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.

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 programming language of version 3.9.7 in this module.

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

Answer:

A computer program takes some input, performs some processing then generates output.

What generation of programming language is *machine code*?

Answer:

Machine code is first generation of programming language.

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

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

Answer:

Assembly

State one problem associated with writing code in Assembly Language.

Answer:

The syntax is difficult to remember.

What generation of programming language is *Python*?

Answer:

Python is fourth generation of programming language.

What is the purpose of a *compiler*?

Answer:

Compiler translates source code to machine code.

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:

Yes it is true.

What does the term IDE stand for?

Answer:

IDE stands for Integrated Development Environment.

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

Answer:

Programmers use code libraries because they provide pre-written, reusable chunks of code that developers can use to create applications quickly and easily.

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

Answer:

Java does.

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.

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

Answer:

20 and 10 are the operands.

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

Answer:

'*' performs multiplication.

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

Answer:

‘/’ operator performs division.

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

Answer:

‘**’ operator performs exponentiation.

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:

514.6

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:

48397.5

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:

Undefined

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

Answer:

Syntax error is typically easier to identify.

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

Answer:

If an error occurs during the parsing stage, the Python interpreter will stop the translation and display an error message (syntax error).

What command can be used to exit the Python interpreter?

Answer:

You can exit the interpreter by typing the following command: **quit()** .

Exercises are complete

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