |
|---|---|--------------|--------|------|
| 1 | > | Greater than | 10 > 6 | TRUE |
|---|---|--------------|--------|------|

| | | | | |
|---|---|-----------|-------|-------|
| 3 | < | Less than | 4 < 7 | FALSE |
|---|---|-----------|-------|-------|

Datatypes

| No. | Datatype | Description | Examples |
|-----|---------------|---|----------------------------------|
| 1 | Integer | This is a whole number | 2,3,99, -100, -6 |
| 2 | Real or Float | This are numbers with decimal points in them. | 3.4,5.6, 100.2 |
| 3 | Character | A single symbol | 'A', 'b', '?' |
| 4 | String | A group of characters | 'Chocolate' |
| 5 | Boolean | Takes one of two values | True or False |
| 6 | Date | A date | 19/1/2020 19th January 2020 |

Programs and Variables

| | | |
|--------|------------------------|---------------|
| Line 1 | Apple = 20 | <u>Output</u> |
| Line 2 | Number = 10 | 30 |
| Line 3 | Total = Apple * Number | |
| Line 4 | print(Total) | |

Please note the following about the program

(1) The Program has 3 variables.

(2) The variables are Apple, Number and Total

(3) Line 4 results in the output.

Programs - Selection Statement - the IF Statement

```
Line 1    Age = int(input("How old are you?"))
Line 2    if Age >=18:
Line 3        print("You are old enough to vote")
Line 4    else:
Line 5        print("You are too young to vote")
```

Output

How old are you? 12

You are too young to vote

Please note the following about the program

- (1) The program has 1 variable and that is 'Age'.
- (2) The '>=' symbol is the greater than or equal to symbol.
- (3) Line 3 is inviting the user to input an integer.
- (4) The IF statement has two branches to it, i.e. there are 2 options for it.
- (5) The IF statement is a type of **SELECTION statement.**

Programs -1-D Arrays (or Lists)

| | | |
|--------|---|--|
| Line 1 | <code>Foods = ["eggs", "Pizza", "Pasta"]</code> | <u>Output</u> |
| Line 2 | <code>for Food in Foods:</code> | <code>I like eggs</code> |
| Line 3 | <code>print (" I like ", Food)</code> | <code>I like Pizza</code> <code>I like Pasta</code> |

Please note the following about the program

(1) The array is called Foods

(2) There are 3 items in the array Foods.

(3) Now,
`Foods[0] = "eggs",`
`Foods[1] = "Pizza",`
`Foods[2] = "Pasta"`

(4) 0,1 and 2 are known as indexes

(5) Note that we are starting to count from zero.

(6) Python is known as a 'zero₉based language'.

Examples of Programs with Syntax Errors

Program 1 with Error

```
pint("Hello World")
```



Here pint should be print.
A keyword is mis-spelt.



Program 1 Corrected

```
print("Hello World")
```

Program 2 with Error

```
print("Hello World)
```



Missing Quotation Marks



Program 2 Corrected

```
print("Hello World")
```

Program 3 with Error

Line 1 For j in range(5):

Line 2 print(j)



Line 2 should be indented.



Program 3 Corrected

```
For j in range(5):  
    print(j)
```

That's all for now folks!!