Ankush Kapoor

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Education

Vidyalankar Institute of Technology — **Mumbai, India**
Bachelor of Technology in Computer Engineering — *Sept 2024 – Present*

- First Year - CGPA: **10.0**
- Second Year, currently ongoing

Seth Hirachand Mutha School (CBSE Board) — **Kalyan, India**

- Class XII - **86%** — 2024
- Class X - **91%** — 2022

Experience

Open World Holidays Framework (Open Source Contributor) — **Jan 2025 – June 2025**
Python Framework — *Remote — GitHub PRs*

- Ranked **7th out of 2300+ contributors** nationally in Google Winter of Code (WoC) 2024.
- Added public holidays for **India**, **Nepal**, and **Mongolia**, covering fixed and variable dates, and lunar calendar-based rules.
- Implemented **Hindi** and **Mongolian** translations to improve localization and accessibility.
- Wrote and maintained comprehensive **unit tests** to validate dynamic holiday calculations.
- Contributed to a large-scale **Python-based database** and participated in detailed code reviews.
- Technologies: **Python**, **Git**, **GitHub**, **Data Processing**, **Open Source Collaboration**

Projects

BaseKernel (Custom 32 bit Kernel) | *C, NASM, QEMU, GCC, Linux* — **GitHub**

- Built a 32-bit protected mode kernel from scratch following the 539kernel guide.
- Implemented bootloader, GDT, IDT, ISR, and IRQ handling for low-level system control.
- Added memory paging, screen output, and multitasking, refining system control and responsiveness.
- Developed entirely without standard libraries to achieve bare-metal execution.

KapoorVM (Custom Virtual Machine in C) | *C, Linux, GCC* — **GitHub**

- Built a 16-bit virtual CPU with a custom instruction set and 65 KB of virtual memory.
- Implemented basic opcodes to move immediate values into registers and run a test program.
- Designed modular VM components for clean separation of CPU, memory, and instruction handling.

Alloc (Custom Memory Allocator in C) | *C, Linux, NASM, GCC* — **GitHub**

- Created a 32-bit allocator mimicking `malloc()` and `free()` over a 1 GB virtual heap.
- Implemented `alloc(bytes)` to allocate memory in words by taking size in bytes as input.
- Added `destroy()` for secure deallocation with memory zeroing to prevent data leakage.
- Built packed headers, manual tracking, macros for KB/MB/GB allocation, and a `show()` debugger.

CodeNexus (Custom Code Editor for Python) | *Python, PyQt5, QScintilla, Jedi* — **GitHub**

- Developed a tab-based code editor with syntax highlighting, file explorer, and autocomplete.
- Implemented a threaded AutoCompleter using `jedi` and a custom `QsciLexer`.
- Enabled one-click code execution via `subprocess` in CMD.
- Integrated file actions with `QTreeView` and added keyboard shortcuts.

Email Unsubscriber (Inbox Automation Tool) | *Python, IMAP, SMTP, BeautifulSoup, requests* — **GitHub**

- Automated email unsubscription by scanning Gmail inbox via IMAP and locating unsubscribe links.
- Parsed links using `BeautifulSoup` and text-matching logic.
- Visited each link via `requests` and logged success/failure locally.
- Used `dotenv` to securely manage credentials.

Extracurricular Activity

Our Tech Community (OTC) | ourtech.community — **Jul 2025 – Present**
Core Team Member

- As part of the OTC core team, contribute to overseeing flagship initiatives such as CatchUps, Talks, and organizational operations, driving collaboration within the tech community.
- Manage and grow a vibrant, inclusive, and open for all tech-driven community.

Skills

Languages: C, Python, Java, MySQL, HTML, CSS
Tools & Environments: Git, GitHub, Makefile, Linux, Windows, VS Code, Neovim