

Abrar Mahir Esam

Software Engineer | Competitive Programmer
Masters of Science (Msc)
Department of Computer Science and Engineering (CSE)
Military Institute of Science and Technology (MIST)

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PROFESSIONAL SUMMARY

Full-stack software engineer building scalable web, mobile, and desktop systems across **Spring Boot**, **Next.js**, **Flutter**, and **Rust**. Codeforces Specialist and competitive programmer with a strong foundation in algorithms, system design, and clean, production-grade code.

EXPERIENCE

Fullstack Software Engineer | [Reference](#)

August 2025 – Present

Bengal Byte, Nikunja 2, Dhaka-1229

- Building a **privacy-focused patient management platform** for a European healthcare provider, emphasizing data protection, highly configurable form creation, and clinical data analysis.

Fullstack Web Developer | MERN | [Reference](#)

Apr 2025 – Aug 2025

Nyntax, Mirpur DOHS, Dhaka-1216

- Built a Web extension for **AI agent** data training with user session management similar to Jam.
- Contributed to **insurance**, car booking, admin dashboard, backend APIs in **SoftCar** car rental website.

Fullstack Web and Mobile Engineer (Contractual) | SpringBoot and Flutter

May 2025 – May 2026

Prime Minister's Office, Govt. of the People's Republic of Bangladesh

- Architected a **horizontally scalable** Spring Boot (Java 21) backend with PostgreSQL and **Flyway**-managed migrations for a large-scale personnel and duty-management platform.
- Built a **Redis**-backed caching layer with stateless **JWT** auth, role-based access control (**@PreAuthorize**), and Redis-based token invalidation for instant session revocation.
- Hardened security with login logout, anti-enumeration error handling, **Bucket4j** rate limiting, and AOP-based audit logging.
- Implemented **HATEOAS** paginated REST APIs, server-side PDF generation (OpenPDF), and **Firebase Cloud Messaging** push notifications.
- Developed the **React + TypeScript** web client (auto token-refresh, printable rosters) and a cross-platform **Flutter** mobile app.

Industrial Trainee | Software Engineering | Quality Assurance

Feb 2024 – Mar 2024

Nogor Solutions Limited, Gulshan, Dhaka

- Authored a detailed **Software Requirements Specification** to align development deliverables with stakeholder objectives.
- Executed end-to-end testing on an in-house application, uncovering critical defects and optimizing user flows according to HCI best practices.
- Collaborated with system analysts to understand architectural design patterns and the full software development lifecycle in a professional setting.

PROJECTS

CrimeLens: Crime Reporting and Community Verification Platform

[Live Link](#) | [Source Code](#)

NextJs 15, MongoDB Atlas, Firebase, Gemini 2.0 Flash, Leaflet, Zustand

- Built a platform where citizens submit **geo-tagged** incidents with photo/video evidence verified through community voting (WebXtreme Hackathon 2025)
- Integrated **Google Gemini 2.0 Flash** for automated scene description and image analysis
- Visualized incident density with **Leaflet crime heatmaps** and Recharts analytics
- Enforced **role-based access control** with Firebase Auth and phone/email OTP verification

QuickDev: Instant Development Environment Launcher

[Repository](#)

Rust, fzf, TOML

- Engineered a cross-platform **CLI** that launches entire dev environments—terminal tabs, working directories, startup commands, and editors—in a single command
- Designed a per-project **TOML** configuration system with a global project index for launching from anywhere

- Implemented interactive selection via **fzf** and an emulator auto-detection/priority system (Ghostty, Terminal.app, Windows Terminal)
- Authored entirely in **asynchronous Rust** for fast, dependency-light native execution

EduVerse: Online Learning Management Platform | Therap Javafest

[Live Link](#) | [Source Code](#)

NextJs, SpringBoot, Hono, MongoDB, Cloudinary, Jitsi Meet

- Engineered **AI-driven** course creation workflows to automate curriculum generation
- Integrated **Jitsi Meet** for unlimited, real-time virtual classrooms and webinars
- Developed forum and chatroom modules with comprehensive analytics dashboards
- Leveraged **Cloudinary** for on-the-fly media optimization and secure asset delivery

ACPMs: Academic Mathematics Society Management Platform

[Source Code](#)

NextJs 14, Supabase, PostgreSQL, Zustand, React Hook Form

- Built a management platform for a mathematics society—events, digital magazine publishing, and a categorized resource library
- Adopted a **Supabase-only architecture** with PostgreSQL **Row Level Security** enforcing granular role-based permissions
- Implemented **real-time** event registration and notifications via Supabase subscriptions
- Modularized feature logic into reusable custom React hooks (useEvents, useMagazines, useAdmin)

SpendSplit: Offline-First Personal Finance Tracker

[Repository](#)

