Module 1: An Introduction to Python

What is Python?

Python is a popular, high-level programming language known for its simplicity and readability. It was created by **Guido van Rossum** and first released in **1991**. Python is widely used for web development, data analysis, automation, artificial intelligence, machine learning, **game development** (2D games or simple 3D games) and more.

Why Python?

Key Features of Python

- **Easy to read and write: Python syntax is clean and similar to English.**
- **Interpreted: You don't need to compile Python code; it runs line-by-line.**
- **Dynamically typed: You don’t need to declare variable types.**
- **Versatile: Used in many domains like web development (Django, Flask), data science (Pandas, NumPy), automation (scripts), and more.**
- **Large community and libraries: Thousands of open-source libraries to speed up development.**

Good to know

Python is a powerful yet beginner-friendly language, and it opens the door to many fields like:

- 🌐 **Web development (Django, Flask)**
- 📊 **Data analysis & visualization (Pandas, Matplotlib)**
- 🤖 **AI & Machine Learning (TensorFlow, scikit-learn)**
- 🔧 **Automation/Scripting (for tasks and workflows)**
- 🎮 **Game development (Pygame, Arcade)**
- 🔬 **Scientific computing (NumPy, SciPy)**
- 🌍 **APIs and web scraping (Requests, BeautifulSoup)**

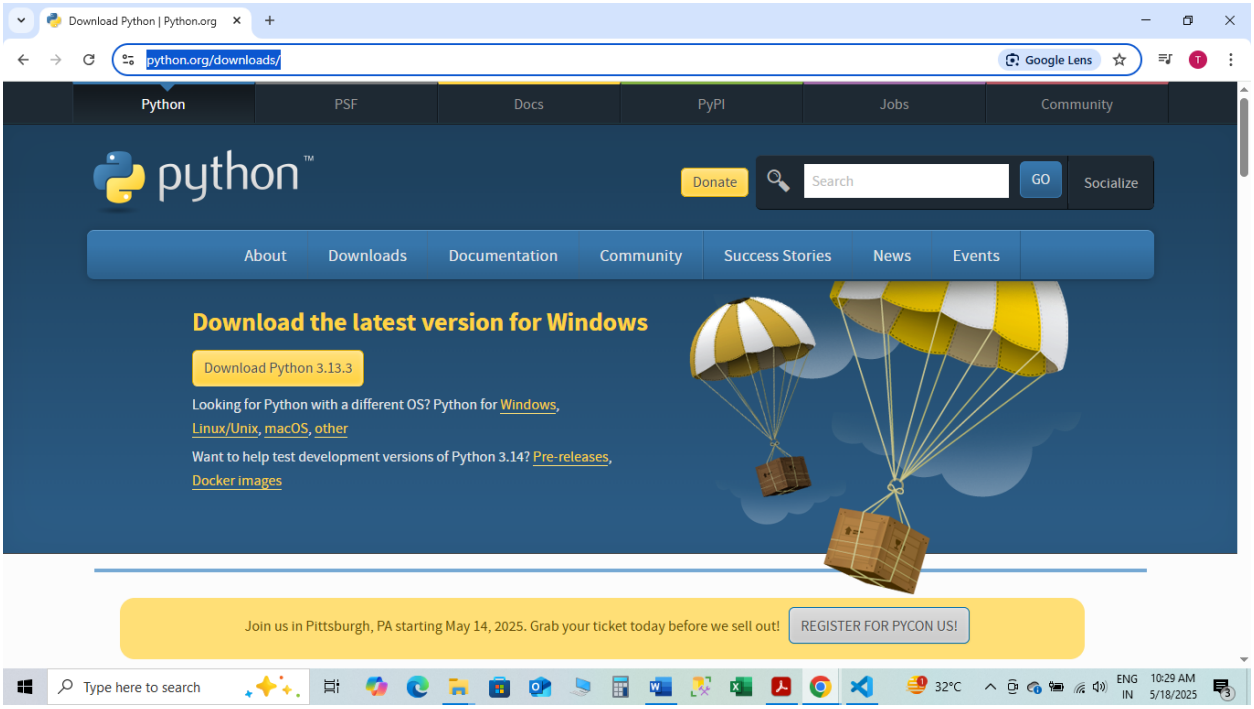
Python Syntax compared to other programming languages

Concept	Python	C	Java	JavaScript
Hello World	print("Hello, World!")	printf("Hello, World!");	System.out.println("Hello, World!");	console.log("Hello, World!");
Variable	x = 10	int x = 10;	int x = 10;	let x = 10;
Data Types	Dynamic (x = 5)	Static (int x = 5;)	Static (int x = 5;)	Dynamic (let x = 5;)
If Statement	if x > 0:\n print(x)	if (x > 0) {\n printf("%d", x);\n}	if (x > 0) {\n System.out.println(x);\n}	if (x > 0) {\n console.log(x);\n}
Else Statement	else:\n print("no")	else {\n printf("no");\n}	else {\n System.out.println("no");\n}	else {\n console.log("no");\n}
For Loop	for i in range(5):\n print(i)	for (int i=0; i<5; i++) {\n printf(i);\n}	for (int i=0; i<5; i++) {\n System.out.println(i);\n}	for (let i=0; i<5; i++) {\n console.log(i);\n}
Function	def add(x, y): return x + y	int add(int x, int y) { return x + y; }	int add(int x, int y) { return x + y; }	function add(x, y) { return x + y; }
Comments	# This is a comment	// This is a comment	// This is a comment	// This is a comment
Block Scope	Indentation (no {})	Curly braces {}	Curly braces {}	Curly braces {}
Semicolons	✗ Not required	✅ Required	✅ Required	Optional but common

