Vishal Singhania

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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:
Docker • Git • Kafka • Postman
RabbitMQ • Django • Flask • FastAPI
PostgreSQL • MongoDB • Redis

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 UC San Diego*
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 ⦿
Backend + Databases

FastAPI | MongoDB | 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)*

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

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**