Bilal Baig

Software Engineer | **Ontario, Canada**

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Experience

Software Development Engineer February 2022 – January 2023

Amazon SCOT *Toronto, ON*

- Orchestrated inventory management across global operations using **Java**, **Typescript** and **AWS Services**, ensuring optimal levels
- Spearheaded the replacement of an obsolete inventory tracking system with a state machine workflow, enhancing operational efficiency
- Planned and executed tools automation, 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
- Nurtured junior engineers through mentorship and guidance, facilitating their skill development and team success
- Proactively identified and addressed failure points to maintain operational excellence during on-call responsibilities

Projects

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

- Developed a real-time chat application using **Go** for the backend and **React.JS** for the frontend
- Implemented WebSocket technology to enable instant communication among users
- Managed server and user data efficiently through **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, Jupyter, numpy, scipy, sklearn, matplotlib, LaTeX*

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

Simple Tetris | *Python, pygame*

- Programmed a Tetris clone using **Python** in conjunction with the **pygame** library
- Devised a scoring mechanism to enable players to compete with themselves or others
- Enhanced player experience by implementing various difficulty levels and a scaling feature, ensuring a challenging and engaging gameplay

Technical Skills

Languages: Java, Typescript Python, GO, Haskell, C++, C, JavaScript, HTML, CSS, MongoDB, SQL, OLAP
Developer Tools and Platforms: AWS, Git, Docker, Redis, Netlify, Heroku
Libraries and Frameworks: React.JS, pandas, NumPy, Matplotlib, Selenium, scipy, sklearn, pygame

Education

York University Toronto, ON

Bachelor of Science in Computer Science *Sept 2017 – December 2021*