Vishal Singhania

singhaniav.github.io | +91-7782874447 | vishsinghania@outlook.com

EDUCATION

MANIPAL UNIVERSITY JAIPUR

Faculty of Engineering
BTech in Computer &
Communication Engineering
Minor in Data Science

July 2024 | Jaipur, Rajasthan
Cum. GPA: 8.72 / 10.0 (till 7th Sem)

SKILLS

PROGRAMMING & SCRIPTING

C • C++ • Python • Bash • SQL
R • MATLAB • Java

TOOLS & FRAMEWORKS

Backend & Databases:
Postman • Django • Flask • FastAPI
Git • Docker • PostgreSQL • MongoDB

Data Science & Machine Learning:
SciPy • Pandas • NumPy • NLTK
Matplotlib • scikit-learn • TensorFlow

COURSEWORK

UNDERGRADUATE

Design & Analysis of Algorithms
Data Structures & Algorithms
Object Oriented Programming
Operating Systems
Database Systems
Computer Networks
Data Mining & Warehousing
Artificial Intelligence
Deep Learning
Big Data Analytics
Information Retrieval
Blockchain Technologies
Probability & Statistics
Discrete Mathematics

OPENCOURSEWARE

Graph Algorithms *by UCSD*
CCNAv7: Intro to Networks *by Cisco*
Programming in Python *by Python Institute*
C++ Specialization *by UIUC*

LINKS

COMPETETIVE PROGRAMMING

CodeChef/big_v • Codeforces/BigV_
Topcoder/BigV_ • AtCoder/BigV

PROFILES

Github/SinghaniaV • Leetcode/bigV_
Kaggle/bigvish • LinkedIn/singhaniav

PROJECTS

CONDUIT ⦿   DATABASES + BACKEND

FastAPI | PostgreSQL | Python

- Backend logic implementation of a dynamic social blogging platform like *Medium.com*, influenced by the RealWorld GitHub initiative.
- API Specifications and Features:
  User Authentication using *JWT* for secure access. *User Management*: Create, update, delete user profiles. *Article CRUD*: Create, retrieve, update & delete articles with details. *Commenting*: Leave, view, and delete comments on articles. *Favorite Articles*: Mark articles as favorites. *Follow/Followers System*: Connect users through following/unfollowing. *Pagination* for efficient listing of articles.
- Testing Framework:
  Unit Testing: Tested individual components with *mock dependencies*. *Integration Testing*: Ensured smooth interaction between components. *API Testing*: Automated API tests for responses, status codes, and data integrity. *Edge Case* and *Security Testing*: Validated edge cases and security measures.
- Continuous Integration (CI) and Continuous Deployment (CD): *(upcoming)* Integrate testing in the CI/CD pipeline for thorough validation before deployment.

WATSON X ⦿   MACHINE LEARNING + NATURAL LANGUAGE PROCESSING

NLTK | Python

- Built a question answering system similar to IBM Watson. It operates on a corpus of text documents and aims to find the most relevant documents and passages to a given query.
- For document retrieval, the system uses *tf-idf (term frequency-inverse document frequency)* to rank them based on the frequency of query terms and their overall importance in the corpus.
- Passage retrieval is performed by subdividing the top document(s) into sentences. In scoring the passages, the system employs a combination of *inverse document frequency* and a *query term density* measure.

NAND 2 TETRIS ⦿   OPERATING SYSTEMS + COMPILERS + ARCHITECTURE

HDL | Assembly | C

- Following the guidelines at Nand2Tetris, implemented a fully functional computer from scratch (*software hierarchy* + *hardware platform*).
- The hardware platform involves implementing the *elementary logic gates* using an *HDL*. Then, a *CPU*, and a *RAM* chip from combinational & sequential logic.
- The software hierarchy involves implementing a *high-level language*, a *compiler*, a *Virtual Machine translator* to translate the compiled code to machine language, then an *assembler* to translate it to binary, and finally, a basic *operating system* that closes gaps between the high-level language and the underlying hardware platform.

ACHIEVEMENTS

Year	Achievement	Description
2023	**3 star (Div. 2)**	Peak **rating of 1630** on CodeChef
2023	**India Rank of 4944**	Google's **Code Jam** Round A
2023	**Global Rank of 293**	CodeChef Starters 75
2023	**Contributor**	Kaggle (a data science competition platform)
2022	**Global Rank of 946**	Code-a-thon organized by IIT BBS
2022	**Qualified Round 1**	ACM Semi Code (an Institute level Code-a-thon)
2021	**Merged Pull Requests**	Contribution recognized in **Hacktoberfest**
2021	**Contributor**	to Wikipedia articles through an **Edit-a-thon**