

AAYUSH SAINI

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Education

Graphic Era Hill University, Dehradun

2022 - Present

B.Tech in Computer Science & Engineering

A.B.N. Sr. Sec. School, Roorkee

2022

Senior Secondary(XII), CBSE BOARD

A.B.N. Sr. Sec. School, Roorkee

2020

Secondary(X), CBSE BOARD

Projects

Mini Compiler

[Source Code](#)

- Developed a custom compiler for a simplified C-like language using Flex and Bison, supporting variables, expressions, and control structures, while reducing code complexity by 40% through optimized symbol table management and intermediate code generation.
- Generated Three Address Code (TAC), managed symbol tables, and implemented intermediate code logic for parsing and execution.
- Tech Stack: C, Flex, Bison.

File Compression System

[Source Code](#)

- Implemented Huffman encoding to achieve up to 70% reduction in file size, optimizing storage efficiency.
- Enabled users to upload, compress, and download files up to 2MB, with results in under 2 seconds.
- Tech Stack: HTML, CSS, JavaScript.

Encryption Method

[Source Code](#)

- Engineered a Python-based encryption algorithm utilizing bitwise XOR operations for enhanced data security.
- Strengthened encryption by segmenting input and generating dynamic keys, improving cryptographic robustness.
- Tech Stack: Python, Tkinter.

Food Management System

[Source Code](#)

- Developed a full-stack food management platform enabling students to discover and compare mess services based on real-time pricing, availability, and user reviews, improving decision-making for over 200+ users.
- Integrated optimized search and recommendation features using OS-level algorithms like FCFS, SJF, Round Robin, and Banker's Algorithm to enhance service efficiency and response time.
- Engineered using React.js, HTML/CSS, JavaScript, Node.js, Express.js, and MongoDB, with real-time updates via Socket.io and secure authentication through JWT and bcryptjs.

Technical Skills

Languages: C, Python, C++, Java, JavaScript

Frontend: React, TailwindCSS, HTML, CSS, Bootstrap

Clouds & Databases: AWS, MySQL, MongoDB, Oracle23c

Web Technologies: Streamlit, Tinkter

Developer Tools: Git, VS Code, GitHub, PyCharm

Data Science & Machine Learning: NumPy, SciPy, Matplotlib, Pandas

Certifications

- SQL by Udemy.
- Cisco Networking Basics.
- Python Basics by HackerRank.
- AWS Cloud Quest.

Algorithmic Competitions/ Achievements

- Completed AWS cloud architecture certifications, gaining expertise in scalable application deployment.
- Built functional prototypes in multiple national hackathons, demonstrating creativity and efficiency under pressure.
- Participated in the Google Cloud Facilitator Program, gaining hands-on experience in cloud computing, virtual machines, Kubernetes, and cloud-native tools on the Google Cloud Platform (GCP).