ARUN KUMAR | Computer Science & Engineering | B.Tech at IIT Madras

EDUCATION AND SCHOLASTIC ACHIEVEMENTS

Program	Institute	% / CGPA	Year
B. Tech Degree in CSE	Indian Institute of Technology, Madras	7.19	2025
Class XII	Deep Chand Public School, Haryana	86.2	2021
Class X	D.C Convent School, Delhi	91.0	2019

RELEVANT COURSES

- Data Structure and Algorithms
- Object Oriented Programming
- Operating System
- Database Management system
- Computer Networks
- Paradigms of Programming
- Foundation of Cryptography
- Discrete Mathematics for CS
- Probability and Statistics

TECHNICAL SKILLS

Languages	C++, C, Java, Python, HTML, CSS, SQL
Tools & Systems	MySQL, Django, Android studio, GitHub, Linux OS, Android App and Web App Development

WORK EXPERIENCES & PROJECTS

RailRoute
([View Code](#))

- **Engineered a full-stack web application** to find optimal direct and indirect trains between stations by implementing graph-based algorithms, addressing various complexities and constraints.
- Developed a robust **backend system using Django in python**, integrating AJAX to handle dynamic data requests and provide real-time route calculations, ensuring smooth and responsive interactions for users.
- **Enhanced user experience** with a responsive frontend using **HTML, CSS, and JavaScript** which improved user **satisfaction by 15%** based on feedback surveys, highlighting the use and optimization features.

Chatroom
(Prof. Ayon Chakraborty)
([View Code](#))

- Developed a **multi-threaded client-server** chatroom application using C, leveraging **socket programming** to enable real-time communication between multiple users.
- Implemented a robust **client-server architecture** that manages concurrent client connections, ensuring thread-safe operations with **mutex locks**, and broadcasting messages efficiently to connected clients.
- Implemented user management with **unique username validation**, command-based interactions (e.g., \list, \bye), and graceful handling of disconnections and ensuring dynamic updates to the user list.

CPU Scheduler
(Prof. Prashanth L.A.)
([View Code](#))

- Developed a dynamic CPU scheduling system using a **Multilevel Feedback Queue (MLFQ)**, integrating **Round-Robin (RR)**, **Shortest Job First (SJF)**, and **First Come First Serve (FCFS)** algorithms.
- Implemented a threshold-based promotion mechanism with tailored custom comparators to ensure fairness, **prevent starvation, reduce response and turnaround time**, and enhance scheduling efficiency.
- Optimized scheduling efficiency by analysing performance metrics like Mean Turnaround Time (TAT) and Throughput, achieving a **20% improvement** over traditional single-queue methods.

Decision Matrix
([View Code](#))

- **Developed an Android application** using Java and XML in Android Studio, facilitating decision-making by allowing users to prioritize options on multiple factors through a **customized matrix-based algorithm**.
- **Engineered a backend algorithm** incorporating user-defined priorities and **research-based default weightages**, enabling the app to provide a data-driven shortlist of optimal choices.
- **Integrated a user-friendly interface** that collects, processes, and analyses input, delivering tailored recommendations for decision-making, enhancing user confidence in complex choices.

POSITIONS OF RESPONSIBILITIES   *IIT MADRAS*

Coordinator
(Institute WebOps)

- Contributed to the **development of 'InstiQuora',** an internal platform for student interaction and Q&A, by designing the post section in a rectangular format.
- Utilized HTML, CSS, and JavaScript to implement features including support for images and descriptions.

Coordinator
(CSA)

- **Event Management Team**: Contributed to the successful execution of the CS Trophy Tournament, coordinating and overseeing multiple sports and games to ensure smooth operation and engagement.
- **Design Team**: Collaborated in a team to design the CSA logo using Adobe Photoshop and Canva.

VOLUNTEERING AND EXTRA-CURRICULARS

Event Management

- **MITR Team**: Informed students about consultancy services and promoted the InstiSpace app, which provides comprehensive information on campus facilities.
- **IVIL Team**: Taught basic skills to school students in a Chennai village and raised awareness about menstruation through street performances, promoting safety and comfort for women.
- **SOC Team**: Managed checkpoints at a racing competition, verifying competitors' routes for accuracy.

Sports

- Proudly served as a dedicated and prominent member of the **Institute Cricket team**.
- Completed training with the **NSO Athletics Main Team**, showcasing dedication and athletic abilities.
- Participated in Badminton and Cricket in tournament in **CS Trophy** 2022-2023 & 2023-2024.