

How to Install Python, Jupyter Notebook, and Common Libraries

Step 1: Download Python

1. Go to the official Python website to download the latest version of Python:
<https://www.python.org/downloads/>

Step 2: Install Python on Windows

1. Open the downloaded Python installer.
2. Check the box that says "Add Python to PATH".
3. Click on "Install Now".
4. After the installation is complete, open Command Prompt and type the following command to verify the installation: `python --version`

Step 3: Install Jupyter Notebook

1. Open Command Prompt.
2. Install Jupyter Notebook using pip by typing: `pip install jupyter`
3. Once the installation is complete, you can start Jupyter Notebook by typing: `jupyter notebook`

Step 4: Install Common Python Libraries

To install some commonly used Python libraries, use the following commands:

1. Install NumPy by typing: `pip install numpy`
2. Install Pandas by typing: `pip install pandas`
3. Install Matplotlib by typing: `pip install matplotlib`
4. Install Scikit-Learn by typing: `pip install scikit-learn`
5. Install TorchVision by typing: `pip install torchvision`
6. Install Timm by typing: `pip install timm`
7. Install Transformers by typing: `pip install transformers`
8. Install Optuna by typing: `pip install optuna`

Step 5: Verify Installation

After installing Python, Jupyter Notebook, and the libraries, open your command line interface (Command Prompt) and type the following commands to verify the installations:

1. Verify Python installation by typing: `python --version`
2. Verify Jupyter Notebook installation by typing: `jupyter --version`

3. Verify NumPy installation by typing: `python -c "import numpy; print(numpy.__version__)"`
4. Verify Pandas installation by typing: `python -c "import pandas; print(pandas.__version__)"`
5. Verify Matplotlib installation by typing: `python -c "import matplotlib; print(matplotlib.__version__)"`
6. Verify Scikit-Learn installation by typing: `python -c "import sklearn; print(sklearn.__version__)"`
7. Verify TorchVision installation by typing: `python -c "import torchvision; print(torchvision.__version__)"`
8. Verify Timm installation by typing: `python -c "import timm; print(timm.__version__)"`
9. Verify Transformers installation by typing: `python -c "import transformers; print(transformers.__version__)"`
10. Verify Optuna installation by typing: `python -c "import optuna; print(optuna.__version__)"`

Step 6: Import Libraries in Python

To use the installed libraries in your Python scripts or Jupyter Notebooks, you can import them as follows:

1. Import StratifiedKFold from `sklearn.model_selection`
2. Import torch
3. Import nn and optim from torch
4. Import DataLoader and random_split from `torch.utils.data`
5. Import datasets and transforms from torchvision
6. Import timm
7. Import numpy as np
8. Import matplotlib.pyplot as plt
9. Import precision_recall_fscore_support, roc_curve, and auc from `sklearn.metrics`
10. Import optuna

By importing these libraries, you can utilize their functionalities in your Python projects and Jupyter Notebooks.