

SAPRATIVA SARKAR

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Education

Birla Institute Of Technology, Mesra

Integrated M.Sc. in Mathematics and Computing

2020 – 2025

Ranchi, Jharkhand

Relevant Coursework

- Data Structures
- Machine Learning
- Algorithm Analysis
- Database Management
- Deep Learning
- Operating Systems
- Computer Networks
- OOP

Professional Contributions

Quantitative Research

Data Analysis, Dynamic Programming

[GitHub Link](#)

JPMorgan Chase & Co.

- Completed a simulation focused on quantitative research methods.
- Analyzed a book of loans to estimate a customer's probability of default.
- Used dynamic programming to convert FICO scores into categorical data to predict defaults.

Financial Portfolio Management

Data Modelling, Entity Relationship Diagram, Java, JPA

[GitHub Link](#)

Wells Fargo

- Figured out what data the system needed to keep track of.
- Drafted a visual representation of the data as an entity relationship diagram (ERD).
- Used the IntelliJ developer application to implement the ERD and published it to GitHub.

Projects

Time Series Forecasting | *Python, Machine Learning, RNN Neural Network*

[GitHub Link](#)

- Conducted stationarity tests on the dataset using Dickey-Fuller test and Rolling statistics.
- Employed multiple transformations like Time shift, Log, Square root, Cube root to achieve stationarity.
- Selected the optimal transformation model based on the lowest p-value for further analysis.
- Implemented ARIMA and SARIMAX models, utilizing auto-correlation and partial auto-correlation functions.
- Developed an RNN LSTM neural network model to forecast the same dataset.
- Evaluated model performance using Mean Square Error and extrapolated the time series data for future predictions.

Airline Booking System | *Java, Low-Level Design*

[GitHub Link](#)

- Implemented an airline booking system to manage flight schedules, bookings, and customer information.
- Applied SOLID principles to ensure robust class design, facilitating easier future extensions and modifications.
- Utilized design patterns to manage object creation and resource handling efficiently.

Banking System Management | *Python, MySQL*

[GitHub Link](#)

- Developed a comprehensive banking system using Python for the backend logic and MySQL for database management.
- Implemented secure and efficient database schemas to manage accounts, transactions, and customer information.

Technical Skills

Languages: Python, Java, C, C++, SQL

Frameworks: PyTorch, YOLO, Scikit-learn

Technologies: Deep Learning, Low-Level Design, Machine Learning, Object-Oriented Programming, Computer Vision, Natural Language Processing, Data Science

Extracurricular

Table Tennis Achievements:

2018

National Level Player, College Team Captain

West Bengal

- Represented West Bengal in National table tennis (2018) for cadet boys. Ranked 7th in West Bengal for cadet boys in the 2017-18 season.
- College table tennis captain and organized table tennis tournaments.
- Represented the college table tennis team in sports fests at IIT Roorkee and IIT Kanpur, reaching the semifinals.