Ritesh Saha

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Summary

Proficient in building full stack websites, designing databases & APIs, enjoys competitive programming and learning about new data structures and algorithms.

Profile

- Github
- Linkedin
- Leetcode
- Portfolio

Experience

Junior Full Stack Developer

EnableCap • Kolkata, West Bengal
06/2022 - 06/2023

- Developed and implemented the Loan Management System (LMS) and Loan Origination System (LOS) projects from scratch.
- Designed and implemented the REST framework for the LMS, responsible for data uploading/manipulating, loan lifecycle management, credit report generation (CIBIL and Equifax), and loan analytics, generating loan performance reports, key fact statements, statement of accounts, and sanction letters.
- Incorporated a user/role management system into the LMS, ensuring secure access and streamlined workflows.
- Collaborated with other companies for co-lending purposes, providing them with APIs to integrate with our LMS.
- Collaborated closely with the financial team to understand business requirements and automated a significant portion of the business processes.
- Built the user interface (UI) of the LMS using HTML, CSS, and JavaScript, leveraging technologies such as DataTables, Alertify, Chart.js, and SweetAlerts for enhanced functionality.
- Utilized Celery to create efficient background tasks for computing loan metrics, such as overdue, outstanding, XIRR, IRR, days past due, interest margin, etc.
- I worked on the Loan Originating System (LOS) project. I designed and built APIs and databases to accept and store loan applications, developed a WhatsApp chatbot, and implemented forms using HTML, CSS, and JavaScript.

Key accomplishments:

- Designed and implemented the entire backend and REST API of the LMS, including the database. This involved designing and implementing the data models, writing the code for the REST APIs, and configuring the database. The REST APIs handle data uploading/manipulating, loan lifecycle management, credit report generation (CIBIL and Equifax), and loan analytics.
- Implemented server-side processing of DataTables, including essential features such as pagination, universal search, individual search, sorting columns, exporting to xlsx, csv and pdf, and the powerful search builder feature. The search builder feature was implemented using depth-first search, and it is now used extensively throughout the project for easy filtering of data.
- Optimized the loan metrics calculation process, reducing the time to calculate loan metrics for more then 10,000 to just 5 minutes. This significantly accelerated report generation, allowing the operations team to generate CIBIL reports of an entire year in under 1 hour, which would have otherwise taken weeks if not days.

Skills

Proficient in data structures and algorithms, working with and designing relational databases, and building user interfaces.

Backend Development: Python, C, C++, Java

- **Backend Frameworks & Libraries:** Django, Flask, Celery, Django Rest Framework, Knox authentication, Numpy, Pandas, Numba, Plotly

Database: MySQL, SQLite3

- **Database Skills:** Temporary Relationships, Relational Algebra, Normalization, Database Design, Query Optimizations

Frontend: HTML, CSS, Javascript, Ajax

- **Frontend Libraries:** DataTables, Chart.js, SweetAlerts, Alertify

Server and Deployment:

- **Web Servers:** Nginx
- **Application Servers:** Gunicorn
- **Caching:** Redis
- **Operating Systems:** Linux
- **Cloud Services:** Amazon Web Services (AWS), E2ENetworks

Other tools: git, visual studio

Certifications

- Algorithms for Searching, Sorting, and Indexing (Coursera)
- Trees and Graphs: Basics (Coursera)
- Dynamic Programming, Greedy Algorithms (Coursera)
- Data Science Foundations: Data Structures and Algorithms (Coursera)
- Mathematics for Machine Learning: Linear Algebra (Coursera)
- Mathematics for Machine Learning: Multivariate Calculus (Coursera)
- Programming in Java (NPTEL)
- Programming, Data Structures And Algorithms Using Python (NPTEL)
- Data Structures and Algorithms: Deep Dive Using Java (Udemy)
- Problem Solving (Intermediate) (HackerRank)
- Problem Solving (Basic) (HackerRank)
- SQL (Advanced) (HackerRank)
- SQL (Intermediate) (HackerRank)
- SQL (Basic) (HackerRank)
- Python (Basic) (HackerRank)

Personal Projects

Trading/Portfolio management web app (Demo , Code):

- A full stack web application built with Flask, SQLite3, Ajax, Plotly, and Yahoo Finance that allows users to quote various stocks and manage their portfolio. This web app also estimates future trends of a stock.
- The front end of the application is built with HTML, CSS, and JavaScript. The back end of the application is built with Flask, SQLite3, Ajax, Plotly, and Yahoo Finance.
- The application allows users to quote various stocks by entering the stock symbol into a search bar. The application then retrieves the current price of the stock from Yahoo Finance and displays it on the screen.
- The application also allows users to manage their portfolio by creating and editing a list of stocks. The application tracks the current price of each stock in the portfolio and displays the total value of the portfolio.

