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🎯 Part 1: What is pip?

☑ `pip` = Package Installer for Python

It's the tool you use to install external Python libraries.

📌 Example:

```
pip install pandas
```

Downloads and installs the **pandas** library from PyPI.

📦 Part 2: What is PyPI?

☑ PyPI = Python Package Index

It's a **central hub of all public Python libraries**, like an app store for Python packages.

- Website: https://pypi.org
- Developers can **upload** their packages
- Users can **download** packages using `pip`

🚀 Part 3: How to Create & Upload a Package to PyPI

🔧 Step-by-step:

◇ Step 1: Create a simple project folder

```
mycalculator/
│
├── mycalculator/
│   └── __init__.py   # Package code
│   └── operations.py # Your logic
│
├── setup.py         # Metadata
├── README.md        # Project description
```

- **Step 2: Add some sample code in operations.py**

```
# mycalculator/operations.py

def add(a, b):
    return a + b

def subtract(a, b):
    return a - b
```

- **Step 3: Create `__init__.py`**

```
# mycalculator/__init__.py

from .operations import add, subtract
```

- **Step 4: Create `setup.py`**

```
# setup.py

from setuptools import setup, find_packages

setup(
    name='mycalculator',
```

```
    version='0.1',
    packages=find_packages(),
    author='Gowtham SB',
    description='A simple calculator package',
    long_description=open('README.md').read(),
    long_description_content_type='text/markdown',
    classifiers=[
        'Programming Language :: Python :: 3',
    ],
    python_requires='>=3.6',
)
```

◇ Step 5: Create README.md

```
# mycalculator

A simple calculator package with add and subtract.
```

◇ Step 6: Build the package

Install build tool:

```
pip install build
```

Build the package:

```
python -m build
```

You'll get:

```
dist/
├── mycalculator-0.1.tar.gz
├── mycalculator-0.1-py3-none-any.whl
```

◇ Step 7: Upload to PyPI

Install Twine:

```
pip install twine
```

Upload using Twine:

```
python -m twine upload dist/*
```

➡️ You'll need a PyPI account and token or password.

🟢 Once Approved: Install Your Own Package

Anywhere in the world, people can now install your package:

```
pip install mycalculator
```

And use it:

python

```
from mycalculator import add

print(add(5, 3))  # Output: 8
```

🧠 Bonus: How to Install a Package in PyCharm

☑ Method 1: Using Terminal (Recommended)

bash

```
pip install pandas
```

☑ Method 2: Using PyCharm GUI

1. Go to **File > Settings > Project > Python Interpreter**
2. Click the **+ icon**
3. Search for the package (e.g., pandas)
4. Click **Install Package**

🔚 Summary:

Task	Tool/Command
Install a package	`pip install packagename`
Check installed packages	`pip list`

Upload your own package	`twine upload dist/*`
Package hub	https://pypi.org
Create builds	`python -m build`

About the Author

Gowtham SB is a **Data Engineering expert, educator, and content creator** with a passion for **big data technologies, as well as cloud and Gen AI** . With years of experience in the field, he has worked extensively with **cloud platforms, distributed systems, and data pipelines**, helping professionals and aspiring engineers master the art of data engineering.

Beyond his technical expertise, Gowtham is a **renowned mentor and speaker**, sharing his insights through engaging content on **YouTube and LinkedIn**. He has built one of the **largest Tamil Data Engineering communities**, guiding thousands of learners to excel in their careers.

Through his deep industry knowledge and hands-on approach, Gowtham continues to **bridge the gap between learning and real-world implementation**, empowering individuals to build **scalable, high-performance data solutions**.

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