# Introduction to Programming

## Exercises

### Week 1

Prior to attempting these exercises ensure you have read thelecture 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:*

The name of the programming language that will be using on this module is Python. The verison of the language that we are using is 3.x

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A computer program takes some *input*, performs some *processing* then…. what?

*Answer:*

A computer program takes some computer program takes some *input*, performs some *processing* then give *Output.*

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What generation of programming language is *machine code*?

*Answer:*

Machine code is the first generation of programming language.

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Which of the following is known as a second generation programming language?

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

*Answer:*

Assembly language is known as a second generation programming language.

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State one problem associated with writing code in Assembly Language.

*Answer:*

One problem associated with Assembly language is that it is not portable which means that a program written in one computer architecture does not run in another.

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What generation of programming language is *Python*?

*Answer:*

Python is the third generation of programming language.

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What is the purpose of a *compiler*?

*Answer:*

The purpose of a compiler is to translate a code written in high level language into intermediate form.

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The Python interpreter uses an interaction model called **REPL**. What does this stand for?

*Answer:*

REPL stands of Read Evaluate Print Loop.

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

*Answer:*

No

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What does the term IDE stand for?

*Answer:*

IDE stands for Integrated Development Environment.

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What is the main reason why programmers use *code libraries*?

*Answer:*

The main reason why programmers use code libraries is because it simplifies coding for developers by providing the reusable functions .

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

*Answer:*

Some other languages that specifically support data-science are R and SQL.

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An expression within a programming language consists of *operands* and *operators*.

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

*Answer:*

The operator is +

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

*Answer:*

20 and 10 are the operands

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

*Answer:*

The given operator is used to perform multiplication.

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

*Answer:*

The given operator is used to perform division operations.

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

*Answer:*

The given operator is used to return the power of two numbers in python .

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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.

a) 100 + 200 - 50

*Answer:*

250

b) 10 + 20 \* 10

*Answer:*

210

c) 20 % 3

*Answer:*

2

d) 20 / (2 \* 5)

*Answer:*

2

e) 20 / 2 \* 5

*Answer:*

50

f) 10 \* 2 + 1 \* 3

*Answer:*

23

g) 5 + 10 \*\* 2

​​​*Answer:*

105

h) (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:*

x=100.6

y=200.7

z=213.3

Add= x+y+z

print("The sum is",Add)

The sum is 514.5999999999999

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Use the Python interpreter to input and then execute a simple Python expression that multiplies the three numbers 20.25, 100 and 23.9, then write the result in the answer box below.

*Answer:*

x=20.25

y=100

z=23.9

Product=x\*y\*z

print("The product is",Product )

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:*

ZeroDivisonError:divison by zero

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

*Answer:*

Syntax error is typically easier to identify.

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What type of message is used by the Python interpreter to report run-time errors?

*Answer:*

Traceback message is used by the python interpreter to report run-time errors.

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What command can be used to exit the Python interpreter?

*Answer:*

“exit()” command can be used to exit the python interpreter.

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## **Exercises are complete**

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