



Program Execution



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1 Introduction

How was the pre-class content? Did you cover the
Program Execution?

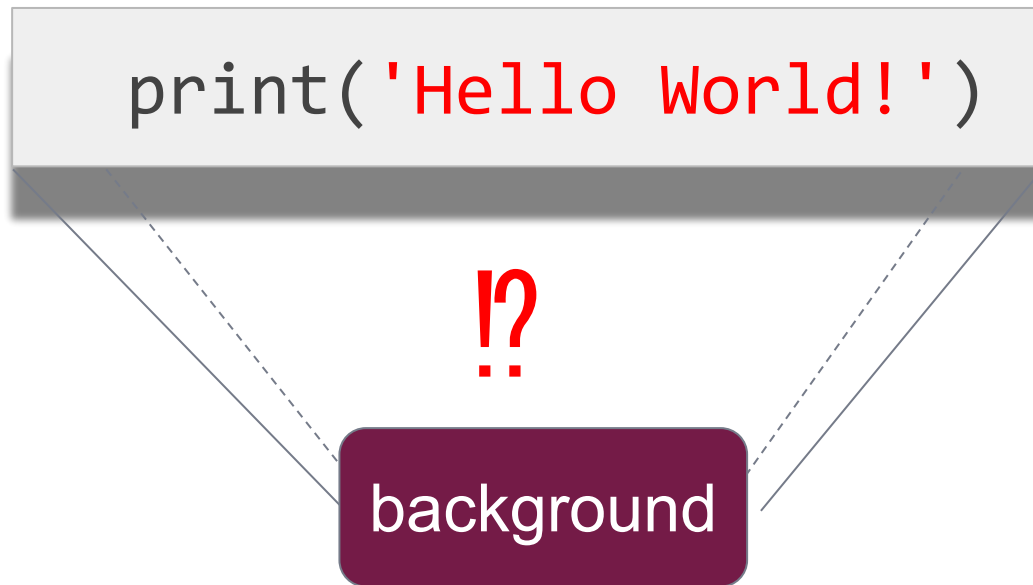


Students, drag the icon!

Pear Deck Interactive Slide
Do not remove this bar



Introduction (review)





Introduction (review)

- ▶ Several Interpreter tools :

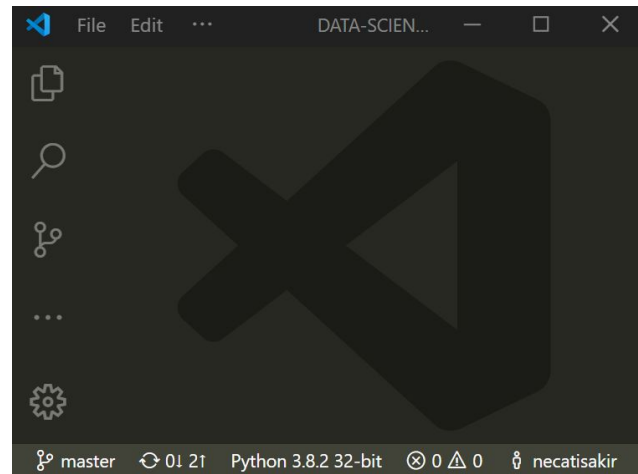
Python Shell

OS Console

IDEs

A screenshot of the Python 3.8.2 Shell window. The title bar reads "Python 3.8.2 Shell". The menu bar includes "File", "Edit", "Shell", "Debug", "Options", "Window", and "Help". The main text area shows the Python startup message: "Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (Intel)] on win32". It prompts the user to "Type 'help', 'copyright', 'credits' or 'license' for more information." and shows the prompt ">>> |". The status bar at the bottom indicates "Ln: 3 Col: 4".

A screenshot of a Windows Command Prompt window titled "Command Prompt - python". The command prompt shows the execution of the "python" command. The output is the same Python startup message as seen in the shell window. The user has entered ">>> print('hello')", and the output "hello" is displayed. The prompt ">>>" is shown again.





Introduction (review)

- ▶ The process of program execution (the program flow) basically looks like this :





2

The Interpretation

Typed script

Interpretation

Everything is
done!



▶ The Interpretation (review)

What is the interpretation
process?





▶ The Interpretation (review)

What is the interpretation process?



