1. **KEY-NOTE:**

This GUI tutorial is developed using **PYTHON VERSION 2.7.2** installed for 64-bit Windows machine and all modules used should be compatible with this version of Python.

1. **INSTALLING PYTHON 2.7.2:**
2. Python 2.7.2 can be downloaded from the official website: <https://www.python.org/download/releases/2.7.2/>
3. Make sure you download the correct version for the type of machine that you work on (64-bit or 32-bit Windows). If you install Python with a 32-bit installer in a 64-bit machine, you will run into problems when you try to install other packages.
4. Once you download the package, run the installer. Once the installation is complete, check whether the software is registered on the Windows registry by opening cmd.exe and type “regedit”. This will open up the Registry Editor.
   1. Go to 🡪 **HKEY\_LOCAL\_MACHINE/SOFTWARE** and make sure that you see “Python” present in the column tree. This means you have installed using 64-bit installer and it is perfect.
   2. If you do not see it there, go to🡪**HKEY\_LOCAL\_MACHINE/ SOFTWARE/Wow6432Node** and check for Python folder. If you find it here, it means you have installed Python using 32-bit installer on a 64-bit Machine. If you are using 64-bit windows make sure you re-install python using 64-bit installer.
5. Once all this is done, go to ‘Command Prompt’ and change directory to where you stored Python and type “python” at the prompt. If it invokes into Python editor, your installation is done.
6. If you get the following error “python is not recognized as an internal or external command, operable program or batch file” even after you see Python in the registry, do the following:
   1. Go to 🡪 **Start / Control Panel/ System** and go into **“Advanced system settings”** and select “**Environmental Variables**”.
   2. Add the path of Python directory to the “System Path” and try to do the previous step.

**3. PYTHON PACKAGES:**

Some of the useful python modules are shown in the table below just to give you an idea of all basic stuffs that can be done with python easily.

|  |  |
| --- | --- |
| GUI Development | Tkinter Module (All widgets for GUI creation) |
| File I/o | tkFiledialog (open or save a file or to choose a directory etc) |
| Pop-up Windows | tkMessagebox (For creating pop-up windows ) |
| Running Sub-process | subprocess (interface to creating & working with additional process) |
| XML File creation | xml etree (Creating and manipulating xml file) |
| Mathematical operations | numpy (mathematical and array manipulations) |
| Plotting | Matplotlib – pyplot & mpatches (All plotting options like matlab) |

**3.1 INSTALLING PACKAGES:**

**3.1.1 PIP-INSTALLER:**

Most of the python packages can be easily installed using pip-installer. To get pip installer do the following:

1. Download **get-pip.py** from <https://pip.pypa.io/en/latest/installing.html>
2. Make sure that you download it into the ‘Python Folder’.
3. Then open ‘Command Prompt’ and change directory to the Python Directory.
4. And type the command ‘python get-pip.py’. This will install “pip installer”. You can check the proper installation by going to the directory “/Python/Scripts” and check whether you see “pip.exe” present.

**3.1.2 PACKAGE INSTALLATION:**

1. Once pip is installed, all the required packages that do not come along with python can installed in the following manner.
2. Matplotlib package requires the following modules: numpy, python-dateutil, pytz, pyparsing and six.
3. All the packages can be installed by using ‘pip install’ command. Go to command prompt and change directory to “/Python/Scripts”.
4. Then type **“pip install numpy python-dateutil pytz pyparsing six”**
5. Once all the packages are installed install Matplotlib using **“pip install matplotlib”**

**3.1.3 CHECKING INSTALLATION:**

1. We can easily check whether the package is installed by going to command prompt and type python to invoke python.exe.
2. Then type ‘import package’ (eg: import numpy). If it does not show any error, the installation is perfect.
3. If any of the package could not be installed by “pip”, we can download the required package for windows from the website: <http://www.lfd.uci.edu/~gohlke/pythonlibs/>

**4. IDE FOR PYTHON:**

Once all the packages are installed, we can go into developing the code. For doing this there are variety of IDE’s available. One can use any IDE that they are comfortable with. Most popular ones being:

1. “Pycharm” from JetBrains
2. “Visual Studio” from Microsoft