Reading and Research - Assignment Statements

These tasks are designed to introduce you to the programming topic we will be studying in class next lesson. You **must** complete these activities prior to the lesson.

Simple Calculations

A simple task that we can perform in a programming language is returning the answer of basic calculations. We can use all of the standard mathematical **operators** in Python plus a few than look a little different.

Task 1

Use the Python shell to investigate the expressions given below, describe what each symbol represents and given the answer provided by the shell.

Expression	Symbol description	Answer
`3 + 4`	*addition*	think of a number:3

think of a different number:4
7|
|`2 - 1`|*subtraction* |think of a number:2

think of a different number:1
1|
| `5 * 3` |*multiplication* |think of a number:5
think of a different number:3
15 |
| `2**3` |*double multiplication* |think of a number:2
think of a different number:3
8 |
| `27/7` |*division* |think of a number:27
think of a different number:7
3.857142857142857 |
| `27//7` |*double division* |think of a number:27
think of a different number:7
3 |
| `27%7` |*percentage* |think of a number:27
think of a different number:7
6 |

Most of Task One should have been very straightforward but you may have struggled to find a description for the last two expressions in the table.

Task 2

Use the Internet to discover the name of each of the symbols listed below and then explain in your own words
the purpose of each symbol.

Symbol	Name	Purpose
`//`	could not find anywhere	to round down
`%`	could not find anywhere	?

You will use all of the above symbols frequently whilst learning to program in Python so it is important to remember then. Often then are used together to calculate the result of more complex expressions.

More Complex Calculations

Often more than one term will be evaluated in a single expression. In Mathematics there is a rule to deal with such situations.

Investigate the expressions below. Evaluate them by hand first before testing your answer in the Python shell.

Task 3

Expression	Expected Result (Manual Calculation)	Actual Result from Python Shell
`3 + 4 * 2`	14	think of a number:3

think of a different number:4
14 |
| `3 + 4 / 2` |3.5 |think of a number:3
think of a different number:4
3.5 |
| `10 - 2 * 2` |16 |think of a number:10
think of a different number:2
16 |
| `10 - 2 / 2` |4 |think of a number:10
think of a different number:2
4.0 |
| `(3 + 4) * 2` |14 |think of a number:3
think of a different number:4
14 |
| `(10 - 2) * 2` |16 |think of a number:10
think of a different number:2
16 |

ow that you have completed the above table comment on the results in the space below. How do the results relate to your knowledge of Mathematics?

Comments
They compare to my knowledge of mathematics in exactly the same way as the calculations were the same on python as they wee in the manual calculations.

Task 4

Use the Python shell to investigate the expressions given below, describe what each symbol represents and give the answer provided by the shell.

Expression	Describe what happens when you enter the expression into the shell
`mark1 = 10`	NameError: name ‘mark1’ is not defined
`mark2 = 15`	stops the error code coming up
`mark1 + mark2`	Traceback (most recent call last):

File “C:/Long road stuff/git/variables/hw ass 1.0.py”, line 5, in
mark1+mark2
NameError: name ‘mark1’ is not defined |

In the space below attempt to explain what has happened with the above expressions:

Comments
not to sure what has happened above. i think they may be some sort of error codes

Variables

Task four introduced you to the concept of variables. This is a fundamental concept in programming, you must have a good understanding of variables to progress on to more complex concepts.

Task 5

Read pages 28-29 of the AS Computing textbook, which cover variables and assignment statements. Below, define what is meant by the term variable and some of the considerations you should keep in mind when naming variables.

Variables	
variable defintion	something that can be altered or changed
consideration 1	make sure you name them so you can find them easier
consideration 2	make sure you specify your variable
consideration 3	be aware of the limitations and requirements
consideration 4	and version compatibility

Task 6

Complete the following exercises in Python.

Python Syntax

```
print("hello world")
#outputs the text string to the screen

print("Your age is {0}".format(your_age))
#outputs the text string to the screen followed by the value
contained in the variable

your_age = 5
#assigns the value 5 to the variable

input_age = int(input("Please enter your age: "))
#assigns the input from the keyboard to the variable
```

1. Write a program that will ask the user for three integers and display the total.
2. Write a program that will ask the user for two integers and display the result of multiplying them together.
3. Ask the user for the length, width and depth of a rectangular swimming pool. Calculate the volume of water required

Include the source code for each of the tasks in the spaces below.

“ `python

Task 6.1

“ `print(“think of a number:”)
print(“think of a different number:”)
print(“think of another number:”)
number1=int(input(“think of a number:”))
number2=int(input(“think of a different number:”))
number3=int(input(“think of another number:”))
answer=input(number1+number2+number3)
……..answer : think of a number:4
think of a different number:6
think of another number:7
17

“ `python

Task 6.2

“ `print(“think of a number:”)
print(“think of a different number:”)
number1=int(input(“think of a number:”))
number2=int(input(“think of a different number:”))
answer=input((number1*number2))

“ `python

Task 6.3

“ `#This program is asking for the length, width and depth of your swimming pool
print(“enter the length:”)
print(“enter the width:”)
print(“enter the depth:”)
number1=int(input(“enter the length:”))

```
number2=int(input(“enter the width:”))
number3=int(input(“enter the depth:”))
answer=input(number1*number2*number3)
```

Summary

In this R&R you have investigated **assignment statements**. You have seen how **mathematical operators** are used to construct expressions and how values can be stored in **variables**.

Please make sure you have completed this R&R fully before your next programming lesson as it will form the basis of the initial classroom discussion and starter tasks.