Introduction to Python

Chapter-1

Contents

No classes required

- Python
  - Write program without creating any class
  - Combines features of C & Java

Features of Python

- Simple
- Easy to learn
- Open source
- High level language
- Dynamically typed
- Platform independent
- Portable
- Procedure & object oriented

Features of Python

- Interpreted
- Extensible
- Embeddable
- Huge library
- Scripting language
- Database connectivity
- Several packages already available
  - argparse, cherrypy, cryptography, Fiona, jellyfish, mysql-connector-python, numpy, pandas, matplotlib, pillow, pyquery, scipy, sphinx, sympy, w3lib

Python program execution

- <filename>.py
- Python compiler
  - Converts the source code into bytecode
  - Byte code
    - Represents a fixed set of instructions that represent all operations

    (arithmetic operations, comparison operations, memory related operations, etc.)
    - Size: 1 byte (so, known as byte code)
    - <filename>.pyc : python compiled file
    - Can’t run directly on computer (computer can only run binary code)
      - Requires PVM Python Virtual Machine
        - PVM understands byte code, converts into binary code i.e. machine code (as per underlying platform)

Python program execution

- Interpreter
  - Translates program source code line by line; slow.
  - Interpreter that is found inside PVM runs the python program slowly.
  - Now JIT (just in time) compilers are available.
    - Not available in all Python environments.
    - The std. python s/w i.e. Cpython doesn’t contain JIT.
    - Available in PyPy.
- C:\<path>\python <filename>.py
- C:\<path>\python –m py_compile <filename>.py
  - Bytecode available in: __py_cache__
  - C:\<path>__py_cache__\<filename>.cpython-38.pyc

- How to view the byte code?
  - python –m dis <filename>.py
- Flavors of Python
  - Cpython
  - Jython
  - IronPython
  - PyPy
  - RubyPython
  - StacklessPython
  - Pythonxy