ROUNAK CHAKRABORTY

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EDUCATION

Vellore Institute of Technology, Bhopal **2022– 2026**
B.Tech - Computer Science and Engineering - **CGPA - 8.23** *Kothri-Kalan, Madhya Pradesh*

Shri RS Public School, Agra **2020-2021**
Class XII -PCM - **Percntage - 94** *Sikandra, Agra*

Gayatri Public School, Agra **2018-2019**
Class X - **Percntage - 96** *Shastripuram, Agra*

TECHNICAL SKILLS

Data Structures and Algorithms, Object-Oriented Programming System, Database Management Systems Languages: Java, Python, C/C++, JavaScript, SQL
Technologies/Frameworks: HTML, CSS, React JS, Node JS, Express JS, TypeScript, MongoDB, MySQL, Next.js, Tailwind CSS, Flask, Django, Redis, Gin, Machine Learning, Generative AI, APIs, Three JS, Framer Motion, Strapi, Git, Github, Figma, Docker

EXPERIENCE

Software Developer Intern at Perfect Software Solution, Agra ↗ **November 2024 - January 2025**
Role - SDE Intern *Agra, Uttar Pradesh*

- Designed and implemented **ASP.NET Core** web applications and **RESTful APIs**, leveraging the **MVC architecture** and **Dependency Injection** principles.
- Developed robust data access layers using **Entity Framework Core**, enhancing application performance and data management efficiency.
- Collaborated effectively on software development projects using **Git** for **version control**, streamlining team workflows and code integration.

PROJECTS

Farm AI ⌂ | Machine Learning, React, Node.js **Jan 2025**

- Developed a data-driven platform leveraging **Generative AI** and **Machine Learning models** to provide **personalized farming recommendations**, aiming to increase crop yield potential by up to **25%**.
- Designed and implemented **predictive analytics** using **spatiotemporal models** for optimal crop planning, potentially reducing resource waste by **30%**.
- Built **AI models** for **Pest & Disease Risk Forecasting**, integrating **satellite data** and historical datasets to provide early warnings, reducing potential crop loss by an estimated **40%**.
- Utilized **LSTM-driven models** to analyze and predict commodity price trends, enabling **Market-Aligned Crop Recommendations** designed to optimize farmer revenue by **15-20%**.
- Engineered a comprehensive data pipeline integrating diverse agricultural datasets to train and deploy **AI/ML models**, improving data processing efficiency by **50%**.

File Sharing and Management System ⌂ | Go, PostgreSQL **Dec 2024**

- Developed a scalable backend API using **Go** and the **Gin framework**, handling user authentication, file uploads, downloads, sharing, and metadata management.
- Designed and implemented database interactions with **PostgreSQL** using **GORM**, managing user accounts, file metadata, and sharing relationships with auto-migration.
- Integrated **Redis** for enhanced performance through caching and implemented a distributed rate-limiting mechanism to secure API endpoints.

- Engineered secure file handling leveraging **AWS S3** for cloud storage, incorporating on-the-fly **AES-GCM encryption/decryption** for uploaded files and managing background tasks (like file deletion) using **Goroutines**.
- Containerized the application and its dependencies (**PostgreSQL, Redis**) using a multi-stage **Dockerfile** and **Docker Compose** for simplified development, testing, and deployment.

Travel Planner AI ↻ | Convex, OpenAI, Node.js, Next.js   **March 2025**

- Engineered the backend infrastructure using the **Convex Backend Platform** (**Node.js**), powering AI-driven travel itinerary generation and data management.
- Integrated **OpenAI APIs** to generate comprehensive and personalized travel plans based on user prompts and constraints.
- Implemented secure user authentication and data management solutions leveraging **Clerk** within the backend architecture.
- Developed backend logic for key features including expense tracking, email invitations (**Resend**), and potentially payment processing (**Razorpay**).
- Collaborated on a full-stack application (**Next.js**) focusing on robust backend functionality for a seamless user experience.

CODING PLATFORMS

⌁ Solved **200+** Problems on **Leetcode**. ↗

⌘ Solved **100+** Problems across **GeeksforGeeks**. ↗

CERTIFICATIONS

- Fundamentals in AI Machine Learning - Vityarhti
- Python Programming - Vityarthi
- IBM AI Professional Certificate - Coursera
- Cloud Computing - NPTEL

LANGUAGES

- English
- Hindi
- Bengali

EXTRACURRICULAR

- Robotics club member form 2023-current
- Bengali club member form 2022-current