Week 4

## Logging

logging" is a way to record messages from your program, so you can understand what it's doing. It's like a diary for your code. Instead of printing messages to the console (which you might do with print()), you use the logging module to write messages to a file, the console, or other places.

## Virtual Environments

A virtual environment is like a little bubble that you can create for your project. Imagine you're working on different projects, and each project requires specific libraries or packages. Sometimes, these projects might need different versions of the same library.

* if you install all your libraries globally (meaning for the entire system), it could get messy. You might run into conflicts between different projects that need different library versions.
* Here are some benefits of using a virtual environment:
* Isolation: It creates an isolated environment for each project. This means that if a project needs a specific version of a package, it can install that version without affecting other projects.
* Simplified Collaboration: If a project has multiple collaborators, it is easier to set up a virtual environment for each collaborator, ensuring that everyone is working with the same package versions.
* System Package Consistency: Virtual environments can ensure that a project is using the same package versions across different environments. This reduces the chances of unexpected behavior or errors.
* Package Management: It makes it easy to manage and update packages for a specific project. You can install and uninstall packages without affecting other projects or the system packages.

**Managing packages with pip**

* Pip is a tool that comes with Python, and it stands for "Pip Installs Packages."
* Its main job is to help you easily install and manage external libraries that add extra functionality to your Python programs.

How to Use Pip:

* Open your computer's terminal or command prompt.
* To install a package, you type: pip install package\_name.
* For example, if you want to install a package called "requests," you'd type: pip install requests.

Managing Packages:

* pip install is used to install a package.
* pip uninstall is used to remove a package.
* pip list shows you a list of installed packages.
* pip show package\_name provides details about a specific package.

## Looping Techniques

Essential constructs for repeating tasks.

Types of Loops:

for Loop:

Iterates over a sequence (e.g., a list, tuple).

while Loop:

Repeats until a specified condition is False.

Common Loop Patterns:

Looping through a Range:

Utilize range () function for controlled iteration.

Iterating Over Elements:

Use for loop with iterable objects.

Loop Control Statements:

break and continue:

Alter loop flow for specific conditions.

Best Practices:

Maintain clarity and readability in loop structures.