1.1P: Preparing for OOP – Answer Sheet

1. Explain the following terminal instructions:
   1. cd: change directory, mean change to a folder path.
   2. ls: list files, return a list of files
   3. pwd: return the current location
2. Consider the following kinds of information, and suggest the most appropriate data type to store or represent each:

|  |  |
| --- | --- |
| Information | Suggested Data Type |
| A person’s name | string |
| A person’s age in years | Int |
| A phone number | String |
| A temperature in Celsius | Float |
| The average age of a group of people | Float |
| Whether a person has eaten lunch | boolean |

1. Aside from the examples already provided in question 2, come up with an example of information that could be stored as:

|  |  |
| --- | --- |
| Data type | Suggested Information |
| String | Address |
| Integer | Quantity |
| Float | Length |
| Boolean | Whether you do homework or not. |

1. Fill out the last two columns of 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 |
| 6 |  | 6 | int |
| True |  | true | boolean |
| a | a = 2.5 | 2.5 | Float |
| 1 + 2 \* 3 |  | 7 | Int |
| a and False | a = True | False | Boolean |
| a or False | a = True | True | Boolean |
| a + b | a = 1  b = 2 | 3 | Int |
| 2 \* a | a = 3 | 6 | Int |
| a \* 2 + b | a = 2.5 b = 2 | 7.0 | Float |
| a + 2 \* b | a = 2.5  b = 2 | 6.5 | Float |
| (a + b) \* c | a = 1  b = 1  c = 5 | 10 | Int |
| “Fred” + “ Smith” |  | Fred Smith | String |
| a + “ Smith” | a = “Wilma” | Wilma Smith | String |

1. Using an example, explain the difference between **declaring** and **initialising** a variable.

For example, given a variable name “number”. If we assign a variable, but do not give “number” a value, so it is declaring, and we can’t leverage number at that time, we have to define the value to “number” later to use. If we assign a variable with a value, eg “number = 10”, so it is initialising, and can be use at anytime.

The difference between the two is define the value right after assign variable or later.

1. Explain the term **parameter**. Write some code that demonstrates a simple of use of a parameter. You should show a procedure or function that uses a parameter, and how you would call that procedure or function.

A parameter is variables that is created to received data for a procedure or function.  
*<insert a screenshot of your code here>*

A screen shot of a computer

Description automatically generated

1. Using an example, describe the term **scope** as it is used in procedural programming (not in business or project management). Make sure you explain the different kinds of scope.

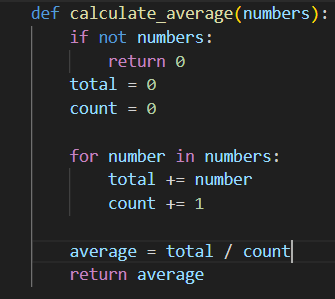
Scope is the state of variable that the region of a program where a variable can be accessed or modified, local and global.

A screen shot of a computer program

Description automatically generated

1. In a procedural style, in any language you like, write a function called Average, which accepts an array of integers and returns the average of those integers. Do not use any libraries for calculating the average. You must demonstrate appropriate use of parameters, returning and assigning values, and use of a loop. Note — just write the function at this point, we’ll *use* it in the next task. You shouldn’t have a complete program or even code that outputs anything yet at the end of this question.

*<insert a screenshot of your code here>*

**

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

*<insert a screenshot of your code here>*

A screenshot of a computer

Description automatically generated

1. To the code from 9, add code to print the message “Double digits” if the average is above or equal to 10. Otherwise, print the message “Single digits”. Provide a screenshot of your program running.

*<insert a screenshot of your code here>  
A screenshot of a computer

Description automatically generated  
<insert a screenshot of your whole program running here>*

A screenshot of a computer program

Description automatically generated