Bilal Raja

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Core Competencies

- C++ Software Development (3 years)
- Python (2 years)
- Java (1 year)
- SQL (1 year)
- HTML/CSS/javaScript (2 years)
- ReactJS (1 year)
- MEAN Stack (1 year)
- Angular (1 year)
- iOS Development (1 year)
- Spring Boot (1 year)

Education and Training

Bachelor of Arts : **Computer Science**, 2017
University of Michigan ─ Ann Arbor, MI
CSE Courses Taken: Web Database and Information Systems, Data Structures, Software Engineering, Introduction to Algorithms, Theory of Computation, Computer Organization, Database Management Systems, Cryptography, Essentials for Computer Scientists

Projects

- Implemented the ARIES algorithm in C++ to simulate the data recovery process that Microsoft SQL Server utilizes in the event of a system crash.
- Developed a full stack personalized photo viewing site (**Photobook**) to allow users to upload photos, create photo albums, and share photos with other users. Added support for a feed similar to Facebook's news feed that displays photo albums that user makes public.

Wikipedia Search Engine:
- Built a full-stack Wikipedia Search Engine utilizing **Python Flask**, **AJAX**, and **HTML/CSS/ReactJS**.
- Implemented a MapReduce server running on **Hadoop's CLI** that indexes and persists a set of Wikipedia files.
- Developed an index server that handles search queries and returns the best results based on **PageRank** scoring.

Photobook:
- Built a full-stack personalized photo viewing website using **NodeJS**, **HTML/CSS/Angular**, and **MySQL** which allows users to upload, group, and post photos.
- The frontend is implemented as **feeds** that contain photos posted by users and their friends.
- The backend is implemented as a **Cache Server** which abstracts the database and serves the purpose of reducing query latency.
- Cache - List of friends, photos of every user
- Developed **PathFinder**, a program that takes as input a dictionary of any size and start and end words and attempts to find a path from the start to end word. With no limit on dictionary size, the program ran successfully on dictionaries of size 100,000 in under a minute.
- Developed **MyFakeBook**

, a Facebook like platform written in Java that utilizes the JDBC API to connect to a MySQL server containing user information, post information, photos, and friends list. Wrote SQL queries utilizing views to find information like users with no friends, top-n photos based on number of tagged users, and finding events that most users are attending. Implemented queries to suggest friends to users using a criteria that included number of mutual friends and a query to match people of the opposite gender.

Experience

Application Developer

UMentor
- Developed the application using an interest based matching algorithm which allows first year students to find a mentor that best suits their needs
- Identified and linked with multiple mentorship programs within the University of Michigan
- Learned Swift programming with no previous knowledge of mobile development to develop the app
- Implemented functionality to manage schedules, calendars, and events based on student interests and needs