

# Day 11 (8/9/25): Introduction to PIP (Python Package Installer)

## 1. What is PIP?

PIP stands for “**Pip Installs Packages**”.

It is the **default package manager for Python** that allows you to **install, manage, and uninstall Python packages** from the **Python Package Index (PyPI)**.

- PIP helps you **extend Python functionality** by adding third-party libraries.
- Most Python installations (Python 3.4+) come with PIP pre-installed.

## 2. Checking if PIP is Installed

```
pip --version
```

### Output Example:

```
pip 23.2.1 from /usr/local/lib/python3.12/site-packages/pip (python 3.12)
```

If not installed, you can install it using:

```
python -m ensurepip --upgrade
```

## 3. Installing Packages

Use the install command to install a package from PyPI.

### Syntax:

```
pip install package_name
```

### Example:

```
pip install requests
```

- Installs the **Requests library** for HTTP requests in Python.

#### 4. Upgrading Packages

```
pip install --upgrade package_name
```

##### Example:

```
pip install --upgrade requests
```

- Upgrades the package to the latest version.

#### 5. Uninstalling Packages

```
pip uninstall package_name
```

##### Example:

```
pip uninstall requests
```

- Removes the installed package.

#### 6. Listing Installed Packages

```
pip list
```

##### Output Example:

```
Package Version
-----
requests 2.31.0
numpy     1.26.0
pandas    2.1.0
```

#### 7. Example Program Using an Installed Package

After installing **requests**, you can use it in Python:

```
# Example: Using requests package
import requests
```

```
response = requests.get("https://api.github.com")
print("Status Code:", response.status_code)
print("Response JSON:", response.json())
```

### Sample Output:

Status Code: 200

Response JSON: {...JSON data from GitHub API...}

This shows how PIP helps you **install external packages** and use them in your Python programs.

## 8. Summary

- **PIP** is the **Python package manager**.
- Commands: `install`, `uninstall`, `upgrade`, `list`.
- Allows Python to use **third-party libraries** like `requests`, `numpy`, `pandas`, etc.
- Essential for **real-world Python development**.