## Exercises

### Week 1

### 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:*

3.10.9

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

*Answer:*

Gives meaningful output and store it for future use.

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What generation of programming language is *machine code*?

*Answer:*

First generation

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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:*

Complexity and portability

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What generation of programming language is *Python*?

*Answer:*

Third generation programming language

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What is the purpose of a *compiler*?

*Answer:*

Compiler helps to convert programming languages into computer-executable machine readable code.

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

*Answer:*

REPL stands for Read-Eval-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, Python development does not have to take place within the Python interpreter in interactive mode.

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What does the term IDE stand for?

*Answer:*

Integrated Development Environment

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

*Answer:*

They use it for code reusability, time efficiency and access to specialized features, reliability etc.

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

*Answer:*

SQL, Ruby, Java, R

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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:*

Addition “+”

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

*Answer:*

The numbers “20” and “10”

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

*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.

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:*

Add\_num=100.6+200.72+213.3

Print (Add\_num)

# the sum 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:*

multiply\_num=20.25\*100\*23.9

Print (multiply\_num)

# the result is 48,397.5

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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:*

divide\_num=10/0

Print (divide\_num)

# the result is not divisible

#zerodivisionerror

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

*Answer:*

A syntax error

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

*Answer:*

Exceptions

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What command can be used to exit the Python interpreter?

*Answer:*

Exit ()

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