1. **What is setup.py and why it is needed?**

**setup.py** is a file used in Python projects to define the metadata and dependencies for distributing and installing the project. It's commonly used with setuptools, a package that extends Python's built-in distutils, to simplify the process of packaging and distributing Python code.

Here's why **setup.py** is needed:

1. **Metadata Definition**: **setup.py** allows you to specify important metadata about your Python project, such as its name, version, author, license, description, and more. This metadata is crucial for users and other developers who want to understand your project and its dependencies.

"Dependencies" are external Python packages or modules that your project relies on to work correctly. These dependencies can include libraries for data processing, machine learning algorithms, web frameworks, database connectors, and more. By specifying dependencies in your project's metadata, you ensure that users can easily install all necessary packages when they install your project.

1. **Dependency Management**: You can specify the dependencies your project relies on in **setup.py**. This makes it easier for users to install your project, as they can use tools like pip to automatically install all required dependencies.
2. **Distribution**: **setup.py** is used to package your project into a distributable format, typically a source distribution (**.tar.gz** or **.zip** file) or a built distribution (e.g., a wheel **.whl** file). This makes it easy for users to download and install your project from sources like PyPI (the Python Package Index) using tools like pip.
3. **Installation**: **setup.py** defines the installation process for your project. Users can install your project by running **pip install <project\_name>**, and **setup.py** ensures that all necessary files are copied to the appropriate locations on their system.