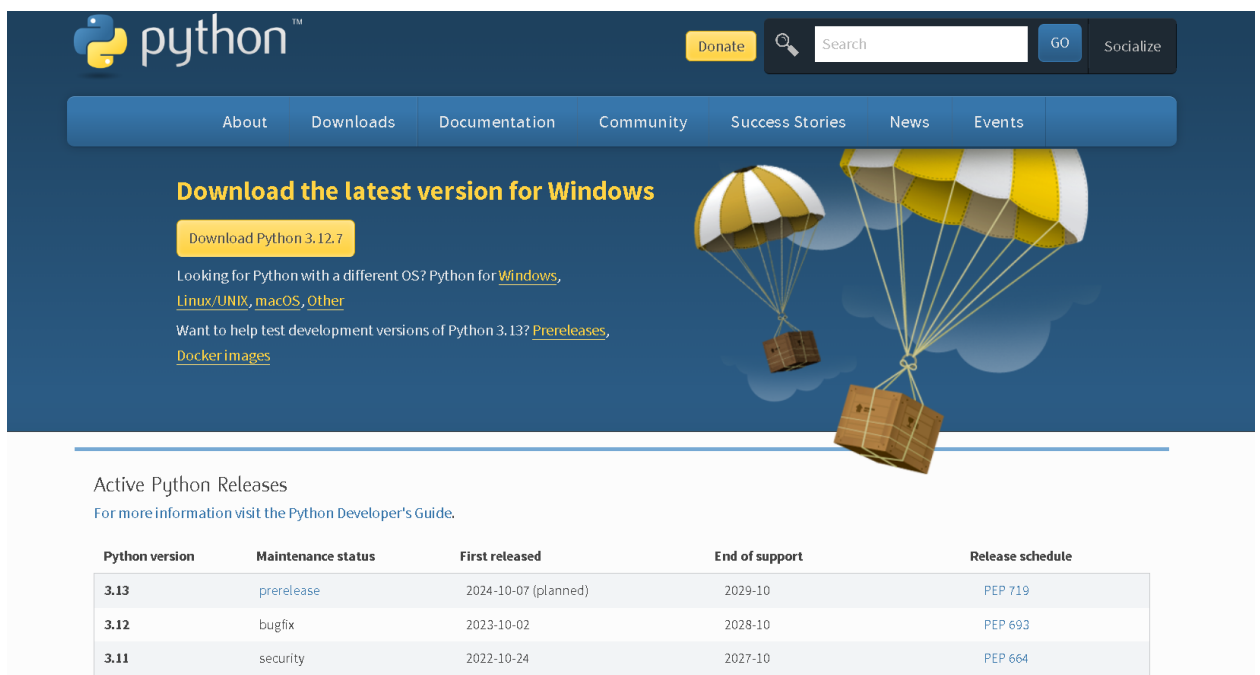


Tools and Methodology of system implementation

Tools in use are:

- Python

Python was used in this project extensively since the system implementations required calculations and python was the best of several languages to integrate the mathematical calculations with due to its easily understandable codes.



The screenshot shows the Python.org website. At the top, there is a navigation bar with links: About, Downloads, Documentation, Community, Success Stories, News, and Events. Below this, a large banner features the text "Download the latest version for Windows" and a button "Download Python 3.12.7". To the right of the banner is an illustration of two parachutes carrying boxes. Below the banner, there is a section titled "Active Python Releases" with a link to the "Python Developer's Guide". A table follows, listing the active Python versions and their support schedules.

| Python version | Maintenance status | First released | End of support | Release schedule |
|----------------|--------------------|----------------------|----------------|------------------|
| 3.13 | prerelease | 2024-10-07 (planned) | 2029-10 | PEP 719 |
| 3.12 | bugfix | 2023-10-02 | 2028-10 | PEP 693 |
| 3.11 | security | 2022-10-24 | 2027-10 | PEP 664 |

Pythons download link: <https://www.python.org/downloads/>

Setting the path:

System Properties



Computer Name Hardware Advanced System Protection Remote

You must be logged on as an Administrator to make most of these changes.

Performance

Visual effects, processor scheduling, memory usage, and virtual memory

Settings...

User Profiles

Desktop settings related to your sign-in

Settings...