Simply, we can say that this is like **reading your codes.**

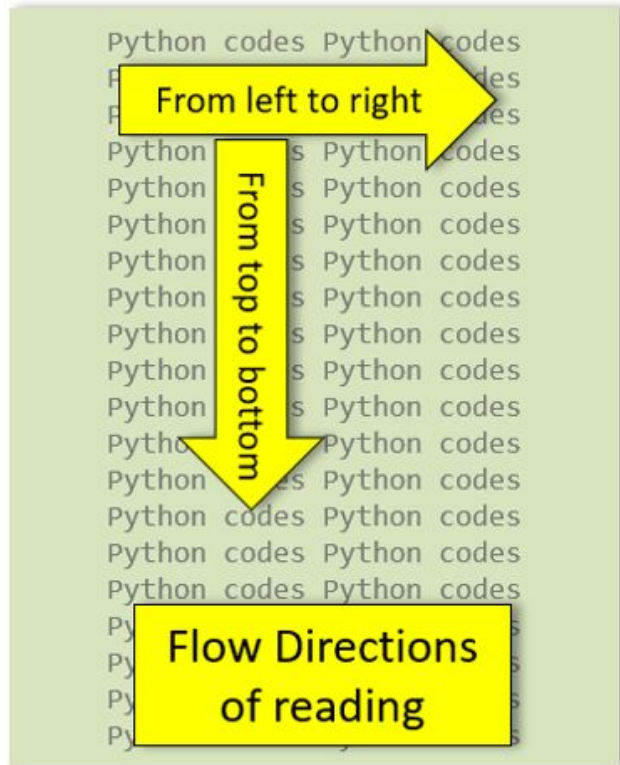


The Interpretation (review)

What is the interpretation process?

?

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The Interpretation (review)

CPython

Python's default interpreter is a software written in the **C** programming language known as CPython.

Could you remember these interpreters?



Write down their names.



Students, write your response!



The Interpretation (review)

Jython

It is an interpreter that works with a Java-based algorithm and converts Python codes into Java-compatible byte code, which will be executed later by the Java Virtual Machine.



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It is a replacement for CPython. It is built using the RPython language that was co-developed with it. The main reason to use it instead of CPython is speed: RPython (Restricted Python) provides some restrictions to the usual Python code.



The Interpretation (review)

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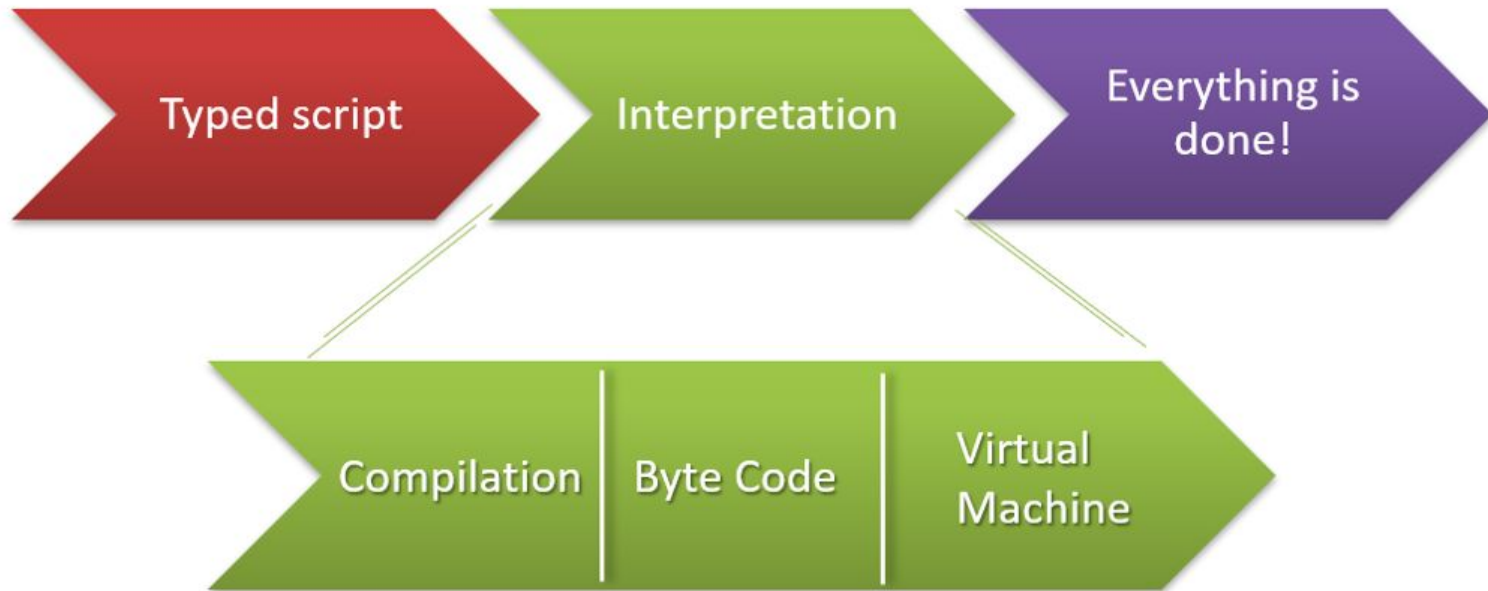
IronPython

It is an open-source implementation of the Python which is tightly integrated with the .NET Framework.



