



EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2026	B.TECH	IIT Kharagpur	8.17 / 10
2021	I.S.C.	MCKV School	88.5%
2019	I.C.S.E.	St.Helens School	94.4%

PROJECTS

C++ Dictionary using Tries | Self Project

[June 2024]

- Developed a Dictionary application using **Tries** to find meanings and return a list of rhyming words for any word
- Utilized file handling to extract data from CSV files containing words and their pronunciations.
- Implemented a feature that searches for the meaning and part of speech of a word in **O(|s|)** time complexity
- Designed a Rhyming Words Finder functionality that finds a list of closest rhyming words in **O(|s|)** time complexity by finding a word's pronunciation and matching its suffix with that of other words

Vending Machine | Finite State Machine

[June 2024]

- Applied **Finite state machine** principles to manage **4 states: selection, quantity input, calculation, and updation**
- Utilized an enumeration for soda brands, facilitating **structured inventory management** and user selection processes
- Implemented a **wallet system** to process payments, dispense products, and return **extra change**, for transparency
- Integrated a **refill option** to easily restock inventory, adjusting available quantities and ensuring continuous operation

Rubik's Cube Solver | Korf's IDA* Algorithm

[May 2024]

- Developed virtual models of a (3x3) **Rubik's Cube** in **C++** using **3D array, 1D array** and **bitboard** representation
- Achieved solving times under **3 seconds** for an **8-times** scrambled Rubik's Cube using **BFS, DFS, and IDDFS** algorithms
- Implemented **Korf's and IDA* algorithm**, achieving solving times under **10 seconds** for scramble of upto **13-moves**

Solving Global Logistics | Genetic Algorithms | C++

[May 2024]

- Engineered a **genetic algorithms** framework to tackle intricate global logistics challenge or the Vehicle Routing Problem
- Devised an **optimization Strategy** for the **Vehicle Routing Problem (VRP)** using genetic algorithms
- Integrated **mutation** techniques with a **25%** probability to adjust population dynamics, enhancing algorithmic performance
- Developed an advanced **fitness evaluation** method by using parameters like **standard deviation** and **optimizing** routes

AWARDS AND ACHIEVEMENTS

- Secured an **All India Rank** in the top **5%** among **155,500+** students in **JEE Advanced 2022 Examination**
- Attained a top rating of **1430 (Specialist)** on Codeforces, demonstrating advanced problem-solving skills
- Reached a peak rating of **1715 (3-star)** on **CodeChef** and a maximum rating of **724 (brown)** on **AtCoder**

COMPETITION/CONFERENCE

- Achieved a **top 5%** rank, securing **713th** place out of over **16,300** participants in **Codeforces Round 952** and a **top 11%** rank, securing **1765th** place out of over **16,700** participants in **Codeforces Round 950**
- Obtained top rank of **154 (top 1%)** in **CodeChef Starters 136** and ranked **280 (top 2%)** in **Codechef Starters 134** among **Division 3** participants and attained **1711th** rank at **AtCoder Beginner Contest 359**

POSITIONS OF RESPONSIBILITY

Senior Game Developer | Computer Graphics Society | IIT Kharagpur

[October 2023-present]

- Built** an interactive Endless Runner game using Python's **Pygame** library, implemented **jump** and **gravity** game mechanics, including **class-based architecture, sprite handling, and random obstacle generation**
- Organized a **3-day game development workshop** for freshmen, which saw enthusiastic participation from **70+** individuals, aimed at fostering practical skills, teamwork, and creativity in game design

SKILLS AND EXPERTISE

Skills: Competitive Programming, DSA, Problem Solving

Languages: C++ | C | Java | Python | HTML | Javascript | CSS

Libraries/Frameworks/Tools: Numpy | Pandas | Matplotlib | C++ Standard Template Library (STL) | Bash | Git | Github

COURSEWORK INFORMATION

Programming &Data Structures (Theory and Lab) | Advanced Calculus Linear Algebra | Probability and Statistics Applied Computational Methods | Algorithms - I (Theory and Lab) | Introduction to Innovation and Entrepreneurship | DIY Laboratory

EXTRA CURRICULAR ACTIVITIES

- Solved 3x3 rubiks cube with an average of **22.58** sec and single best **19.07** sec (**WCA ID -2024AGAR04**)
- Recognized as **8th Kyu (Green Belt)** by the All India Seishiunkai Shito-Ryu Karate-Do Federation
- Awarded the **Best Student honor** for two consecutive years by **ICMAS** for Annual Abacus Challenge