Python Install

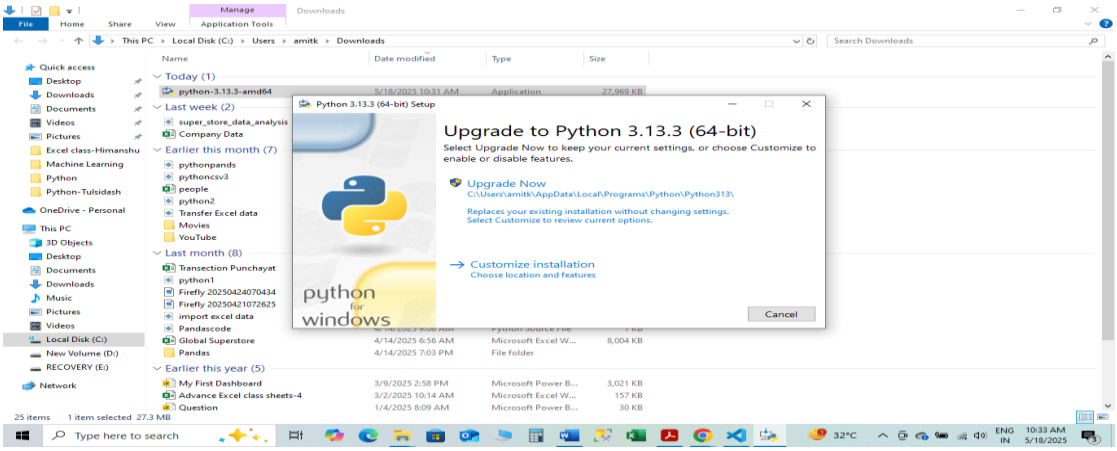
Go to google and type download python for windows

https://www.python.org/downloads/



Click on Download python

Double click on set file downloaded



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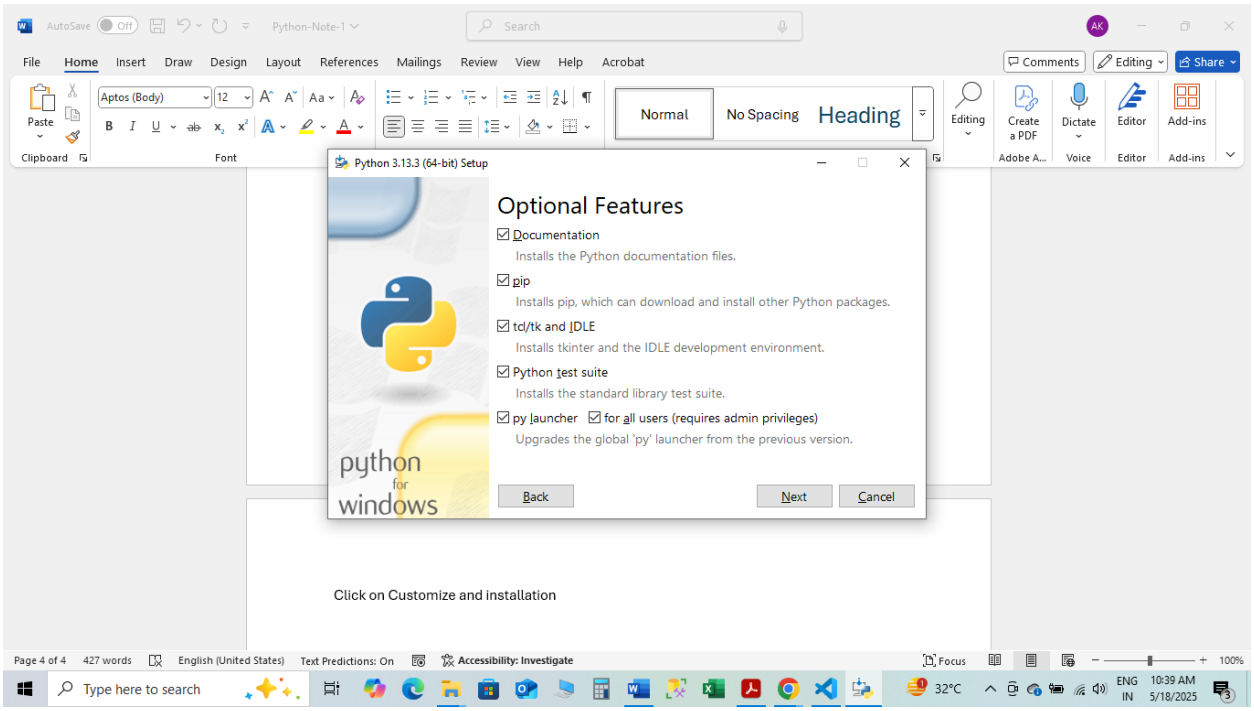