Startup and Recovery

System startup, system failure, and debugging information

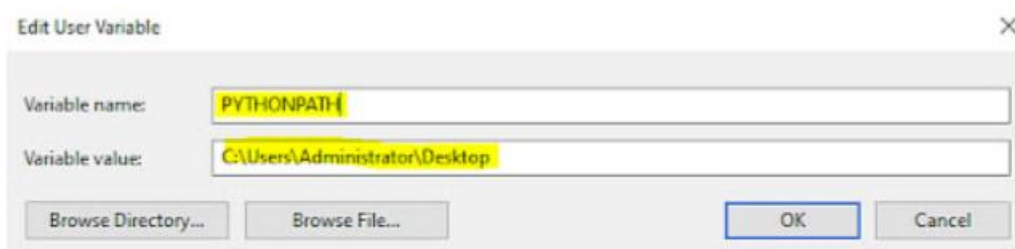
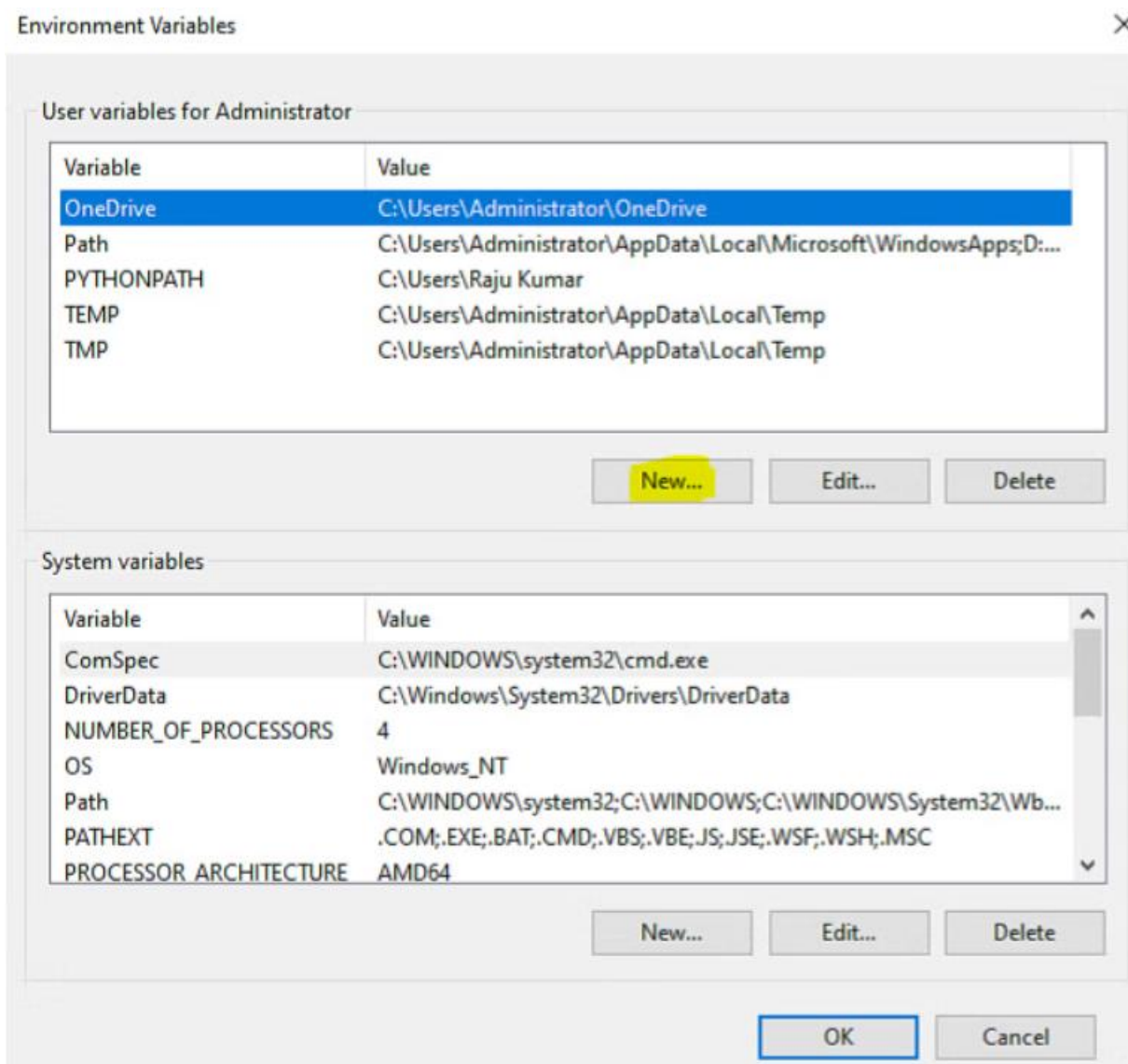
Settings...

Environment Variables...

OK

Cancel

Apply



Python can now be opened in the terminal.

- Sagemath



Sagemath is the environment used to write python code for one of the system implementations.

