

1.1P: Preparing for OOP – Answer Sheet

1. Explain the following terminal instructions:
 - a. cd: changes the directory
 - b. ls: Lists the files in current directory
 - c. pwd: Shows the current path

```
PS C:\Users\admin> ls

Directory: C:\Users\admin

Mode                LastWriteTime         Length Name
----                -
d-----          2021/04/29      13:33           .atom
d-----          2021/03/01      20:12           .cisco
d-----          2021/08/20      14:21           .dotnet
d-----          2021/03/02      12:44           .gem
d-----          2021/09/25       8:46           .nugget
d-----          2021/08/13      12:42           .redhat
d-----          2020/06/06       0:12           .VirtualBox
d-----          2021/03/12      13:07           .vscode
d-r-----          2021/03/13      22:18          3D Objects
d-r-----          2022/01/10      23:08 Cisco Packet Tracer 7.3.1
d-r-----          2021/03/13      22:18          Contacts
d-r-----          2022/01/21      17:19          Desktop
d-r-----          2021/11/20      19:25          Documents
d-r-----          2022/03/02       1:00          Downloads
d-r-----          2021/03/13      22:18          Favorites
d-r-----          2021/03/13      22:18          Links
d-r-----          2021/03/13      22:18          Music
dar-----          2021/05/20       1:20          OneDrive
```

```
PS C:\Users\admin> pwd

Path
----
C:\Users\admin
```

```
PS C:\Users\admin> cd C:\Users\admin\OneDrive\Desktop\ruby\Resources7.1p
PS C:\Users\admin\OneDrive\Desktop\ruby\Resources7.1p> |
```

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	Integer
A phone number	Integer
A temperature in Celsius	Float/double
The average age of a group of people	Float/double
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:

Data type	Suggested Information
String	My cats dads name

Integer	Number of Bees in the world
Float	How much I weigh
Boolean	Whether I can code

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

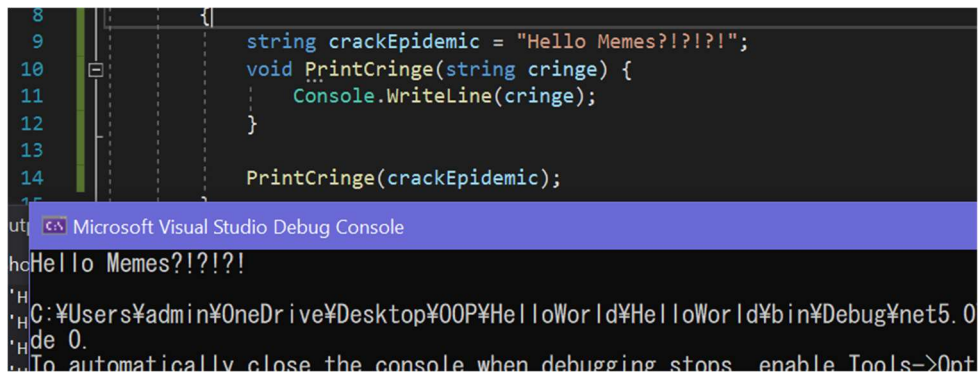
Expression	Given	Value	Data Type
5		5	Integer
True		true	Boolean
a	a = 2.5	2.5	float
1 + 2 * 3		7	integer
a and False	a = True	False	Boolean
a or False	a = True	true	Boolean
a + b	a = 1 b = 2	3	Integer
2 * a	a = 3	6	Integer
a * 2 + b	a = 1.5 b = 2	5	Integer
a + 2 * b	a = 1.5 b = 2	5.5	Float
(a + b) * c	a = 1 b = 1 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.

