

# Vishal Singhanian

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## EDUCATION

### MANIPAL UNIVERSITY JAIPUR

Faculty of Engineering

**BTECH IN COMPUTER AND**

**COMMUNICATION ENGINEERING**

**MINOR IN DATA SCIENCE**

July 2024 | Jaipur, Rajasthan

Cum. GPA: 8.91 / 10.0 (till 5th Sem)

## LINKS

Github/SinghanianV

LinkedIn/singhanian-v

Kaggle/bigvish

CodeChef/big\_v

Codeforces/BigV\_

Leetcode/bigV\_

## COURSEWORK

### UNDERGRADUATE

Design and Analysis of Algorithms

Data Structures and Algorithms

Object Oriented Programming

Operating Systems

Database Systems

Computer Networks

Machine Learning\*

Data Mining and Data Warehousing\*

Computer Architecture

Automata Theory & Compiler Design\*

Wireless Communications\*

Probability & Statistics

Discrete Mathematics

[\*to be completed by May 2023]

## OPENCOURSEWARE

## SKILLS

### PROGRAMMING

Comfortable:

C • C++ • Python • Java

Familiar:

MATLAB • Shell (bash/poish)

HTML, CSS • JavaScript

### TOOLS & LIBRARIES

Git • Flask • MySQL • SciPy • Linux

## INTERESTS

Algorithms • Math • Economics

Competitive Programming

## PROJECTS

### STOCK EXCHANGE | API, WEBAPP, DATABASE

Flask | SQLite | Python | HTML, CSS | JavaScript

- A WebApp that allows logged-in users to "buy" and "sell" stocks (with pretend money) as well as look up real stock quotes fetched from **IEX API**, users can also view their stock portfolio transaction history.

### WORDLE | INFORMATION THEORY, ALGORITHM

SciPy | Python

- An implementation of the viral game **Wordle** (originally developed by Josh Wardle) in Python than can be played via the terminal.
- Player should guess the word in at-most six guesses. Each guess must be a valid five-letter word. The color of the tiles will change to show how close your guess was to the word.
- Using dataset of 13k five-letter words, implemented an **algorithm** that solves any wordle game in at-most six guesses, from **Grant Sanderson's entropy idea** which uses **information theory** to guess the next best word.

### ENCRYPTED CHAT | CRYPTOGRAPHY, NETWORKS

Socket | RSA (Rivest Shamir Adleman) | Python

- A CLI peer-to-peer (P2P) Chat App which uses **Asymmetric-Key** cipher to send and receive messages.
- One user (node) listens on a port number at an IP address, while the partner (node) reaches out to form a connection using a connection-oriented **transmission control protocol (TCP)**.

### PASSWORD MANAGER | CRYPTOGRAPHY

Fernet | Python

- A CLI Password Manager to encrypt-&-store passwords using **Symmetric-Key** cipher.
- The user can **save** and **retrieve** passwords locally using their **master password**.

### JACK TOOLCHAIN | (ONGOING)

C++

- Following the guidelines of **Nand2Tetris**, implementing the Jack Compiler in C++.
- Implementing a two phase recursive descent Compiler with first phase converting to intermediate virtual machine code, and second phase converting to assembly and an assembler to translate this assembly to binary.

### NEURAL NETWORKS | MINOR PROJECT (ONGOING)

Python

- Implementing **Neural Networks** from scratch in Python and will be training it to recognize handwritten texts.

## ACHIEVEMENTS

2023

**3 star (Div. 2)**

Highest **rating of 1600** on CodeChef

2023

**Global Rank of 293**

CodeChef Starters 75

2023

**Global Rank of 356**

CodeChef Starters 76

2022

**Global Rank of 946**

Codeathon organized by IIT BBS

2022

**Qualified Round 1**

ACM Semi Code (an Institute level Codeathon)

2021

**Open Source**

Contribution recognized in **Hacktoberfest**