The Interpretation Process

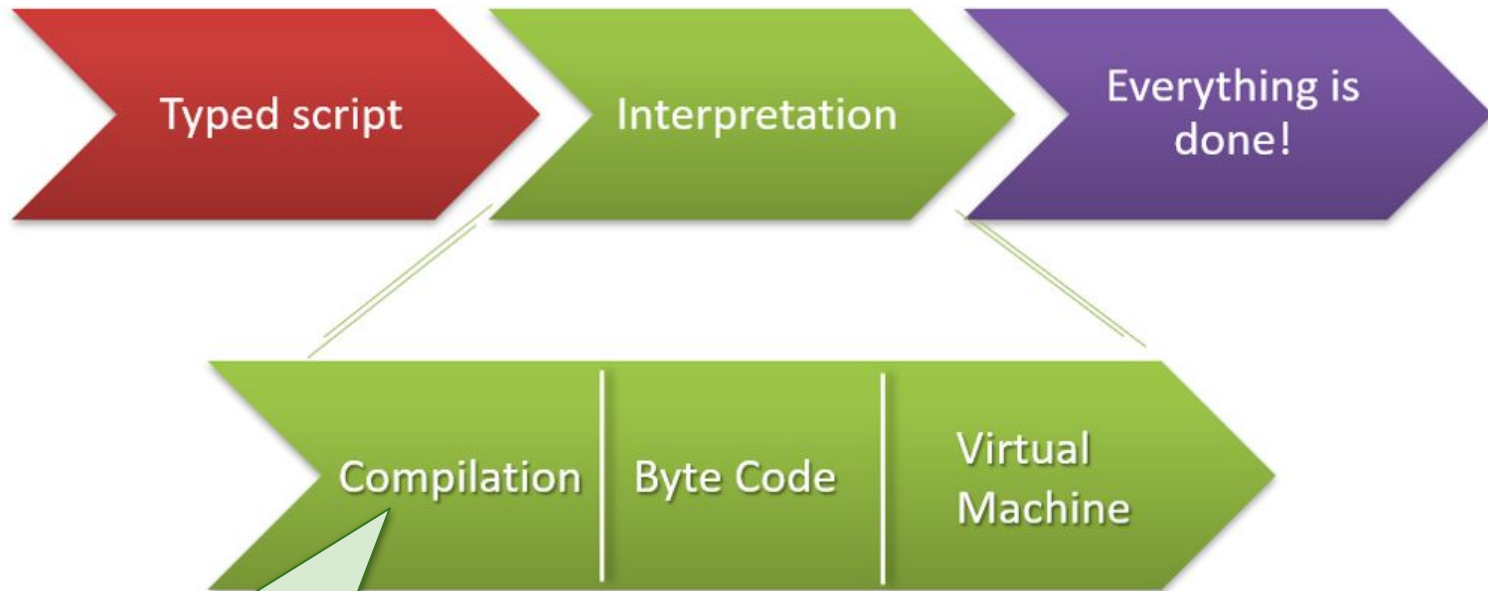
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The Interpretation Process

