

# Revision Slides - Y8

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# **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
2	>=	Greater than or Equal to	9 >= 8	TRUE
3	<	Less than	4 < 7	FALSE
4	<=	Less than or Equal to	7 < = 3	FALSE
5	"=="	Is it equal to	5 == 5	TRUE
6	!=	Not equal to	2 != 5	TRUE

# 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 with MOD and DIV

Line 1    **X = 33**

Line 2    **Y = X // 3        # This is the DIV operator**

Line 3    **Z = X % 3        # This is the MOD operator**

Line 4   **print(" X =", X, " Y= ", Y, " Z= ", Z)**

Output

**X= 35. Y=10    Z =3**

Please note the following about the program

**(1) The Program has 3 variables.**

**(2) The variables are X, Y and Z.**

**(3) DIV (Symbol '//') is the quotient when one number is divided by another so 5 // 2 = 2**

**(4) MOD (Symbol '%') is the remainder when one number is divided by another so 5 % 2 = 1**

**(5) Line 4 results in the output.**

# Programs - Functions

Line 1	<code>def Addition (a,b):</code>	<u>Output</u>
Line 2	<code>    Total = a +b</code>	70
Line 3	<code>    return (Total)</code>	
Line 4	<code>Result = Addition (30,40)</code>	
Line 5	<code>print(Result)</code>	

Please note the following about the program

- (1) The name of the function is Addition.
- (2) The function has 2 parameters - these are a and b.
- (3) The output is 70.
- (4) The function is called by the statement `Result = Addition(30,40)`

# 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 'zero based language'.

# Programs - FOR statement

	<u>Output</u>
Line 1    For j in range(5):	0
Line 2            x = j**2	1
Line 3            print(x)	4
	9
	16

Please note the following about the program

- (1) There is a FOR loop in this program.
- (2) The FOR loop is a type of ITERATION.
- (3) The FOR loop is executed 5 times.
- (4) The program outputs square numbers.

# 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!!***