**Shri Vaishnav Institute of Information Technology**

**Department of Computer Science Engineering Program-B.Tech(TCS)**

**ASSIGNMENT-1**

**Q1 List out different IDE of python?**

Ans-

•IDLE-when when you install Python IDLE it is also installed by default

This makes it easy to get started in Python. Its major features included Python shell window, auto completion Syntax highlighting and a basic integrated debugger.

•Pycharm- Pycharm IDE for professional developers, best IDE for Python development.

•Jupyter - Jupyter is a tool for people who have just started with data science. It is easy to use, interactive data science IDE across many programming languages that just not work as an editor.

● SPYDER is another big name in the IDE market. It is a good python compiler It is famous for python development. It was mainly developed for scientists and engineers to provide a powerful scientific environment for Python.

•PyDev is an outside plugin for Eclipse. It is basically an IDE that is used for Python development. It is linear in size. It mainly focuses on the refactoring of python code, debugging in the graphical pattern, analysis of code etc.

●Wing is also a popular and powerful IDE in today’s market with a lot of good features which the developers require for python development.

●Thonny is an integrated development environment (IDE)

Rest atom vscode sublime are few of text editors!

**Q2. what is python?**

Ans-

●Programmer learn or love python because of how fast and easy to use. Python cuts development time in its half with it’s simple to read syntax and easy compilation feature. It is a general-purpose high-level interpreter language. Debugging your program is a breeze in a python. Using Python makes programmer more productive and their programs ultimately better.

● Python continue to be the better option for the data scientist. Who use it for building and using machine learning applications and other scientific computation Python runs on Windows Linux Mac OS and has been ported to Java and.net virtual machines ●Python is free to use even for the commercial products because of its ESI approved open source licence It is often used in data science and machine learning web development and automation.

● Python and Django are also very popular choices for building the backend of web applications small offering companies use python to rewrite their existing application or building applications.

●Instagram dropbox and YouTube examples of website built with Python 12 more accurately the back end of this application is built with Python and Django.

● It solve Complex problems in less time with few lines of code it is high level use community cross platform glass ecosystem language.

**Q3 what is conda and pip how to install it on pc?**

Ans- Anaconda contains for the most common packages for data scientists need and can be considered the hardware store of data science tools and dies assistant underlying Anaconda and Anaconda it helps you ordered new tools and organise them when you need.Pip is one of the most famous and widely used package management system to install and manage software packages written in Python and found in Python Package Index (PyPI). Pip is a recursive acronym that can stand for either "Pip Installs Packages" or "Pip Installs Python". Alternatively, pip stands for "preferred installer program".

Steps to install:

1Go to the anaconda website and choose either a Python 3.x graphical installer or other If you aren’t sure which Python version you want to install, choose Python 3.

Locate your download.

2 Ideally, you open/run the file as administrator.

Installing as administrator is for the case you don’t have permission install anaconda in the location you want or to add anaconda to your path.

When the screen below appears, click on Next.

3. Read the License Agreement and click on I Agree.

4. Choose either Just Me (recommended) or All Users.

If you aren’t sure which to select, choose Just Me as this can mitigate potential issues if you don’t have administrator privileges.

5. Please make a note of your installation location (1) and then click Next (2).

Your installation location can vary so keep note of where you installed anaconda. In the example image on the left, the path is similar to if you selected “Just Me” for step 4. In the example image on the right, the path is similar to if you selected “All Users” for step 4.

6. This is an important part of the installation process. The recommended approach is to not check the box (1) to add Anaconda to your path. This means you will have to use Anaconda Navigator or the Anaconda Command Prompt (located in the Start Menu under “Anaconda”) when you wish to use Anaconda (you can always add Anaconda to your PATH later if you don’t check the box). If you want to be able to use Anaconda in your command prompt, please use the alternative approach and check the box. Click on Install (2).

This is important. Consider what you are doing in this step.

7. Click on Next.

8. You can install PyCharm if you like, but it is optional. Click on Next.

If you want to learn about how to use PyCharm with Anaconda, I have an older tutorial on it here.

9. Click on Finish.Step 1: Check if PIP is Already InstalledBefore you install PIP on Windows, check if PIP is already installed.Type in the following command at the command prompt

Pip help

Download PIP get-pip.py

Before installing PIP, download the get-pip.py file: get-pip.py on pypa.io.

Launch Windows Command Line PIP is a command-line program. When you install PIP, the PIP command is added to your system.

To launch the Prompt window:

Press Windows Key + X.

Click Run. Type in cmd.exe and hit enter.

