

MUHAMMAD UMAR AFZAAL

Software Engineer | Full-Stack MERN Developer | Aspiring AI & Mobile Developer

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PROFESSIONAL SUMMARY

Motivated Software Engineering student with foundational experience in frontend development and growing skills in full-stack development, software engineering, and problem solving. Familiar with MERN stack technologies, databases, object-oriented programming, data structures & algorithms, and software design principles. Gained initial hands-on exposure to web development using HTML, CSS, JavaScript, and Bootstrap, along with continued practice through academic and personal projects. Passionate about building practical software solutions, learning modern technologies, and strengthening expertise in areas such as software architecture, AI, data science, and system design.

TECHNICAL SKILLS

- **Programming Languages:** C, C++, Java, Python, JavaScript (ES6+), Kotlin, SQL, HTML5, CSS3
- **Full-Stack & Web Dev:** Node.js, Express.js, React.js, MongoDB (MERN Stack), RESTful APIs, Flask, Bootstrap 5, EJS, tailwindcss
- **Mobile Development:** Native Android Development, Java, Kotlin, Android SDK, SQLite DB, Core Architecture
- **Database Management:** MySQL, SQL Server, Schema Design, Normalization, Query Optimization, Mongodb, CRUD
- **Software Architecture:** MVC, MVP, Object-Oriented Design (OOD), SOLID Principles, Design Patterns (Factory, State), SDLC
- **AI/ML & Data Science:** NLP, Sentiment Analysis, Supervised Learning, Unsupervised Learning, Feature Engineering, Data Visualization
- **Tools & QA Testing:** Git, GitHub, Postman, Maven, npm, Agile/Scrum (Jira), JUnit 5, Mockito, TestFX, ClickUp

PROFESSIONAL EXPERIENCE

Frontend Development Trainee | Introtect Solution

June 2023 – August 2023

- Built 5+ fully responsive, mobile-first web interfaces implementing modern layout strategies (CSS Grid/Flexbox).
- Mastered dynamic DOM manipulation, state handling, and asynchronous JSON data flows across custom UI workflows.

KEY PROJECT PORTFOLIO (HIGH-IMPACT HIGHLIGHTS)

- **Real-Time Chat Web Application [Node.js, Express, Socket.io, MongoDB]:** Architected a bi-directional messaging platform featuring event-driven architecture for instant room routing, live typing states, and low-latency connection streaming.
- **SentimentAI: Review Analytics Platform [Python, Flask, NLP, Scikit-learn, Selenium]:** Engineered an end-to-end ML pipeline achieving 82% evaluation accuracy on Amazon reviews; features robust web scraping, NLTK preprocessing, and Random Forest classification models.
- **Native Traveling Mobile App [Java/Kotlin, Android SDK, SQLite DB, Maps API]:** Developed a performance-focused native Android travel application with full offline SQLite sync capabilities and integrated geolocation maps caching.
- **Full-Stack Contact Manager [MERN Stack, Express APIs, EJS, Bootstrap]:** Built a full CRUD contact management system implementing strict Model-View-Controller separation, custom security validation middleware, and optimized server-side query indexes.
- **Arabic Prose Management System:** Technologies: Java 21, JavaFX, MySQL, Maven, JUnit 5, Mockito, TestFX, JDBC. Built advanced search engine with multi-criteria filtering (author, category, date range, keywords) and content analysis features helping scholars efficiently navigate large literary collections
- **Game Store Marketplace Platform [Python, Flask, SQL Server, Werkzeug Security]:** Implemented an e-commerce platform with secure password hashing, cart state sessions, and a comprehensive real-time admin metrics inventory dashboard.
- **Instagram:** Technologies: C++, Data Structures (Graphs, Hash Tables, Linked Lists, Trees), Algorithm Design, Object-Oriented Programming. Created a Desktop system using data structures concepts studied and implement all the functionalities

EDUCATION

Bachelor of Science in Software Engineering | FAST UNIVERSITY

A-levels | LACAS Johar Town Campus, Lahore

O-levels | Bahria Town School & College, Lahore