Kushagra Agarwal

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EDUCATION

Chandigarh University   Mohali, Punjab
B.E in Computer Science and Engineering   08/2021 - 07/2025

EXPERIENCE

NSP ITES   Remote, IN
SDE Intern   07/2023 - 09/2023

- Engineered the backend for a **CRM software** managing call leads and campaigns, implementing role-based access control for 3 user types: Owner, Admin, and Dialer.
- Developed RESTful APIs using **Node.js** and **Express**, handling user authentication, organization management, campaign creation, and lead tracking, achieving an average response time under 200 ms.
- Designed a secure **JWT**-based authentication system with token refresh capabilities, ensuring reliable user sessions and secure access control, supporting a 150 requests per second (RPS) rate during peak usage.
- Optimized **MongoDB** database design for user profiles, organizations, campaigns, leads, and responses, ensuring efficient data retrieval with access latency below 200 ms.
- Created reporting features generating statistics for campaign performance, lead progress, and user activities, enabling data-driven decision-making.
- Integrated middleware enforcing authentication and role-based access control across the API, enhancing system security and integrity.

PROJECTS

32-bit Operating System [C++, Make, Asm]   09/2024 - Present

- Developed a 32-bit Operating System from scratch, focusing on core functionalities and system-level programming
- Key features implemented:
  * Included an Interrupt Manager, Interrupt Descriptor Table, and Global Descriptor Table
  * Created Driver Manager, Keyboard and Mouse Drivers with corresponding event handlers
  * Integrated PCI device and function detection capabilities
  * Integrated a 320 x 200 8-bit graphics mode for visual content rendering

Code-Compete [Gnome-JavaScript, Linux]   05/2023 - 05/2023

- Engineered a Gnome-Shell Extension utilizing Clist.by services to display upcoming programming contests from over 100+ platforms on Gnome-Desktop.
- Key features implemented:
  * Integrated contest data retrieval and display from 100+ platforms using Clist.by API
  * Designed real-time timers showing remaining time for each contest
  * Included customizable platform filtering to allow users to ignore specific contest sources
- Achieved over 90 organic downloads within the first month of release, demonstrating strong user adoption.

TECHNICAL SKILLS

Languages (Proficient and Competent): Python, C++, JavaScript, Java, SQL
Frameworks (Proficient and Familiar): NextJS, React, Django, Flask, Gnome-Javascript
Developer Tools: Git, GitHub, Linux, Docker, MySQL, MongoDB
Libraries: React-Router, Tailwind CSS, Python ML Libraries

AWARDS AND ACHIEVEMENTS

- Attained **Guardian** badge on Leetcode, ranking **2366** with a **2392 rating**, by solving over 1400 algorithmic challenges
- Earned **All India Rank 29** in the Innovate India Coding Championship, jointly organized by IEEE and AICTE
- Enhanced multiple **open-source** projects on GitHub during **Hacktoberfest** and through ongoing volunteer initiatives
- Secured rank **2506** in Round 1 of the highly competitive **Meta Hacker Cup '24**
- Excelled in NPTEL courses, obtaining top scores in Getting Started with Competitive Programming and Discrete Mathematics
- Competed in the **International Coding Contest** by IIT Roorkee during Cognizance 2023