The difference between the two is declaring a variable makes the variable exist within the program without any assignment to anything. Initialising is when the variable gets assigned to a value

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

A parameter identifies values that get passed into a function



```
8
9
10 string crackEpidemic = "Hello Memes?!?!?!";
11 void PrintCringe(string cringe) {
12     Console.WriteLine(cringe);
13 }
14
15 PrintCringe(crackEpidemic);
```

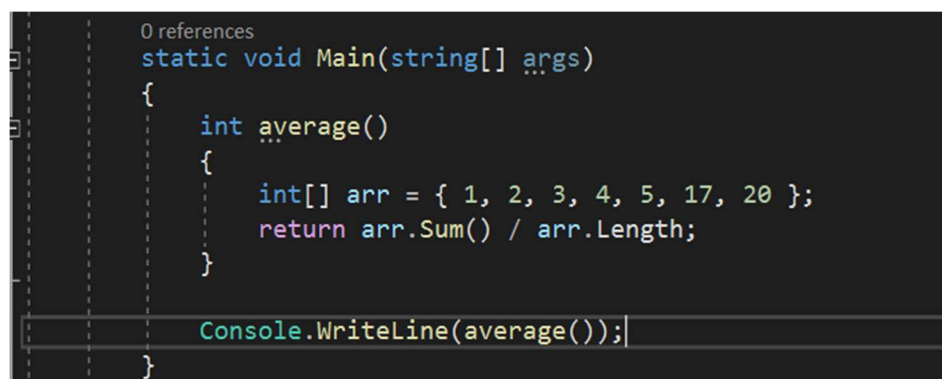
Microsoft Visual Studio Debug Console

hoHello Memes?!?!?!
C:\Users\admin\OneDrive\Desktop\00P\HelloWorld\HelloWorld\bin\Debug\net5.0
de 0.
To automatically close the console when debugging stops, enable Tools->Output

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

Scope describes where variables can be accessed. You cannot access a variable declared in a different function/procedure unless you make variable global (not recommended)

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.



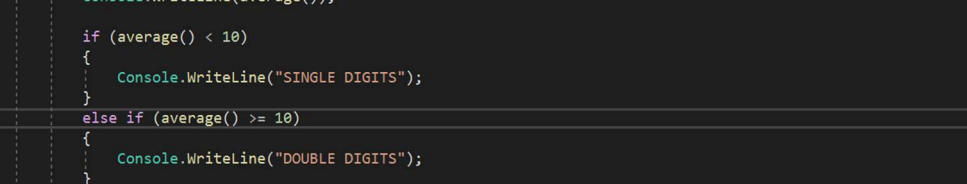
```
0 references
static void Main(string[] args)
{
    int average()
    {
        int[] arr = { 1, 2, 3, 4, 5, 17, 20 };
        return arr.Sum() / arr.Length;
    }

    Console.WriteLine(average());
}
```

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

```
7 0 references
8 static void Main(string[] args)
9 {
10     int average()
11     {
12         int[] arr = { 1, 2, 3, 4, 5, 17, 20 };
13         return arr.Sum() / arr.Length;
14     }
15
16     Console.WriteLine(average());
17 }
18
19
20
```

10. 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".



The screenshot shows the Visual Studio IDE with a C# program in the background and the Microsoft Visual Studio Debug Console in the foreground. The C# code defines a `CalculateAverage` method that calculates the average of an array of integers and prints the result. It uses `Console.WriteLine` to output the average and conditional logic to print "SINGLE DIGITS" or "DOUBLE DIGITS" based on whether the average is less than or greater than or equal to 10. The Debug Console shows the output of the program, including the average value (7.5) and the message "SINGLE DIGITS". It also displays the process exit message and a prompt to automatically close the console when debugging stops.

```
15  
16 Console.WriteLine(average());  
17  
18  
19 if (average() < 10)  
20 {  
21     Console.WriteLine("SINGLE DIGITS");  
22 }  
23 else if (average() >= 10)  
24 {  
25     Console.WriteLine("DOUBLE DIGITS");  
26 }  
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99  
100 }
```

Microsoft Visual Studio Debug Console

Out
7
Sh SINGLE DIGITS
The process has finished with an exit code of 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
Th