

Exercises - Chapter 1

1. What is the function of the secondary memory in a computer?

- a) Execute all of the computation and logic of the program
- b) Retrieve web pages over the Internet
- c) Store information for the long term, even beyond a power cycle
- d) Take input from the user

2. What is a program?

A set of instructions that specifies a computation.

3. What is the difference between a compiler and an interpreter?

A compiler translates a whole program file written in a high-level language into a low-level language, ready for later execution.

An interpreter executes a program in a high-level language one line at a time.

4. Which of the following contains "machine code"?

- a) The Python interpreter
- b) The keyboard
- c) Python source file
- d) A word processing document

5. What is wrong with the following code:

```
>>> print 'Hello world!'
File "<stdin>", line 1
    print 'Hello world!'
SyntaxError: invalid syntax
>>>
```

There is a syntax error, the reserved word for the print function is 'print' and it needs to be followed by (). Eg. print('Hello world!')

6. Where in the computer is a variable such as "x" stored after the following Python line finishes?

```
x = 123
```

- a) Central processing unit
- b) Main Memory
- c) Secondary Memory
- d) Input Devices
- e) Output Devices

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7. What will the following program print out:

```
x = 43
x = x + 1
print(x)
```

- a) 43
- b) 44
- c) x + 1
- d) Error because $x = x + 1$ is not possible mathematically

8. Explain each of the following using an example of a human capability: (1) Central processing unit, (2) Main Memory, (3) Secondary Memory, (4) Input Device, and (5) Output Device.

For example, "What is the human equivalent to a Central Processing Unit"?

Central Processing Unit - Brain

Main Memory - Short-term memory

Secondary Memory - Long-term memory

Input Device - The 5 senses, eyes, skin, ears, tongue, nose

Output Device - Mouth (voice), body (movement)

9. How do you fix a "Syntax Error"?

Start at the line the error was triggered at and check the grammar of the code.