Bilal Baig

Software Engineer | Ontario, Canada

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Experience

Software Development Engineer February 2022 – January 2023

Amazon *Toronto, ON*

- Developed Event Driven Architecture using **Java**, **TypeScript** and **AWS Services**, in order to control global inventory events and to ensure accurate inventory levels
- Spearheaded the replacement of an obsolete inventory tracking system with a state machine workflow, enhancing operational accuracy by **40%**
- Devised and executed automation tools, resulting in a **20%** reduction in on-call hours and the proactive mitigation of business impacts due to discrepancies in data stores for millions of items
- Mentored and guided junior engineers, facilitating their skill development and ensuring team's success
- Examined and corrected failure points to maintain operational excellence during on-call responsibilities

Projects

Real time Chat App | *GO, React.JS, MongoDB, JavaScript, HTML, SCSS, Redis, Docker* | GitHub

- Developed a real-time chat application using **Golang** for the backend and **React** for the frontend
- Implemented WebSocket technology to enable instant communication between over **10,000** users
- Devised effective methods to manage server and user data using **MongoDB**
- Enhanced performance and scalability by applying **Redis**' Publish-Subscribe pattern for asynchronous messaging
- Designed a flexible platform, allowing users to engage in both public group chats and private one-on-one messaging

Latent Semantic Analysis | *Python, NumPy, SciPy, Sci-Kit Learn, matplotlib, LaTeX* | GitHub

- Developed a Latent Semantic Analysis algorithm for processing a vast English Wikipedia text corpus of **490,000** documents on **Jupyter notebook**
- Engineered a sparse matrix representation encompassing the top 10,000 frequently occurring words across all documents, utilizing sklearn
- Crafted a Positive Point-wise Mutual Information matrix derived from the sparse matrix of the most prevalent 10,000 words
- Built a Matrix Factorization algorithm, implementing Stochastic Gradient Descent from scratch using **NumPy**
- Employed **t-SNE** to create a 2D visualization of the 300 most common words in a dataset

First Person Shooter Microgame | *Unity, C#* | GitHub

- Created a First Person Shooter game using **Unity** and **C#**, where the goal is to defeat all enemies in the zone with different weapons and tools in the player's arsenal
- Curated a sound library of over 30 assets and creatively implemented them to create a more immersive and enjoyable player experience

Technical Skills

Languages: Java, TypeScript & JavaScript, SQL, Python, GO, NoSQL, Haskell, Swift, C++, C, C#
Developer Tools and Platforms: AWS, Git, Docker, Redis, MongoDB
Libraries and Frameworks: SwiftUI, React, pandas, NumPy, Matplotlib, Selenium, SciPy, Sci-Kit Learn, Unity

Education

York University December 2021

Bachelor of Science in Computer Science *Toronto, ON*

Courses: Database Systems, Big Data Systems, Data Mining, Machine Learning, Digital Audio Design, 3D Computer Graphics

Hobbies & Interests

Motorcycles & Cars, Philosophy, Fitness, Literature, Playing guitar & piano, Video Games, Building LEGO Sets, Tabletop Role-Playing Games