VIJAY KUMAR | 22AE10045

B.Tech.(Hons.) in AEROSPACE ENGINEERING

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2026	B.TECH	IIT Kharagpur	7.75 / 10
2022	Intermediate Examination, Bihar Board	Gaya College, Gaya	90.4%
2020	Secondary Examination, Bihar Board	T. Model Inter School, Gaya	88.8%

PROJECTS

CPU Scheduling Algorithms | Operating Systems | C++ | OOP | Self Project

- Expertise in CPU scheduling algorithms like FCFS, Round Robin, SPN, and SRT for efficient process management.
- Implemented Aging Scheduler to dynamically adjust process priorities and effectively prevent starvation in systems.
- Optimized multi-level feedback queues with varying time quanta for more balanced and efficient process execution.
- Highly skilled in analyzing and solving scheduling challenges to minimize waiting time and maximize overall CPU utilization.

BigInteger | C++ | Arbitrary Precision Arithmetic | OOP | Self Project

- Designed and successfully implemented a custom BigInt class to handle operations on integers of arbitrary size.
- Overloaded operators to support intuitive arithmetic operations such as addition, subtraction, multiplication, and division.
- Optimized and enhanced algorithms for advanced computations like power, square root, and factorial calculations.
- Developed reusable, modular code with extensive testing for various edge cases and performance validation.

Walmart Data Analysis | SQL | Self Project

- Managed data wrangling, ensuring integrity and creating a robust database, addressing missing values for seamless analysis.
- Utilized feature engineering, introducing 'time_of_day', 'day_name', and 'month_name' columns for nuanced sales pattern.
- Conducted in-depth data analysis, extracting valuable insights on product performance, sales trends, and customer behavior.
- Demonstrated financial analytics prowess by calculating metrics like COGS, VAT, total revenue, and Gross Margin Percentage.

SKILLS AND EXPERTISE

Programming Languages: C | C++ | Python | HTML | CSS | SQL
Softwares and Libraries: C++ STL | Pandas | NumPy | Matplotlib | Arduino IDE | MATLAB | ANSYS Fluent | TINKER CAD | SOLID WORKS | Git and GitHub | MS Excel | MS Word
Others: Object Oriented Programming in C++ | Data Structures and Algorithms | Operating Sytems

COURSEWORK INFORMATION

Computer Science: Programming and Data Structures Theory | Programming and Data Structures Laboratory
Mathematics: Advanced Calculus | Linear Algebra, Numerical and Complex Analysis | Numerical Solutions of Ordinary and Partial Differential Equations | Transform Calculus
Core: Introduction to Aerospace Structures | Introduction to Flight Vehicle and Controls | Introduction to Aerodynamics | Low Speed Aerodynamics | High Speed Aerodynamics | Viscous Flow Theory | Dynamics for Aerospace Engineers | Introduction to Aerospace Propulsion Systems | Advanced Gas Turbine Theory | Mechanics of Flight | Aerospace Structural Analysis
Others: Basic Electronics | Electrical Technology | DIY Project | Basic Engineering Mechanics | Physics of Waves

AWARDS AND ACHIEVEMENTS

- Ranked in the top **6.17%** among **1,60,000+** shortlisted candidates in the Joint Entrance Examination Advanced 2022.
- Ranked in the top **1.14%** among **8,73,000+** candidates who registered for the Joint Entrance Examination Mains 2022.
- Ranked **9th** in the district Gaya in the Intermediate Board Examination in Science 2022.
- Ranked **1st** among **300+** students in T.Model Inter School, Gaya in Secondary Board Examination in 2020.
- Ranked **1st** at Subdivisional level in Bihar Olympiad in Science held in the year of 2020.

COMPETITION/CONFERENCE

Leetcode Ratings: Secured **1600+** contest rating at leetcode coding plateform.
Codeforces Ratings: Secured **1100+** contest rating at codeforces coding plateform.
- Solved **500+** DSA problems at different coding plateforms like leetcode, codeforces, GfG, codestudio and codechef.

POSITIONS OF RESPONSIBILITY

Event Coordinator | Navprayas - A Group of Innovative Thoughts

- Organized multiple events in the village for aspiring students, including MTSE, Chess Competition, Kaavyakala, Ideation Hunt, and Rangoli Competition, serving as a dedicated member of the Finance Team.
- Managed all financial operations for various events and the prestigious Pratibha Milan award ceremony, ensuring seamless execution.
- Coordinated and successfully organized Pratibha Milan, an award ceremony recognizing outstanding participants in multiple events.

Secretary Cricket | Nehru Hall of Residence

- Managed the inventory of cricket kits and other equipment for the team of Nehru Hall of Residence, ensuring their availability.
- Coordinated and organized regular practice sessions, in collaboration with the Captain and General Secretary, Sports and Games.
- Successfully organized the General Championship Cricket for Nehru Hall of Residence, contributing to its smooth execution.

EXTRA CURRICULAR ACTIVITIES

- Actively participated in all the numerous activities organized by the **NSO Health and Fitness** program at IIT Kharagpur.
- Part of General Championship Cricket for Nehru Hall of Residence for the academic year 2023-2024.
- Actively participated in the Illumination created by Nehru Hall of Residence in the year 2023.