Introduction to Programming

Exercises

Week 1

Prior to attempting these exercises ensure you have read the lecture notes and/or viewed the video, and also completed the practical. You may wish to use the Python interpreter in interactive mode to help work out the solutions to some of the questions.

Download and store this document within your own filespace, so the contents can be edited. You will be able to refer to it during the test in Week 6.

|  |
| --- |
| Enter your answers directly into the highlighted boxes. |
|  |

For more information about the module delivery, assessment and feedback please refer to the module within the MyBeckett portal.

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What is the name of the programming language that we will be using on this module? What version of the language are we using?

*Answer:*

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| --- |
| Python |
|  |

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*Answer:*

|  |
| --- |
| Displays output |
|  |

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*Answer:*

|  |
| --- |
| First Generation Programming Language |
|  |

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* C++
* Java
* Assembly
* R
* Python

*Answer:*

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| --- |
| Assembly |
|  |

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** State one problem associated with writing code in Assembly Language.

*Answer:*

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| --- |
| Not portable and difficult to code |
|  |

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*Answer:*

|  |
| --- |
| Third Generation Programming Language |
|  |

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*Answer:*

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| --- |
| Compiler converts the high level language code into machine code |
|  |

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*Answer:*

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| --- |
| Read Evaluate Print and Loop |
|  |

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Is it true that Python development always has to take place using *interactive-mode* within the Python interpreter?

*Answer:*

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| --- |
| No |
|  |

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*Answer:*

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| --- |
| Integrated Development Environment |
|  |

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*Answer:*

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|  |
| to reduce the amount of code a programmer needs to write by providing reusable functions or classes that can be called upon as needed. |

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The Python language is often used in the field of *data-science*. What other language specifically supports *data-science*?

*Answer:*

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| --- |
| R and SQL |
|  |

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Given an expression such as: 20 + 10, which part of this is the *operator*?

*Answer:*

|  |
| --- |
| Operator is + |
|  |

And, which part of this is the *operand*?

*Answer:*

|  |
| --- |
| Operand is 20 and 10 |
|  |

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*Answer:*

|  |
| --- |
| Multiplication |
|  |

And, what calculation is performed by the ‘/’ operator?

*Answer:*

|  |
| --- |
| Division |
|  |

And, what calculation is performed by the ‘\*\*’ operator?

*Answer:*

|  |
| --- |
| Exponentiation |
|  |

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Using the information about expression evaluation provided in the related tutorial, evaluate each of the following expressions **in your head** and type the result in the answer boxes below. Remember that an operator precedence is applied, but can be overridden by the use of parentheses.

1. 100 + 200 - 50*Answer:*

|  |
| --- |
| 250 |
|  |

1. 10 + 20 \* 10*Answer:*

|  |
| --- |
| 210 |
|  |

1. 20 % 3*Answer:*

|  |
| --- |
| 2 |
|  |

1. 20 / (2 \* 5)*Answer:*

|  |
| --- |
| 2 |
|  |

1. 20 / 2 \* 5*Answer:*

|  |
| --- |
| 50 |
|  |

1. 10 \* 2 + 1 \* 3*Answer:*

|  |
| --- |
| 23 |
|  |

1. 5 + 10 \*\* 2

*Answer:*

|  |
| --- |
| 105 |
|  |

1. (10 + 2 / 2) + ((10 \* 2) \*\* 2)*Answer:*

|  |
| --- |
| 411 |
|  |

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Use the Python interpreter to input and then execute a simple Python expression that adds the three numbers 100.6, 200.72 and 213.3, then write the result in the answer box below.

*Answer:*

|  |
| --- |
| num1=100.6  num2=200.72  num3=213.3  sum=num1+num2+num3  print(f"The sum is {sum}") |
| result= The sum is 514.62 |

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*Answer:*

|  |  |
| --- | --- |
| num1=20.25  num2=100  num3=23.9  product=num1\*num2\*num3  print(f"The product is {product}") |  |
| result= The product is 48397.5 |  |

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Use the Python interpreter to input and then execute a simple Python expression that divides the number 10 by 0, then write the result in the answer box below.

*Answer:*

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| --- |
| div=10/0  print(div)  result= ZeroDivisionError: division by zero |
|  |

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What type of error is typically easier to identify? A *syntax* error? Or a *logical* error?

*Answer:*

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| --- |
|  |
| Syntax error |

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*Answer:*

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| --- |
| something exceptional has occurred, and that your program cannot continue unless it is handled. |
|  |

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*Answer:*

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| --- |
| Functions= exit() and quit()  Alternatively, you can use the Ctrl + Z command to exit a Python program in the terminal in Windows and Ctrl + D in macOS. |
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# Exercises are complete

Save this logbook with your answers. Then ask your tutor to check your responses to each question.