MADHAV SAINANEE

3rd Year Undergraduate at IIIT - Delhi

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in madhav-sainanee ⊙ orthodoxparadox

EDUCATION

B.Tech in Computer Science, IIIT Delhi

📅 Aug 2017 – Present

- CGPA: 8.05
- Courses: Operating Systems, Database Management, DSA, Theory of Computation, Discrete Math, Modern Algorithm Design, Machine Learning, Computer Networks
- **Dean's List For Excellence in Technical Field, 2019**
- Tech Stack: C++ (**100k+ loc**), Python (**10k+ loc**), Java (**10k+ loc**), C, HTML, CSS, JavaScript, React, scikit-learn, Numpy

PROJECTS

Sentiment Analysis of Customer Support Tweets
ML/NLP using Python

- Used **textblob** and **nltk** libraries to preprocess tweets and generate training data
- Used **Naïve Bayes**, **SVM** and **Neural Networks** to get high accuracies to categorize tweets based on emotion

MLP Classifier from Scratch
ML using Python | [Github]

- Manually made MLP classifier with **ReLU, sigmoid, linear** and **tanh** activation functions with **softmax** for ouput layer achieving high accuracies.

Built Linux Shell from Scratch
C Programming Language | [Github]

- Built a **Linux shell** using the **C programming language**
- Implemented **pipes, redirection and file descriptor handling**

Merkle Tree
C Programming Language | [Github]

- **Implemented SecureFS** on top of the existing Linux file system which alerts if integrity of files is compromised
- Maintained a **Merkle tree of SHA1 hashes** for every file to check consistency of all blocks before read/write operations.

Socket Programming
Computer Networks using Python | [Github]

- Used **serial client server connections** for transferring of compressed files (using Lempel-Ziv compression)
- Used Data Link Layer to send packets and recorded and moderated packet drop rate

Snake vs Block
Java (JavaFX) | [Github]

- Java Game modelling the popular mobile game using JavaFX
- Used various **controllers** and **AnimationTimer** and implemented design interfaces on **FXMLLoader**

Quake Bot
Arduino | [Github] | [Website]

- Made a rover to detect people trapped under debris, using an Arduino Uno

WORK EXPERIENCE

Research Intern, IIIT Delhi

📅 May 2019 – Aug 2019 📍 New Delhi,India

- Optimizing testing of efficiency of **Random Number Generators (RNGs)** in a streaming fashion
- Rewrote **NIST** and **DieHarder** test libraries efficiently in **C** to reduce latency and improve processing time while maintaining quality assurance

Educator (Programming), CodeChef

📅 May 2018 – June 2018 📍 New Delhi,India

- Propagating programming interest in school children via programming concepts in python

Teaching Assistant, IIIT Delhi

📅 May 2019 – July 2019 📍 New Delhi, India

- Teaching assistant for the course Competitive Programming I
- Handled problem curation, lab setting and administrative tasks for 300+ students taking the course

ACHIEVEMENTS

Runner Up, Jio TechGig Code Gladiators 2019
- Won prize of **Rs. 2.5 lakhs**. Code Gladiators is world's largest arena for competitive coding.

Google Code Jam Round 3 (2019)
- Global Rank **501**, Top 1000 programmers selected in **Round 3**
- Qualified for Round 2 in 2018

Facebook Hacker Cup Round 2 (2019)
- Global Rank **436**
- Qualified for Round 2 in 2018.

Inter Collegiate Programming Contest (ICPC)
- Qualified for Indian Regionals for 3 consecutive years (2x Top 25 in India)
- Strong performance in Indian Regionals (1x Top 5, 1x Top 10, 1x Top 30, 1x Top 50, 1x Top 100)

Master on Codeforces (Rating 2222)
- Profile - **madhav_1999**
- **Top 20 in India**, over 1000 problems solved

6* rated on CodeChef (Rating 2249)
- Profile - **madhav_1999**
- **Top 200 in India**, over 200 problems solved

Course Topper, 'Competitive Programming I' and 'Competitive Programming II'
- **Topped** both courses on competitive programming, achieving **special distinction (A+)**

AIR 99, Kishore Vaigyanik Protsahan Yojna (KVPY) Scholar

Junior Science Talent Search (JSTS) Scholar