ANKUSH KAPOOR

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EDUCATION

Vidyalankar Institute of Technology　　　　　　　　　　　　　　　　　　　　**Mumbai, India**
Bachelor of Technology in Computer Engineering　　　　　　　　　　　　　　　*Sept 2024 – Present*
- CGPA: **10.0** (First Year) | SGPA: **10.0** (Sem 3)
- Expected Graduation: **2028**
- **Relevant Courses**: Object-Oriented Programming, Data Structures & Algorithms, Database Management Systems

EXPERIENCE

Open World Holidays Framework　　　　　　　　　　　　　　　　　　　　**Jan 2025 – June 2025**
Open Source Contributor (GWoC Top 1%) & Paid Contributor　　　　　　　　　　　　　*Remote*
- Achieved **Rank 7 out of 2300+ contributors** in Google Winter of Code (GWoC) '24; top-tier performance led to a **paid sponsored task** to implement **Mongolian holidays**.
- Engineered a **lunar calendar** specifically for **Mongolia**, while extending pre-existing date systems to support complex holiday logic for **India** and **Nepal** to support **249 countries** in a library with **20M+ monthly** PyPI downloads.
- Implemented **localization (l10n)** efforts by implementing Hindi and Mongolian translations, ensuring native-language accessibility for regional users.
- **Technologies:** Python, Pytest, l10n, Git , GitHub

PROJECTS

Transformer From Scratch (Neural Machine Translation) | *Python, PyTorch*　　　　　　**GitHub**
- Developed a complete **Transformer architecture** from scratch using **PyTorch**, manually building **multi-head attention**, **encoder-decoder blocks**, and **positional encoding**.
- Trained a bilingual **NMT model** on **OPUS Books** using **greedy and beam search** decoding, implementing **learning-rate warmup** and **label smoothing** for optimized convergence.
- Evaluated performance using **SacreBLEU, WER, and CER** metrics, utilizing **TensorBoard** for experiment tracking and checkpointing logic.

BaseKernel (Custom 32 bit Kernel) | *C, NASM, QEMU*　　　　　　　　　　　　　　**GitHub**
- Built a **32-bit protected mode** kernel from scratch, **bootstrapped** from **real mode**.
- Implemented **bootloader**, **GDT**, **IDT**, **ISR**, and **IRQ** handling for low-level system control.
- Added **memory paging**, **screen output** along with a **Round Robin scheduler** to enable fair CPU time allocation across tasks.
- Developed entirely without standard libraries to achieve bare-metal execution.

Alloc (Custom Memory Allocator in C) | *C, NASM*　　　　　　　　　　　　　　　　**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, ensuring data privacy.
- Built packed headers, manual tracking, macros for KB/MB/GB allocation, and a **show()** debugger.

TECHNICAL SKILLS

Languages: C, Python, Assembly, Java　　　　　　　　**Database**: MySQL
Tools and platforms: Git, GitHub

EXTRACURRICULAR ACTIVITY

Our Tech Community (OTC) | ourtech.community　　　　　　　　　**Jul 2025 – Present**
Co-Organiser
- Co-organize and grow a vibrant, inclusive, and open-for-all tech community of currently **600+ members**.
- Plan, organize, and execute OTC's **flagship programs**, including weekly catchups and **technical** talks.
- Oversee community operations, including **technical setup and maintenance** for events, ensuring smooth execution and **comprehensive documentation**.