Bilal Mirza

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Education

FAST - National University of Computer and Emerging Sciences
Bachelor of Science in Computer Science

Experience

Full Stack Developer
Improdata

- Worked on development of a financial product startup, independently managing project timelines, requirements, and deliverables.
- Designed the initial database schema of the application to proceed with backend development.
- Built responsive and dynamic user interfaces using **React**, **TypeScript**, **Ant Design**, and **TailwindCSS** to ensure cross-platform compatibility and accessibility.
- Integrated **RESTful APIs** to interface with Azure Data Lake, handling large datasets and implementing complex financial models to deliver data-driven insights.
- Actively participated in **Agile** development practices, including **daily stand-ups** and **sprint retrospectives**, utilizing tools like Notion for task tracking.

Computer Science Tutor
Preply

- 350 + hours of virtual tutoring to international students enrolled in Undergraduate or High School programs.
- Teaching subjects like Object-Oriented Programming, Data Structures, Computer Architecture, etc.
- Teaching Programming Languages like C/C++, Python and web technologies like React, Next.js and Node.js

Skills

Programming Languages: Java, C#, JavaScript/TypeScirpt, Python, C++
Frameworks: React, Next.js, Node.js, Express.js, Spring Boot, Flask, .Net Core, LangChain
Databases: PostgreSQL, MySQL, SQLite, MongoDB, Firebase
Other: Docker, Git, AWS, Linux

Projects

Campus Connect (Final Year Project) | ***Java, TypeScript, Next.js, SpringBoot, Python, Langchain, Flask, PostgreSQL***

- Designed and developed a full-stack web application to centralize student society affairs at FAST-NUCES Karachi Campus.
- Integrated an **AI-powered RAG Chatbot** to assist users with inquiries built using **Langchain, Gemini** and **Flask**.
- Integrated centralized communication using **web sockets** enabling unified messaging for seamless coordination across teams.
- Designed role-based portals with custom interfaces for participants, Excom members, and faculty heads with role based authentication using **Spring Security**.
- Created a task management system for efficient allocation and monitoring of responsibilities.
- Streamlined budget management processes for fund allocation and tracking to ensure transparency and optimal resource utilization.

Finshark | ***C#, .Net Core Web API, Entity Framework, .Net Core Identity, PostgreSQL***

- Developed a **RESTful API** for managing stock data and portfolios, allowing users to create and manage personalized portfolios, track stock prices, and post comments on individual stocks.
- Utilized **C#** and **.NET Core Web API** to design and implement scalable endpoints, integrating **Entity Framework** for efficient data access and **PostgreSQL** for reliable, persistent storage.
- Integrated **.NET Core Identity** to implement secure user authentication and authorization, ensuring role-based access to portfolio management and stock data features.

Stock Buddy | ***TypeScript, Python, Next.js, Django, MySQL, Tensorflow, Keras***

- Developed a full stack application to suggest future stock prices predicted by a **deep learning** model using **time-series forecasting**
- Trained a Deep Learning Model for time series forecasting to predict future stock prices using **LSTM architecture** with **Tensorflow** and **Keras**
- Built a user interface to view historic prices and future prices as charts using **React** and **Next.js**
- Implemented **server-side rendering** to optimize the retrieval and processing of large historical stock data.
- Designed a **REST API** using **Django** and used **MySQL** to store stock data.

Comparative Analysis of Convex Hull Algorithms | *Python*

- Implemented a comparative analysis of different Convex Hull Algorithms in Python.
- Leveraged execution time analysis to identify the most efficient algorithm for various data set sizes.
- Visualized the construction process of the hull for each algorithm using matplotlib and plotly, enhancing understanding of their behavior.