

Large Standard Libraries

A library is predefined programs with predefined functionality or pre written functions. Python provides large set of libraries.

This makes it application development easy.

This libraries are exists in a repository called,

www.pypi.org (Python Package Index)

Python libraries are called packages, which are collection of programs (modules).

Data Science Libraries

Pandas

Numpy

Scipy

Matplotlib

ScikitLearn

Web Development Libraries

Django

Flask

Cherrypy

FastAPI

Dynamic Programming Language

Programming languages are two types

1. Static Programming Language
2. Dynamic Programming Language

Static Programming Language

C,C++,Java are called static programming languages or statically typed programming languages.

In statically typed programming languages, variable declarations are required. Variables are bind with one data type.

Dynamically typed programming languages

All scripting languages are dynamically typed programming languages.

Dynamically typed programming language variable declarations are not required. Variables are not bind with one data type. The data type of variable changes based on value.

Platform Independent

Programming Languages are two types

1. Platform dependent languages
2. Platform Independent languages

What is platform?

Platform is a software which provides a good environment for developing and execution of applications.

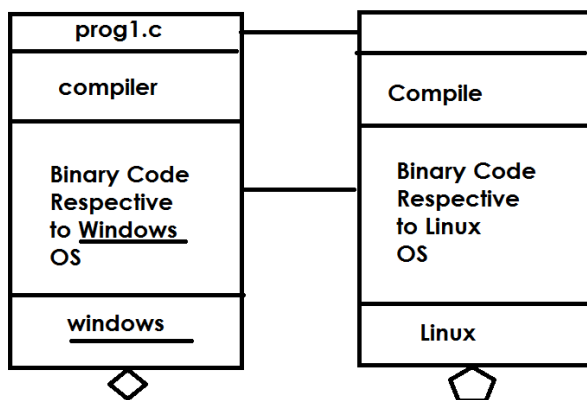
Operating System is called platform.

Operating System is a software which acts are interface between software and hardware.

Platform dependent languages

C,C++ are called platform dependent languages.

In platform dependent languages development environment and execution environment must be same.



Why C,C++ are platform dependent languages?

1. When C,C++ programs compiled, C,C++ compilers generates binary code respective to operating System. This binary code is OS dependent.
2. Data types size of platform dependent languages are not fixed, it changes from one OS to another OS.

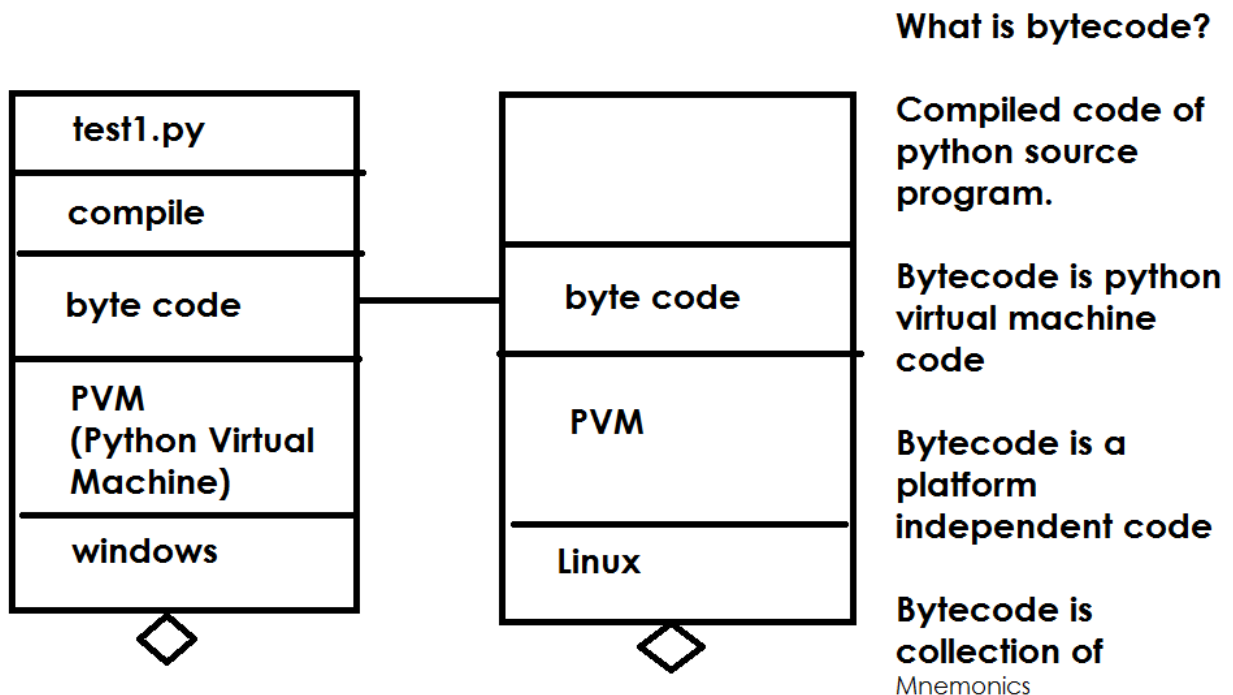
	16bitOS	32bitOS
Int	2bytes	4bytes
Long	4bytes	8bytes

