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*	*7*
2 - 1	*subtraction*	*1*
5 * 3	*multiplication*	*15*
2**3	*power of*	*8*
27/7	*division*	*3.857142857142857*
27//7	*division without decimals*	*3*
27%7	*remainder*	*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
//	*Floor Division*	*to do division where the decimal points are removed*
%	*Modulus*	*divides the left by the right to return the remainder*

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	*11*	*11*
3 + 4 / 2	*5*	*5*
10 - 2 * 2	*6*	*6*
10 - 2 / 2	*9*	*9*
(3 + 4) * 2	*14*	*14*
(10 - 2) * 2	*16*	*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

python follow the order of operations (bidmas)

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	*nothing happened*
mark2 = 15	*nothing happened*
mark1 + mark2	*result appeared as 25*

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

Comments

python assigns the value 10 to the variable "mark1" and the value 15 to "mark2". then in the third operation it adds them together to give the answer 25

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.

variable defintion
consideration 1
consideration 2
consideration 3
consideration 4

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.

```
#Task 6.1
```

Ricky Santos

addition of intergers

14/09/2014

number1 = int(input("please enter your first number: ")) number2 = int(input("please enter your second number: ")) number3 = int(input("please enter your third number: "))

print (number1 + number2 + number3)

#Task 6.2

Ricky Santos

multipication

14/09/2014

number1 = int(input("please enter your first number: ")) number2 = int(input("please enter your second number: "))

total = number1 * number2 print (total)

#Task 6.3

Ricky Santos

pool volume

14/09/2014

length = int(input("please enter your length number: ")) width = int(input("please enter your width number: ")) depth =int(input("please enter your depth number: "))

total = length *width* depth print (total)

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.