# 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:*

We will be using Python as the programming language and the version we will be using is 3.x

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

*Answer:*

The computer program takes some input, performs some processing then give output.

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What generation of programming language is *machine code*?

*Answer:*

Frist-generation of programming language is machine code.

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

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

*Answer:*

Assembly

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State one problem associated with writing code in Assembly Language.

*Answer:*

One problem associated with writing code in Assembly Language is its complexity and lack of readability.

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What generation of programming language is *Python*?

*Answer:*

Python is considered as the third-generation language.

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What is the purpose of a *compiler*?

*Answer:*

Compiler helps to translate codes written in high-level programming language such as:- Java, Python, C++ and many more into machine code.

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

*Answer:*

REPL stands for 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, it’s not true that Python development always has to take place using interactive-mode with the Python interpreter.

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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 that programmers prefer use libraries is because as libraries simplifies coding for developers by providing reusable features for specific functionalities which makes it easier for programmers to code.

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

*Answer:*

R, SQL( Structured Query Language) are some other languages used in the field of data science.

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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:*

“+” is the operator in this given expression.

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

*Answer:*

20 & 10 are the operand in the given expression.

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

*Answer:*

‘\*’ operator is used to perform multiplication in python.

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

*Answer:*

‘/’ operator is used to perform division in python.

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

*Answer:*

‘\*\*’ operator is used to return the power of two numbers/ variables 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:*

50

e) 20 / 2 \* 5

*Answer:*

2

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=200.72

z=213.3

add=A+B+C

print(f"the sum of {A,B,C} is {add}")

result: the sum of (100.6, 200.72, 213.3) is 514.62

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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

mult=a\*b\*c

print(f"the product of {a,b,c} is {mult}")

result: the product of (20.25, 100, 23.9) is 144.15

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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:*

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:*

Syntax error is easier to identify.

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

*Answer:*

Python interpreter uses Traceback message to report run-time errors

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What command can be used to exit the Python interpreter?

*Answer:*

“exit()” command is 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.