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 when one</u> <u>number is divided by another).</u>
8	%	Modulus	20%5	0
9	//	Integer Division	9//2	4 (This is the quotient 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

CLNandi (Dr)

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	200

Line 3 Total = Apple * Number

Line 4 print(Total)

- (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?")

<u>Output</u>

Line 2 if Age >=18:

How old are you? 12

Line 3 print("You are old enough to vote")

You are too young to vote

Line 4 else:

Line 5 print("You are too young to vote")

- (1) The program has 1 variable and that is 'Age'.
- (2) The '>=' symbol is the greater than or equal to symbol.
 - (3) Line 1 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. 8

Programs with MOD and DIV

```
Line 1 X = 35

Line 2 Y = X // 3 # This is the DIV operator X = 35. Y = 11 Z = 2

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

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

- (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 def Addition (a,b):

Line 2 Total = a +b

70

Line 3 return (Total)
```

Line 4 Result = Addition (30,40)

Line 5 print(Result)

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

- (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

- (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

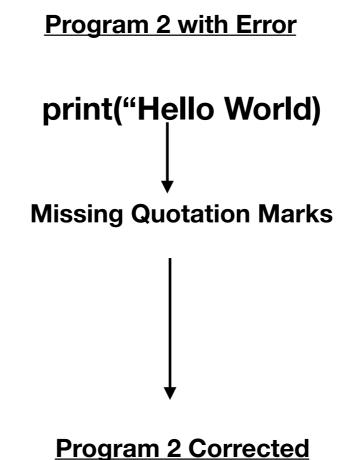
Program 1 with Error

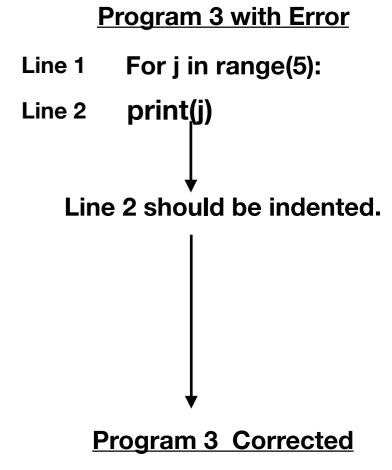
pint("Hello World")

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

Program 1 Corrected

print("Hello World")





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

That's all for now folks!!