Click on Next

It will start installation

after installation go to cmd and type python –-version, it will **show** the python version

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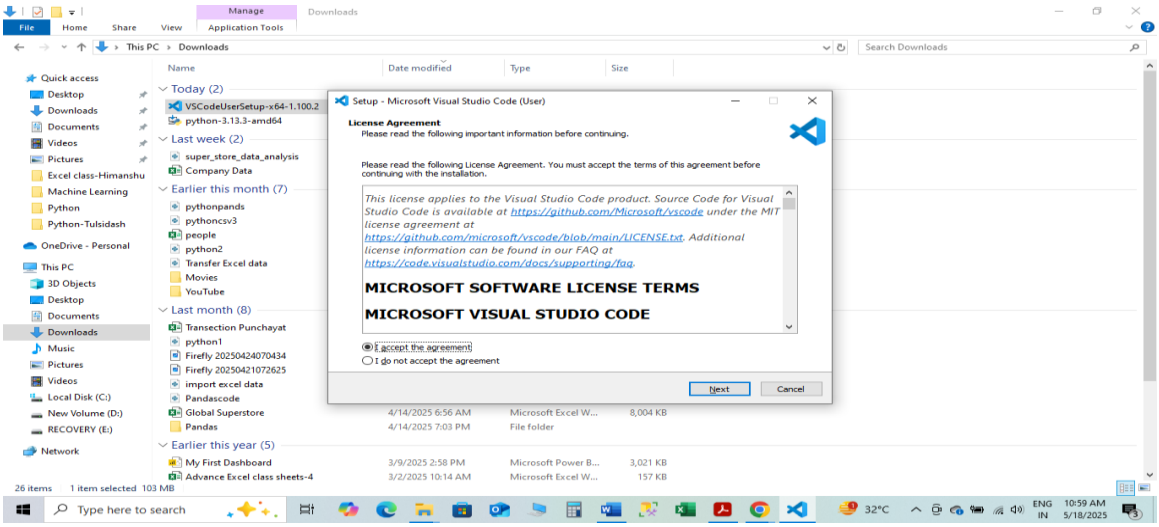

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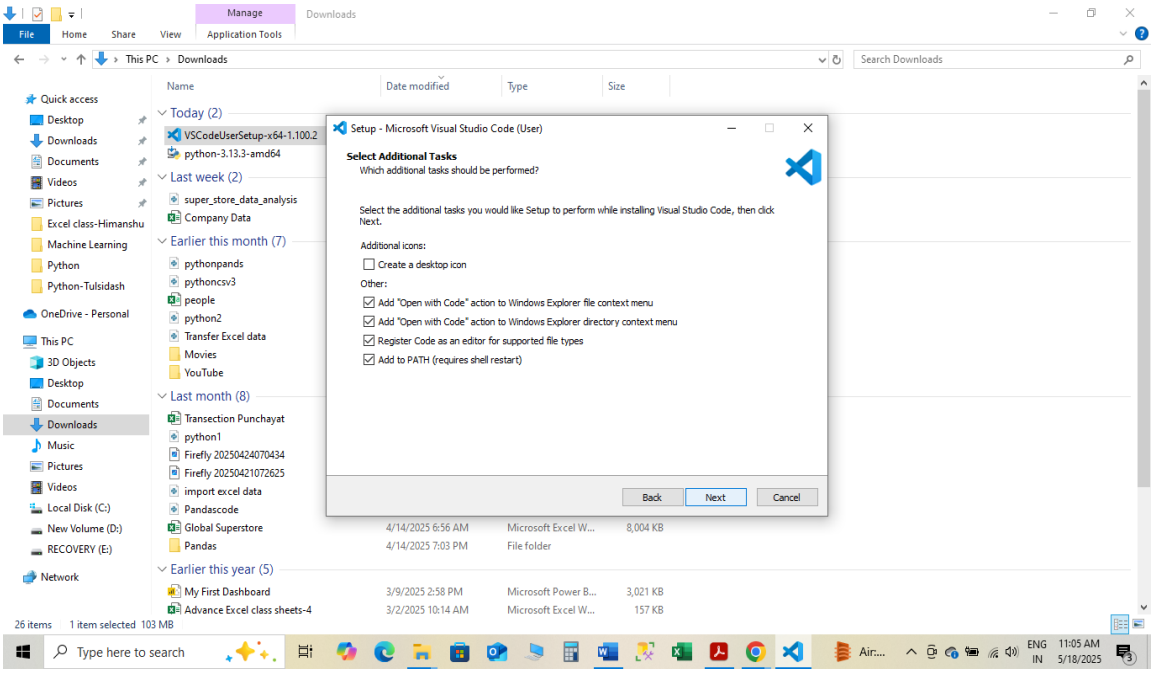

It will install vs code