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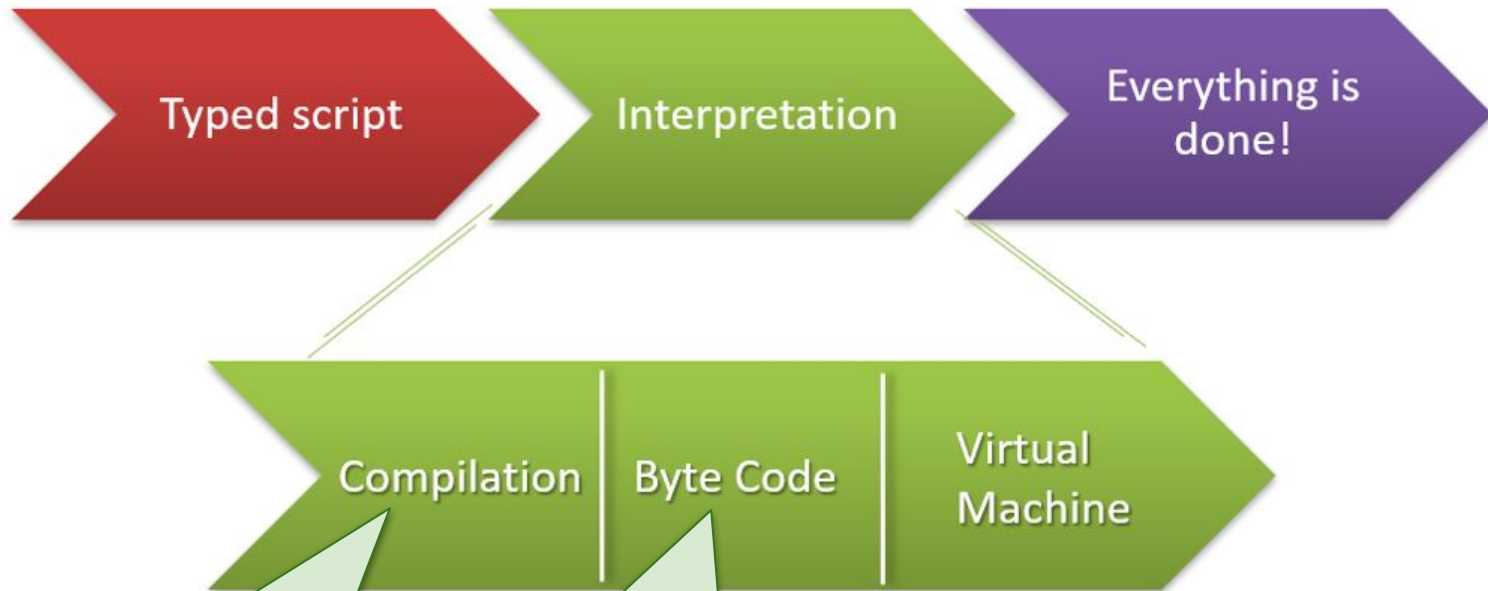


The compiler translates your Python statements (source code) into **byte-code**.



The Interpretation Process

(re)



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Byte code is platform-independent, primitive level and specific version of the Python source code.



The Interpretation Process

(re)



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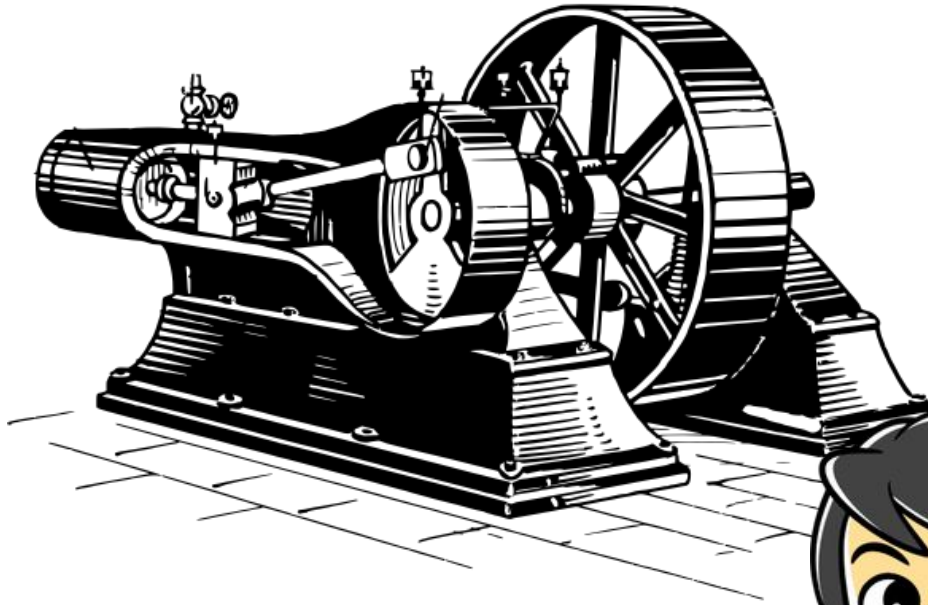
After compilation of Python statements into **byte-code**, it is now time for Python **Virtual Machine** to run.



