Getting Started with Python

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Agenda

- Introduction to Python
- Installing Python
- Setting up a Virtual Environment
- Using Conda
- Installing JupyterLab/Notebook
- Installing IDEs
- Writing Your First Python Program
- Using GitHub
- Resources for Learning

What is Python?

- ▶ High-level programming language
- ▶ Interpreted and easy to learn
- ▶ Widely used in web development, data science, automation, etc.

Why Use Python?

- Extensive libraries and frameworks
- Large community support
- Versatile and powerful

System Requirements

- Windows, macOS, or Linux
- Internet connection for downloads
- Basic command line knowledge

Downloading Python

- ▶ Visit the official Python website: `python.org`
- ▶ Click on the **"Downloads"** section
- ▶ Choose the appropriate version for your OS

Installing Python on Windows

▶ Run the installer
▶ Check "Add Python to PATH"
▶ Follow the installation prompts
▶ Install necessary packages:

> ### Install Packages
>
> ```
> pip install numpy pandas matplotlib
> ```

Installing Python on macOS

- ▶ Open the downloaded `.pkg` file
- ▶ Follow the installation instructions
- ▶ Verify installation with:

> ### Verify Installation
> ```
> python3 --version
> ```

Installing Python on Linux

- ▶ Use the package manager (e.g., APT for Ubuntu)
- ▶ Command:

Install Python

```
sudo apt install python3 python3-pip
```

- ▶ Verify installation:

Verify Installation

```
python3 --version
```

- ▶ Install necessary packages:

Install Packages

```
pip3 install numpy pandas matplotlib
```

Using Conda

- ▶ Install Anaconda or Miniconda from anaconda.com
- ▶ Create a new environment:

> ### Create Environment
>
> ```
> conda create --name myenv python=3.x
> ```

- ▶ Activate the environment:

> ### Activate Environment
>
> ```
> conda activate myenv
> ```

- ▶ Install packages:

> ### Install Packages
>
> ```
> conda install numpy pandas matplotlib
> ```

Installing JupyterLab/Notebook

- Install via pip:

  ### Install Jupyter Notebook

  `pip install notebook` (for Jupyter Notebook)

  ### Install JupyterLab

  `pip install jupyterlab` (for JupyterLab)

Installing JupyterLab/Notebook

▶ Install via Conda:

Install Jupyter Notebook

```
conda install -c conda-forge notebook
```
(for Jupyter Notebook)

Install JupyterLab

```
conda install -c conda-forge jupyterlab
```
(for JupyterLab)

▶ Launch Jupyter:

Launch Jupyter

```
jupyter notebook  or  jupyter lab
```

Setting Up a Virtual Environment

- ▶ Use virtual environments to manage dependencies
- ▶ Command:

Create Virtual Environment

```
python -m venv myenv
```

- ▶ Activate the environment:
  - ▶ Windows:

Activate Windows

```
\\myenv0Scripts0activate
```

  - ▶ macOS/Linux:

Activate macOS/Linux

```
source myenv/bin/activate
```

Installing Packages with pip

▶ `pip` is the package installer for Python
▶ Command to install a package:

> **Install Package**
>
> ```
> pip install package_name
> ```

▶ Example:

> **Install Numpy**
>
> ```
> pip install numpy
> ```

Choosing an IDE

- Popular IDEs:
  - **PyCharm**
  - **VSCode**
  - **Jupyter Notebook/Lab**

Installing PyCharm

- Download from `jetbrains.com/pycharm`
- Choose Community edition for free version
- Follow installation steps

Installing VSCode

- ▶ Download from `code.visualstudio.com`
- ▶ Follow installation instructions
- ▶ Install Python extension from the marketplace

Writing Your First Python Program

▶ Open your IDE
▶ Create a new file: `hello.py`
▶ Write:

> ### Hello World Program
>
> ```python
> print("Hello, World!")
> ```

Running Your Python Program

- ▶ Open terminal/command prompt
- ▶ Navigate to the file location
- ▶ Run:

> ### Run Program
>
> ```
> python hello.py
> ```

Using GitHub

- ▶ Create a GitHub account: `github.com`
- ▶ Install Git:

> ### Install Git
>
> `sudo apt install git` (Linux)

> ### Clone Repository
>
> `git clone <repository_url>`

Common Issues

- Installation errors
- PATH issues
- Package conflicts

Helpful Resources

- Official Python Documentation: `docs.python.org`
- Online tutorials: Codecademy, Coursera
- Community forums: Stack Overflow, Reddit

Summary

- Python is easy to install and use
- Conda provides a robust package management system
- JupyterLab/Notebook is great for interactive coding
- GitHub enhances collaboration in coding projects
- Many resources available to help you learn

Questions?

Thank you! Any questions?