Object Oriented Programming

Pass Task 1.1: Preparing for Object Oriented Programming

Overview

We have designed this unit assuming that have already been exposed to some fundamental programming concepts. While we don't expect that you know anything about object oriented programming specifically, we do expect that you have a solid grasp on these pre-requisite concepts.

Purpose: Demonstrate that you have the pre-requisite knowledge required for this unit.

Task: Create a hello world program and extend it to output custom messages for different user names.

Time: This task should be completed as soon as you can.

Submission Details

You must submit the following files to Doubtfire:

- A PDF document containing your written answers.

SWINBURNE UNIVERSITY OF TECHNOLOGY

Instructions

1. Explain the terminal instructions **cd**, **ls**, and **pwd**. Provide a screenshot showing these instructions being used correctly.

2. Consider the following kinds of information, and suggest the most appropriate data type to store or represent each:

   - A person's name   String
   - A person's age in years   Integer
   - A phone number   Integer
   - A temperature in Celsius   Float
   - The average age of a group of people   Float
   - Whether a person has eaten lunch   Boolean

3. Aside from the examples already given, come up with an example of information that could be stored as:

   - A string data type   Fashion brand
   - An integer data type   Years
   - A float data type   Amount of financial profits
   - A boolean data type   Whether a person is male or not

4. Fill out the following table, evaluating the value of each expression and identifying the data type the value is most likely to be.

Expression	Given	Value	Data Type
5		5	Integer
TRUE		TRUE	Boolean
a	a = 2.5	2.5	Float
1 + 2 * 3		7	Integer
a and FALSE	a = TRUE	TRUE and FALSE	Boolean
a or FALSE	a = TRUE	TRUE or FALSE	Boolean
a + b	a = 1 and b = 2	3	Integer
2 * a	a = 3	6	Integer
a * 2 + b	a = 1.5 and b = 2	5.0	Float
a + 2 * b	a = 1.5 and b = 2	5.5	Float
(a + b) * c	a = 1, b = 1, and c = 5	10	Integer
"Fred" + " Smith"		"Fred Smith"	String
a + " Smith"	a = "Wilma"	"Wilma Smith"	String

5. Explain the difference between **declaring** and **initialising** a variable.

6. Explain the term **parameter**. Write some code that demonstrates a simple use of a para-meter.

7. Using an example, describe the term **scope**.

8. In any procedural language you like, write a function called Average, which accepts an array of integers and returns the average of those integers.

9. In the same language, write the code you would need to call that function and print out the result.

10. To the code from 6, add code to print the message "Double digits" if the average is above 10. Otherwise, print the message "Single digits".

5. Declaration is the process of conveying to the complier about the existence of an entity, along with Initialization is the process of assigning values to variables.

6. Parameters are numerical or other measurable factor that evaluate a system or set the conditions of its operation.
For example: a = 2; b = 1; c = a+b; d = a*b

7. The scope of a name binding is the part of a program where the name binding is valid, that is where the nam to refer to the entity. In other parts of the program the name may refer to a different entity

8. Python

```
import random

a = []
sum_one = 0
sum_two = 0
for n in range(1,11):
    b = random.randint(1,10)
    a.append(b)
    sum_one += b

def Average (a):
    for i in range(0, a.length):
        sum_two += a[i]
    return sum_two
```

9. x = Average (a)
=> x is the average number of n

```
10. if x >= 10:
        print ("Double digits")
    else:
        print  ("Single digits")
```