- The application also estimates future trends of a stock by using a machine learning algorithm to analyze historical data. The algorithm uses the IEXCloud and Yahoo Finance APIs to fetch stock data, and then uses FBProphet to predict the future price of the stock.

Blogging Web Application (Demo, Code):

- This is a full-featured web application built with the Flask framework. It allows users to create and read blog posts. The front-end of the application was built with HTML, CSS, and JavaScript, while the back-end was built with Flask and SQLite3. The main goal of this project was to improve my understanding of the Flask framework.

Data Structures and Algorithms template library (Code):

- In this project, I developed my own template library of classical data structures and algorithms in C++. The library includes template classes for heaps, tries, sorting algorithms like quick, insertion, and merge sort, and some miscellaneous algorithms. The main goal of this project was to gain a deep understanding of data structures and algorithms, as well as to improve my problem-solving skills. The project can be viewed on my GitHub.

Trees and Graphs (Code):

- Exploring the implementation of tree and graph algorithms in Python, with a focus on their applications. The algorithms that were explored include breadth-first search (BFS), depth-first search (DFS), union find, and the Kruskals algorithm.

Responsive web pages (Demos, Codes):

- A collection of web pages that are responsive to different screen sizes and are written using only HTML, CSS, and JavaScript. The demos and code for these pages can be found on my portfolio.

Numerical analysis (Code):

- This project implements various numerical methods for finding roots and interpolation, including Newton-Raphson, bisection, regula falsi, and Newton forward interpolation. It uses C for heavy computations and Python for I/O and threading. The Python CDLL module allows the use of precompiled C code in Python.

Stock-Trend-Prediction (Code):

- A minor project where I use yfinance and TensorFlow to predict stock trends.

Spell Checker (Code):

- I developed a spell checker by implementing a trie data structure in the C programming language. A trie is a tree-like data structure that is well-suited for storing and searching for words. In my implementation, each node in the trie represents a single character of a word, and the path from the root of the trie to a leaf node represents a complete word in the dictionary. This data structure allows me to efficiently search for words in the dictionary and to suggest corrections for misspelled words.

Education

Bachelor Of Computer Application: B.C.A(Hons)

University of North Bengal • Siliguri, West Bengal
07/2022
CGPA: 9.18

Relevant Courses: Discrete Mathematics, Graph Theory, Probability Theory, Linear Algebra, Automata Theory, Data Structures and Algorithms, Design and analysis of algorithms, Digital Electronics. Computer System Architecture, Data Science, DBMS

I.S.C

Emmanuel English School • Malda, West Bengal
05/2019
Grade: 85.4%

Subjects: Physics, Chemistry, Biology, Computer Science, English, Hindi

I.C.S.E

Emmanuel English School • Malda, West Bengal
05/2017
Grade: 88.8%

Subjects: Mathematics, Physics, Chemistry. Biology, Computer Applications, English, Hindi

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Extracurricular activities

National Cadet Corps

Achievements:

- 'A' certificate
- Participated in Combined Annual Training Camps

International / National Science Olympiads

Achievements:

- State rank 83 in iTHO 2016 (Silverzone)
- State rank 140 in iTHO 2015 (Silverzone)
- City rank 26 in 19th NSO (Science Olympiad Foundation)

Kickboxing

Achievements:

- 2nd West Bengal State Inter-School Kickboxing Championship Jan 2016 (Bronze medal)
- District Inter-School Kickboxing Championship Oct 2016 (Bronze medal)

Languages

English: Full Professional Proficiency

Hindi: Native Language Proficiency

Interested in

Competitive Programming, Data Science, Gaming, Calisthenics, Swimming, Reading

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