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

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

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:

Python, 3.x version.

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

Answer:

produces output.

What generation of programming language is *machine code*?

Answer:

Machine code is a first-generation programming language.

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

- C++
- Java
- Assembly
- R
- Python

Answer:

Assembly is known as a second generation programming language.

State one problem associated with writing code in Assembly Language.

Answer:

It is complex as well as difficult to maintain.

What generation of programming language is *Python*?

Answer:

Third generation programming language.

What is the purpose of a *compiler*?

Answer:

The purpose of a compiler is to translate source code written in a high-level programming language into machine code , enabling the program to be executed by a computer's hardware.

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

Answer:

It stands for Read-Eval-Print Loop.

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 within the Python interpreter.

What does the term IDE stand for?

Answer:

It stands for Integrated Development Environment.

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

Answer:

Programmers use code libraries to save time, to reuse code and increase efficiency in development.

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

Answer:

R is another language that specifically supports data science.

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:

In the given expression, + is the operator.

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

Answer:

Here, 20 and 10 are operands.

Within Python, what calculation is performed by the '*' operator?

Answer:

Within Python, multiplication is performed by the ' * ' operator.

And, what calculation is performed by the '/' operator?

Answer:

Division is performed by the ' / ' operator.

And, what calculation is performed by the '**' operator?

Answer:

Exponentiation is performed by the ' ** ' operator .

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:

2.0

```
e) 20 / 2 * 5
```

Answer:

50.0

```
f) 10 * 2 + 1 * 3
```

Answer:

23

```
g) 5 + 10 ** 2
```

Answer:

105

```
h) (10 + 2 / 2) + ((10 * 2) ** 2)
```

Answer:

411.0

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:

514.62

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:

48485.0

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:

Gets an error

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

Answer:

A syntax error is typically easier to identify.

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

Answer:

Exception message is used by the Python interpreter to report run-time errors.

What command can be used to exit the Python interpreter?

Answer:

The command exit () or quit () can be used to exit the Python interpreter.

Exercises are complete

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