**Python**

**Applications**

1. Desktop
2. Web
3. Network
4. Data Science
5. AI,ML

**What is Python?**

* **An open source, freeware , platform independent language that supports functional, procedural and oops concepts.**
* Being open source , people can view and add as part of community.
* Earns money through books, workshops, certifications.

**Understanding Platform Independency**

* Any language that generates an exe file is platform dependent.
* Exe file cannot be processed by another OS.
* Platform independency is important because of development of Internet.
* A program language had to developed that could be placed in the server without it requiring a specific OS to be run.
* Python, java are platform independent.

**What makes Python platform independent?**

* Python source code is compiled by JIT compiler and is converted into Byte code.
* Bytecode can be run on any OS.
* Python virtual machine converts byte code into machine code and displays output.
* .py file converted into .pyc file
* PVM is a software that processes byte code.
* Python makes a py file and after translation makes a pyc file.

**Step by step execution of Python**

* Source code(.py file) -> JIT Compiler converts into byte code (.pyc file) -> PRE runs the byte code and gives output.
* This uses multiple softwares.
* As such python is an IDLE language which means it provides all the softwares required tor run a python program in an integrated manner.

**Syntax error (Compile time error) vs Exception (Runtime error)**

* The errors that occur during the compile stage ( conversion from source to byte code) due to violation of rules of the language are called syntax or compile time errors.
* The errors that occur during runtime are called exception.
* Python and Java has exception handling. Whereas C does not.