

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.

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- 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: The name of the programming language that we will be using on this module is python. The version of the language that we are using is python 3.11.6 .

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

Answer: A computer program takes some input, performs some processing then produces some output.

- 3. What generation of programming language is *machine code*?**

Answer: First generation of programming language is machine code.

- 4. 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

- 5. State one problem associated with writing code in Assembly Language.**

Answer: Assembly language makes assembly code not portable.

- 6. What generation of programming language is *Python*?**

Answer: Fourth generation of programming language

- 7. What is the purpose of a *compiler*?**

Answer: The purpose of a compiler is to convert high-level programming language into assembly/machine code.

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

Answer: Read- Eval- Print Loop

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

Answer: No, it is not true that Python development always has to take place using interactive-mode within the Python interpreter.

10. What does the term IDE stand for?

Answer: Integrated Development Environment.

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

Answer: The main reason why programmers use code libraries is to contain pre-written code.

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

Answer: C, C++, Java, R and SQL are other language specifically supports data-science

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

14. 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: The operand are the numbers 20 and 10.

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

Answer: 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.

16. 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

17. 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=100.6+200.72+213.3

print(add)

514.62

18. 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=20.25*100*23.9*

print(multiply)

48397.5

19. 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: 10/0

Traceback (most recent call last):

File "<stdin>", line 1, in <module>

ZeroDivisionError: division by zero

20. 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.

21. 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

22. What command can be used to exit the Python interpreter?

Answer: *exit()* 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.