Python get-pip.py

Pip –version

**Q4 Differentiate Notebook and jupyter lab?**

Ans

JupyterLab is the next-generation user interface for Project Jupyter offering all the familiar building blocks of the classic Jupyter Notebook (notebook, terminal, text editor, file browser, rich outputs, etc.) in a flexible and powerful user interface. JupyterLab will eventually replace the classic Jupyter Notebook.

JupyterLab can be extended using npm packages that use our public APIs. To find JupyterLab extensions, search for the npm keyword jupyterlab-extension or the GitHub topic jupyterlab-extension.

Conda install – c conda-forge jupyter -lab

Pip install jupyterlab

One way problem solvers can write and execute Python code is in Jupyter notebooks. Jupyter notebooks contain Python code, the output that code produces and markdown cells usually used to explain what the code means.

On Windows, a Jupyter notebook can be started from the Anaconda Prompt, the Windows start menu and Anaconda Navigator.

Windows Start Menu

Anaconda Prompt

Anaconda Navigator.

**Q5 List the salient features of python?**

Ans simple and easy to learn

Python is extremely easy to get started with. It offers an easy to understand syntax, simple setup, and has many practical applications in web development. The syntax isn't too annoying compared to other languages, and you can import a bunch of modules which can often make your code much shorter. There are excellent, straightforward tools to work with python code, especially the interactive interpreter

Interpreted language

Python is an interpreted language i.e. interpreter executes the code line by line at a time. When you use an interpreted language like Python, there is no separate compilation and execution steps. You just run the program from the source code. This makes debugging easy and thus suitable for beginners.

Cross-platform language

Python can run equally on different platforms such as Windows, Linux, Unix , Macintosh etc. A Python program written on a Macintosh computer will run on a Linux system and vice versa.

Free and Open Source

Python is an example of a FLOSS (Free/Libre and Open Source Software). In simple terms, you can freely distribute copies of this software, read the software's source code, make changes to it.

Object-Oriented language

Python supports object oriented features. Compared with other programming languages, Python’s class mechanism adds classes with a minimum of new syntax and semantics.

Extensive Libraries

The Python Standard Library is huge indeed. Python library contains built-in modules (written in C) that provide access to system functionality such as file I/O that would otherwise be inaccessible to Python programmers , as well as modules written in Python that provide standardized solutions for many problems that occur in everyday programming.

Integrated

Python can be easily integrated with languages like C, C++, JAVA etc.

Databases Connectivity

Python provides interface to all commercial databases.

**Q6 Compare python with c/c++/java?**

Ans

Every entity in Python is treated as an object; be it in or floats that reside in a heap. The entities on stacks are mainly the variables names which have their references to the heap.

Python has less backward compatibility whereas C++ is more compatible with the system in use.

Python programs result as much shorter in length in comparison to code in C++ that enables fast prototyping and results in speedier coding rate.

C++ is complete, based on the binary that used existing libraries to perform the coding operations.

Python has flexibility while calling functions and returning their values.

C++ uses compiler for the compilation of the code.

Python when runs, uses an interpreter.

A wide variety of applications use C++ to be developed.

Python has access to the API of a wide variety of applications based on 3D.

Python is an easy-to-use programming language in comparison to C++.

Python is slower than C++.

Python helps in faster application

Python is a good language to start because:

easy syntax for all programming basics such as control structure (if…. else).

Do not need to know how to declare data types

short source lines of code

Easy to implement data structures which are necessary for programming. Example data structures are hashtables, heap maps, binary trees

Easy to implement useful algorithms such as Dijkstra algorithm

Last, python can do a lot of things and you will learn most of those quickly because of python’s simplicity.

C has different restrictions

Heavily relied on format specifiers and syntax

Hard to debug if not using tools such valgrind.

Hard to learn data structures and algorithms with C

Relied on incremental code development (Incremental development means you have to develop code piece by piece to avoid unnecessary errors whereas Python has IDEs to check its errors).

Java is a compiled+ interpreted Language whereas Python is an Interpreted Language

Java is statically typed whereas Python is dynamically typed

Java has a complex learning curve whereas Python is easy to learn and use

Java is a multi-platform, object-oriented, and network-centric, programming language whereas Python is a high-level object-oriented programming language.

Java takes 10 lines of code to read from a file while Python only needs 2 lines of code.

Java language uses curly braces to define the beginning and end of each function and class definition, whereas Python uses indentation to separate code into separate blocks.

In Java, multiple inheritances is partially done through interfaces, whereas Python supports both single and multiple inheritances.

Thank you!