Platform Independent Language

In platform independent languages, development environment and execution environment may not be same.

WORA → WRITE ONCE AND RUN ANY WHERE

CORA → COMPILE ONCE AND RUN ANY WHERE



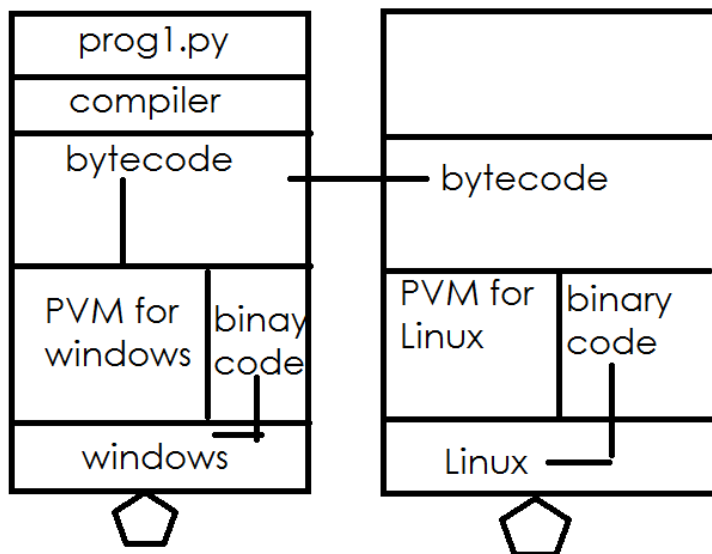
What is PVM?

PVM stands Python Virtual Machine.

PVM is software which provides runtime environment for executing byte code/python programs.

PVM translates bytecode into binary code.

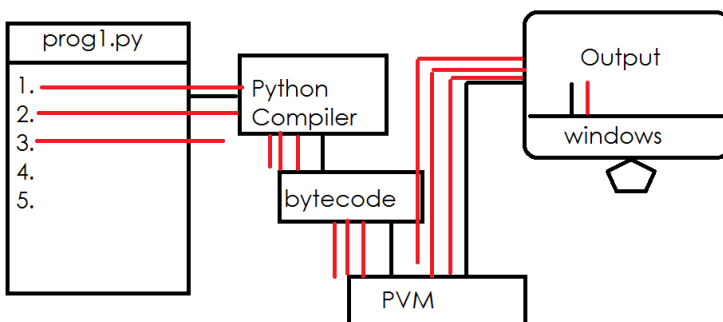
PVM is a platform dependent software.



Data types and sizes are not dependents of OS.

Interpreted language

In python, compiler generates byte code, which is interpreted by PVM(Interpreter) into binary. In python compilation and interpretation is done line by line, hence it is called interpreted language.



Extensible and Embeddable

Python code can be inserted into other languages, is called embeddable.

Using other languages code within python is called extensible.

Python provided different implementations.

1. Jython (Java+Python)
2. Ironpython (.Net+Python)
3. Pypy (Python)
4. RPython (R+Python)
5. MicroPython (Assembly Language+Python)
6. RubyPython (Ruby+Python)

High Level and Portable

All high level programming languages are English like and easy to understand.

All high level languages are portable, portability allows developing and running applications/programs irrespective of hardware.

Robust

Python is robust languages, it is having exception handling mechanism to handle errors occurs during runtime.

Using python, a programmer can develop error free programs.

Object Oriented

Object oriented is a programming paradigm; it defines set of rules and regulations for writing programs.

1. Encapsulation
2. Polymorphism
3. Inheritance
4. Abstraction
5. Class
6. Object

Python History

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