1.1P: Preparing for OOP – Answer Sheet

1. Explain the following terminal instructions:
   1. cd: Used to change directory
   2. ls: Used to list files and folders in the current directory
   3. pwd: Prints the current working directory
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 | bool |

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

|  |  |
| --- | --- |
| Data type | Suggested Information |
| String | Address |
| Integer | Items in cart |
| Float | Account balance |
| Boolean | Is account locked or unlocked |

1. 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 | 5 | int |
| True | True | True | bool |
| a | a = 2.5 | 2.5 | float |
| 1 + 2 \* 3 | 1  2  3 | 7 | int |
| a and False | a = True | False | bool |
| a or False | a = True | True | bool |
| a + b | a = 1  b = 2 | 3 | int |
| 2 \* a | a = 3 | 6 | int |
| a \* 2 + b | a = 1.5 b = 2 | 5 | int |
| a + 2 \* b | a = 1.5  b = 2 | 5.5 | float |
| (a + b) \* c | a = 1  b = 1  c = 5 | 10 | int |
| “Fred” + “ Smith” |  |  | string |
| a + “ Smith” | a = “Wilma” | Wilma Smith | string |

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

The difference between the two is declaring a variable is when you specify the type (int) and identifier (a for example), but not assigning a value to it, whilst defining a variable is when you assign a value to the variable, for example, int a = 5, int is the type, a is the identifier, and 5 is the value.

1. Explain the term **parameter**. Write some code that demonstrates a simple of use of a parameter.

A parameter is a variable inside a method. We can assign values and call these parameters from the method.  
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1. Using an example, describe the term **scope**.

Scope refers to a region of code where variables can be called and used. These are usually class-level variables, which can be accessed from any method in the class, and method-level variables which are exclusively accessed in their methods and cannot be accessed outside them.

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Here we have classlevel variable which is defined within the Scope class but outside of the other methods. So it can be called from anywhere within the class, whilst methlevel variable is defined inside the MethodScope method and is restricted inside there.

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

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

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1. To the code from 9, add code to print the message “Double digits” if the average is above 10. Otherwise, print the message “Single digits”.