Other SageMath downloads

Installation guide: [What/how to download](#)

Source (stable) [Download complete source](#)

Source (devel) The [latest development release](#).

To get the source of the latest development release, choose a download mirror and follow relevant instructions on the mirror page.

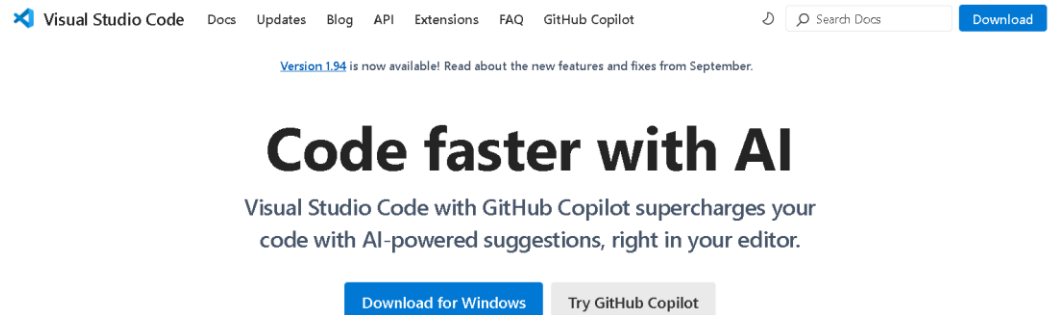
Apple macOS [Download macOS binaries](#) (3-manifolds)

Docker image [SageMath Docker images](#)

Source (old) [Older Versions of SageMath](#)

Sage math download link: <https://www.sagemath.org/download.html>

- Visual studio code

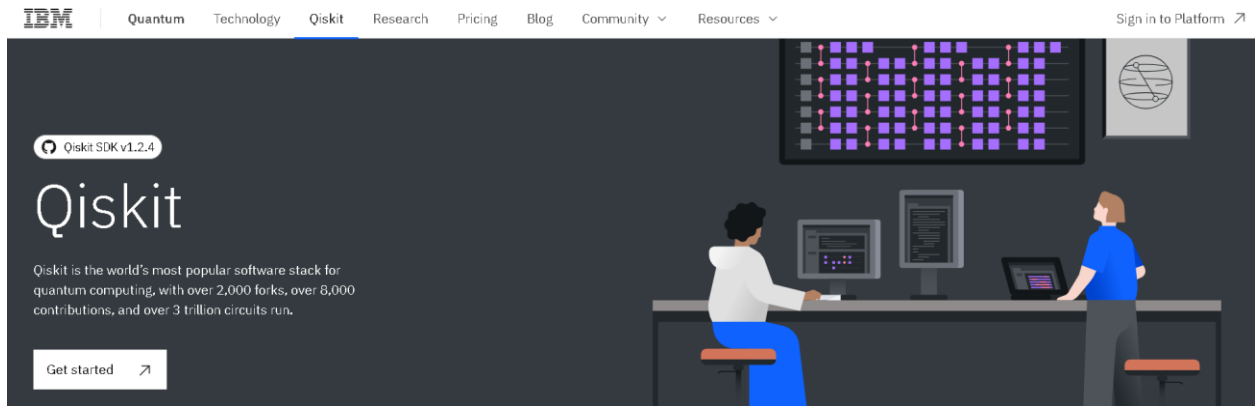
The image is a screenshot of the Visual Studio Code website. At the top, there is a navigation bar with links for 'Visual Studio Code', 'Docs', 'Updates', 'Blog', 'API', 'Extensions', 'FAQ', and 'GitHub Copilot'. To the right of the navigation bar is a search bar labeled 'Search Docs' and a blue 'Download' button. Below the navigation bar, a message states 'Version 1.94 is now available! Read about the new features and fixes from September.' The main heading is 'Code faster with AI' in a large, bold, black font. Below this heading, a subheading reads 'Visual Studio Code with GitHub Copilot supercharges your code with AI-powered suggestions, right in your editor.' At the bottom of the main content area, there are two buttons: a blue 'Download for Windows' button and a grey 'Try GitHub Copilot' button.

An environment used for installing packages, dependencies and calculating with python and qiskit.

