

Muhammad Nouman

Software Engineer

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Summary

I am a passionate and dedicated Software Engineering student in my 6th semester, holding a CGPA of 3.2/4.0 up to the 5th semester. With a strong grasp of software engineering principles and the Software Development Life Cycle (SDLC) and Software testing, I am developing expertise in full-stack web development using the MERN stack, alongside strong competencies in data science and algorithmic problem-solving. I've led the development of a complete three-layered Dictionary Desktop Application, applying key software design principles and patterns, and built a custom installer using batch scripting for seamless deployment. Committed to continuous learning, I strive to build impactful, user-centric solutions that bridge technical innovation with real-world needs.

Experience

Teaching Assistant

FAST-NUCES

- **Data Structures and Algorithms** *Summer 2024*
- **Data Structures and Algorithms** *Fall 2024*
- **Object-Oriented Programming** *Spring 2024*
 - Arranged Vivas, prepared quizzes and assignments, and aided students in exam preparation and understanding core concepts like the designing, implementation and evaluation of the algorithm, how to design systems by view them as object, code ethics and basic industry norms, how to communicate with computer, how to breakdown a problem, how to do problem solving, how to find solution for it?
 - Assisted over **350+** students over **32** weeks, receiving positive feedback from teachers on performance and student satisfaction

Education

FAST-National University of Computer and Emerging Sciences

Sep 2022 – Jun 2026

- BSc Software Engineering, **CGPA: 3.2 continued (6th semester)**
- **Course Work:** Programming Fundamental, Object Oriented Programming, Data Structure, Design and Analysis of Algorithm, Database, Data Science, Design and Analysis of Algorithms, Computer Network, Formal Methods, Human Computer Interaction, Probability and Statistics, Introduction to Software Engineering, Software Requirement Specifications, Software Design and Architecture, Software Construction and Development, and Software Quality Engineering.

Projects

Dictionary Desktop Application

[Java, SQL, TestNG]

- Developed a modular desktop application using a three-layered architecture, integrating Facade and Abstract Factory design patterns, along with SOLID principles (Dependency Inversion, Open-Closed) for scalability and maintainability.
- Enabled real-time translation (Arabic to Urdu/Persian), optimized data handling using Proxy pattern, and implemented Client-Server communication with RMI callbacks; performed rigorous testing with TestNG for system reliability.

AI Model Validation & Testing

[Python, Deepchecks]

- Evaluated lightweight AI models using the Deepchecks framework, focusing on data integrity, model behavior, and performance across various stages of development.
- Conducted comprehensive testing on pre-trained models (Linear Regression, Decision Tree Regressor) to identify data quality issues, overfitting, and ensure predictive accuracy for deployment readiness.

Banking Application Testing

[Java, TestNG, Excel]

- Contributed to an open-source banking system by designing and executing modular, data-driven unit tests for core functionalities using TestNG; utilized parameterization, data providers, and Excel integration for scalable testing, and ensured high reliability through suite-based organization and targeted execution.

Facebook Login Testing

[Java, BDD, Selenium, Cucumber, Allure, MySQL]

- Built a modular BDD automation framework using Cucumber, Selenium WebDriver, and Gherkin to validate Facebook login functionality, with MySQL-backed test data for realistic workflows.
- Integrated Allure Reports for detailed test insights and centralized TestRunner for streamlined execution and reporting.

RESTful API Testing

[Java, TestNG, Maven, JMeter,]

- Automated RESTful API testing using TestNG and JMeter, with Maven for streamlined execution and detailed functional and performance reporting.

NeurIPS Research Paper Scrapping and Annotation

[Tableau, Python, Web Scrapping, Gemini API, Pandas]

- Automated scrapping and annotation of NeurIPS research papers using Python, Gemini API, and Pandas, generating a labeled dataset for structured analysis and visualization.

Electricity Demand Forecasting

[Python, Pandas, Scikit-learn, Matplotlib, Seaborn]

- Preprocessed and merged electricity and weather datasets, handled missing values and outliers, and performed EDA to identify demand patterns using visualizations and correlation analysis.
- Built and evaluated regression models (MSE, RMSE, R^2) to forecast electricity demand based on time and weather-related features.

Disease Feature Classification

[Python, Scikit-learn, Pandas, TF-IDF, PCA, Streamlit]

- Transformed medical text features into TF-IDF and one-hot encodings, applied PCA/SVD for dimensionality reduction, and visualized disease clusters to assess feature separability.
- Trained and evaluated KNN and Logistic Regression models with varied metrics, compared encoding methods on accuracy and interpretability, and deployed the best-performing model via Streamlit.

YouTube Downloader App

[Python, yt-DLP, Streamlit]

- Developed a YouTube downloader app using Python, yt-DLP, and Streamlit with auto-detection for videos, Shorts, and playlists, allowing users to select format/quality and download content via an intuitive interface.

Smart Course Scheduler SPA

[HTML, CSS, JavaScript, EJS, Node.js, Express, MongoDB]

- Built a smart course scheduler SPA with real-time registration, conflict detection, dynamic filtering, personalized views, secure admin controls, and modular backend using EJS, Node.js, Express, and MongoDB.

EduConnect Pakistan

[MongoDB, , Express, React, Node.js, REST API]

- Developed EduConnect Pakistan, a full-stack web app for tutor discovery and booking with advanced filters, Wishlist, session management, reviews, and role-specific dashboards using React, Node.js, Express, and MongoDB.
- Built secure REST APIs with MVC architecture, role-based authentication, modular code structure, and responsive UI using reusable components and clean state management.

Core Competencies

- **Technical:** Problem Solving
- **Programming Languages & Tools:** C/C++, C#, Java, Python, Git
- **Databases:** MySQL, Oracle, PostgreSQL, MongoDB
- **Web Development:** HTML, CSS, Bootstrap, JavaScript, EJS, NodeJS, Express JS, React JS, AJAX, SQL, MongoDB, Fast API, Postman, Thunder Client
- **Data Science & Machine Learning:** Web Scrapping, EDA, TF-IDF, SVD, PCA, SVM, Neural Networks, Scikit-learn, Jupyter, Google Collab, Pandas, NumPy, Feature Extraction, Data Cleaning

Achievements & Certifications

- Qualified for ICPC 2024, on Campus
- Qualified FAST Problem-Solving Challenge (FPSC) 2024
- External Evaluator for speed programming - Tech Fest @ University of Agriculture, FSD (December 2024)

Community Participation & Leadership

- Fast Silent steps Society Member
- Team Lead in many Projects