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Virtual Machine

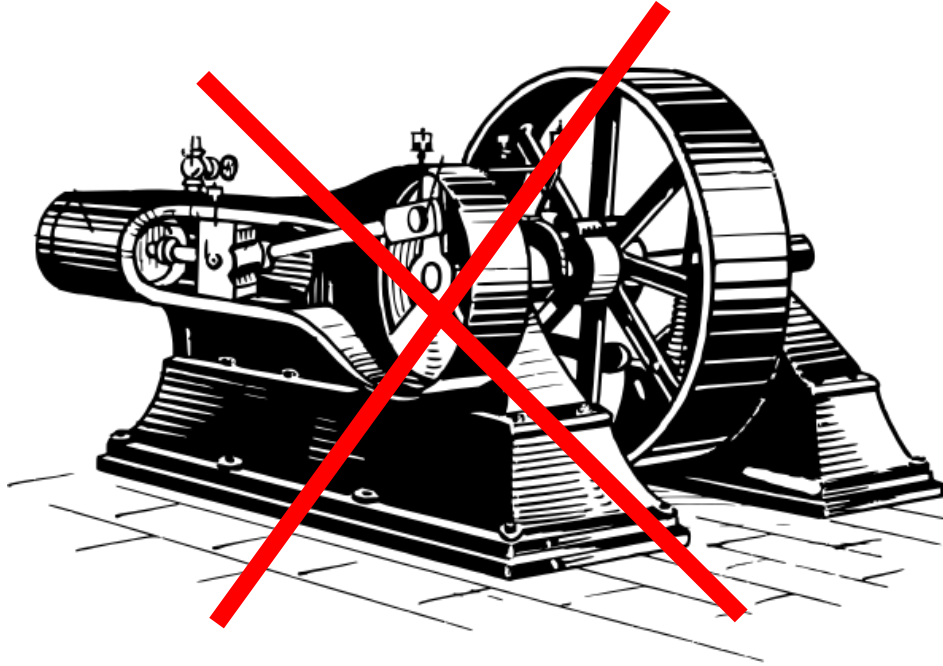
What is a Virtual Machine (review)



Is it a
mechanical
machine or
hardware?



Virtual Machine (review)

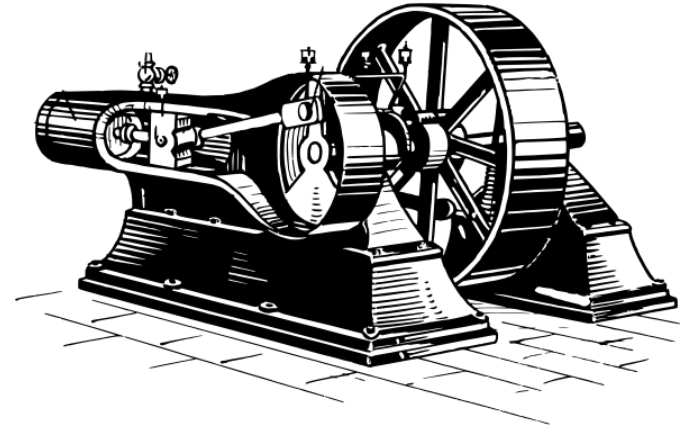
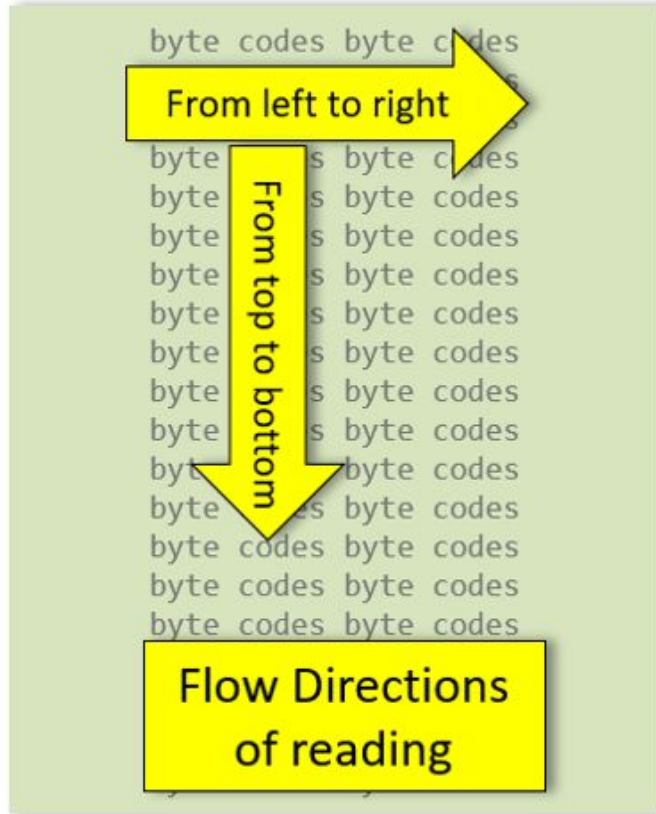


It is actually nothing
but software made up
of a large piece of
code



```
#####  
#####  
#####
```

Virtual Machine (review)



How well did you like this lesson? Did you learn all topics?



Students, drag the icon!



THANKS!

End of the Lesson (Program Execution)

next Lesson

Errors

click above