Visual studio code download link: <https://code.visualstudio.com/docs/?dv=win64user>

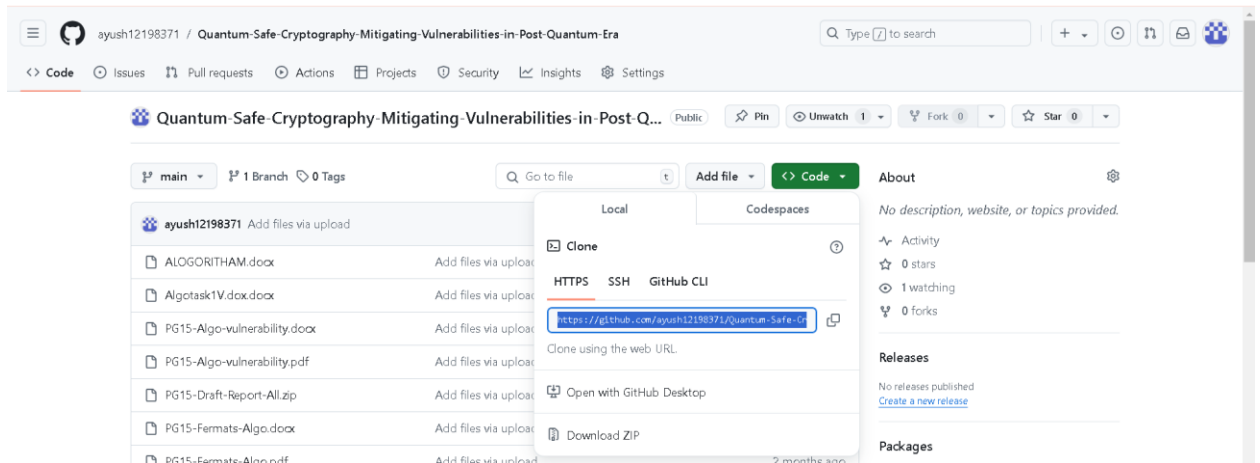
- Qiskit

An IBM development kit for running quantum computers.



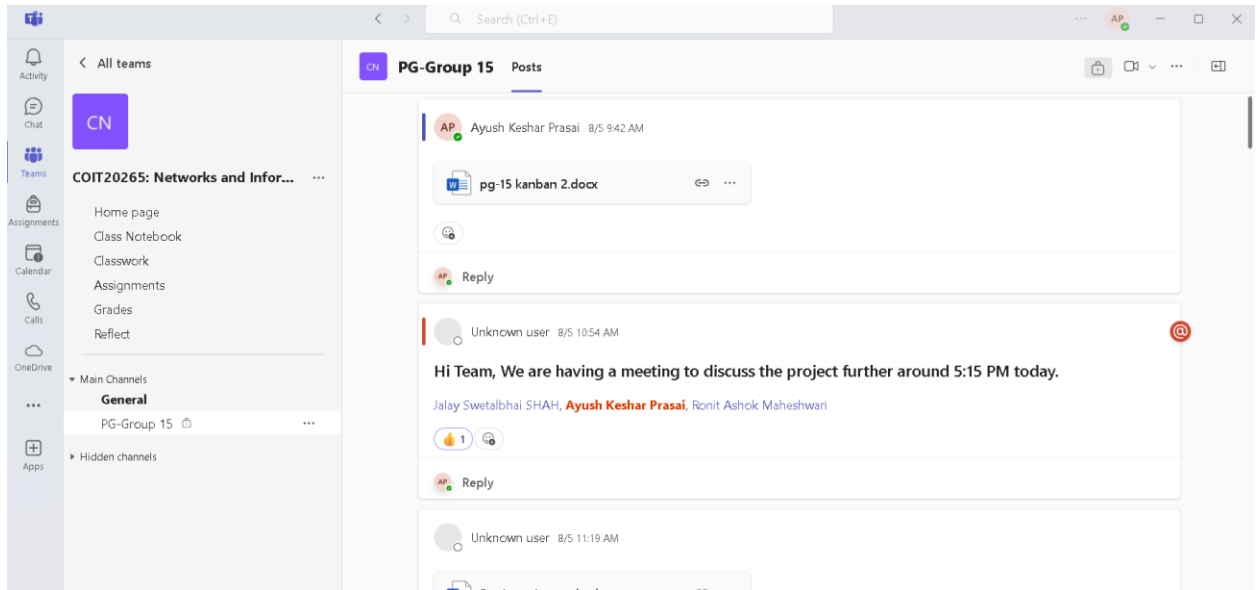
Getting started: <https://docs.quantum.ibm.com/guides/hello-world>

- **Github**
Tool to collaborate and maintain dependency used in recommendation with the institution.



Clone link : <https://github.com/ayush12198371/Quantum-Safe-Cryptography-Mitigating-Vulnerabilities-in-Post-Quantum-Era.git>

- **Microsoft Teams**
Communication tool used for collaboration in real time and holding meetings or exchanging information.



- Agile Methodology

Submissive use of agile ceremonies such as:

Daily standup, Sprint retrospective, daily scrum etc.