Flutter, Riverpod, Drift (SQLite), GoRouter, fl_chart

- Built an **offline-first** finance tracker splitting one account into spendable and savings buckets with an isolated foreign-currency tracker
- Architected **derived balance computation**—totals recompute from transaction history rather than being persisted
- Secured the app with **biometric lock** (local_auth) and a dark glassmorphic UI
- Persisted data locally with **Drift/SQLite**; visualized spending with category donut charts

Tauri Inventory: Cross-Platform Inventory Management Desktop App

[Repository](#)

Tauri, Rust, React, TypeScript, Radix UI, Recharts

- Built a cross-platform desktop inventory-management application with a native **Rust (Tauri)** backend
- Designed an accessible, component-driven UI with **Radix UI** primitives and Tailwind CSS
- Implemented inventory analytics dashboards with **Recharts**, packaged as a lightweight native binary

MIST Pioneers: A Blog Website for The Martyrs of the Student Movement

[Live Link](#)

NextJs, AES, MDX, Velite, Rehype

- Implemented **Markdown support** with MDX for flexible content authoring
- Applied **AES encryption** to secure sensitive memorial data
- Utilized **Velite and Rehype** for advanced image compression and semantic formatting

GreenCycle: A Gamified Recycling App (Software Development Project – II)

[Demo](#)

MongoDB, Flutter, Python, NodeJs, TensorFlow, Gemini, Firebase Cloud Messaging

- Designed a **gamified UI** with rewards to drive eco-friendly behaviors
- Integrated **TensorFlow** and **YOLOv8** for object recognition in recycling workflows
- Employed **Gemini** for dynamic text generation to guide users
- Configured **FCM** for real-time task reminders and achievement notifications

SKILLS

Programming Languages: Java, C++, Python, JavaScript, Dart, Rust

Mobile Development: Flutter, KMP

Databases: Firebase, PostgreSQL, MongoDB, OracleDB

System Development: - JavaFX, ReactJs, NextJs, Django, Springboot. **Tools:** Git, Jira, SonarCloud, Obsidian, Notion, Figma

Relevant Coursework: Data Structures and Algorithms (DSA), Operating Systems (OS), Object Oriented Programming (OOP), Database Management System (DBMS), Software Engineering

Languages and Soft Skills: Bangla (Native), English

(Professional), Project Management, Problem Solving, Team Collaboration, Crisis Handling

ACHIEVEMENTS

Specialist Rank on Codeforces Profile <i>Handle: Abrar_Mahir_Esam, Highest Rating: 1425</i>	<i>2024</i>
Second Runner Up in Independence Day Programming Contest 2023 <i>MIST, Dhaka Team: MIST_DECODERS</i>	<i>Aug 2023</i>
Champion in Independence Day Programming Contest 2022 <i>MIST, Dhaka Team: MIST_DECODERS</i>	<i>Aug 2022</i>
Second Runner Up in Campus Hour Programming Contest Apr 2022 <i>MIST, Dhaka</i>	<i>Apr 2022</i>
21st place in SEC Inter University Junior Programming Contest 2022 <i>SEC, Sylhet Team: MIST_DECODERS</i>	<i>Jun 2022</i>
85th place in AUST Inter University Programming Contest 2022 <i>AUST, Dhaka Team: MIST_DECODERS</i>	<i>Dec 2022</i>
Finalist in BUET DevSprint 2024 – Inter-University Software Development Competition <i>BUET, Dhaka Team: Elyria</i>	<i>Mar 2024</i>
Finalist among Top 11 teams in WebXtreme Hackathon 2025 <i>NSU, Dhaka Team: 404_BRAIN_NOT_FOUND</i>	<i>2025</i>

EDUCATION

Military Institute of Science and Technology Bachelor of Science in Computer Science and Engineering CGPA: 3.56/4.00	April 2021 – July 2025 <i>Mirpur, Dhaka</i>
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RESEARCH AND CONFERENCE

AI-Enhanced Application for Incentivizing Waste Recycling: A Step towards Sustainable Environment Certificate <i>2025 IEEE International Conference on Quantum Photonics, Artificial Intelligence, and Networking (QPAIN 2025)</i> • Researched on augmenting object recognition in context of waste recycling and disposal. • Studies the habits and preferences of the current generation and created a Gamified Mobile App for increate user retention rate. • Proposed a system to connect recycling vendors and community members.	
Analysing Low-Resource Language Feedback Across Industries: A Web Based Tool With Multiparadigm Machine Learning Approaches for Customer Satisfaction Prediction <i>Final Year Research and Thesis Book</i> • Developed an industry agnostic customer survey analysis platform capable of dynamic survey generation and extensive customizability. • Constructed a custom dataset for training Large Language Models for sentiment analysis and emotion detection in Romanized Bengali. • Conducted comparative analysis among various Machine Learning, Deep Learning, Transformer and Fuzzy Logic models and created a hybrid framework and pipeline for analysis.	Book