MOHAMMED BACHROUCH

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EDUCATION

University of Ottawa   September 2019 – Present
B.A.Sc. in Software Engineering - GPA 9.67/10.0 or 3.96/4.0, Dean's List   *Ottawa, ON*
- 4th year student ready to work full-time permanent in Fall 2023

SKILLS

Languages: Java, Kotlin, HTML, CSS, JavaScript, TypeScript, Python, C, C++, SQL, GraphQL
Frameworks and Libraries: Spring, Flask, React.js, Angular, Node.js, Next.js
Tools: Microsoft SQL Server, PostgreSQL, JUnit, Selenium, Git/GitHub, Apache Maven, Apache Kafka, RabbitMQ, Jenkins, Docker, Postman

EXPERIENCE

University of Ottawa   January 2023 – Present
SQL Databases Teaching Assistant   *Ottawa, ON (on-site)*
- Led workshops on **relational database** design and implementation using **SQL** and **PostgreSQL**, resulting in improved understanding and performance among first and second-year students
- Assessed and provided feedback on quizzes, assignments, projects, and exams, leading to an overall increase in student performance and understanding of database concepts

IBM Canada   May 2022 – August 2022
Frontend Developer (Co-op)   *Ottawa, ON (hybrid)*
- Designed and developed front-end and back-end features for **Cognos Analytics** using **React.js** and **Java**
- Implemented a **front-end cache** using **Redux**, resulting in a 35% reduction in the number of clicks for users
- Leveraged the **Microsoft Teams API** to fully integrate Cognos Analytics with MS Teams
- Significantly improved the performance of the MS Teams back-end integration API through the implementation of **asynchronous calls** in **Java**, resulting in a 50% increase in performance

Manulife Financial Corporation   January 2021 – April 2021 & September 2021 – December 2021
Software Engineer (Co-op)   *Toronto, ON (remote)*
- Designed and developed **REST APIs** and implemented back-end services using **Spring Boot** to perform financial calculations and decommission the Quant database, leading to reduced business costs
- Created front-end features using **React.js**, including tables generated from Excel spreadsheets that interact with a REST API in the back-end, improving user experience for quant analysts and portfolio managers
- Utilized **Java's stream API**, **Spring JPA**, and **Microsoft SQL Server** to implement an investment management algorithm
- Wrote unit tests using **Groovy** and tested REST APIs using **Postman**, **Swagger UI**, and **SQL Server**
- Refactored the data access layer using **Spring Boot** to prevent SQL injection vulnerabilities

University of Ottawa   September 2021 – December 2022
Python Teaching Assistant   *Ottawa, ON (remote)*
- Conducted weekly laboratory sessions for over 50 first-year Python students
- Provided weekly office hours to explain computing concepts in Python to more than 200 first-year students
- Improved efficiency by automating corrections through the development of **Python scripts** that run unit tests, resulting in a 50% reduction in correction time

Employment and Social Development Canada   May 2020 – August 2020
Software Developer (Co-op)   *Gatineau, QC (remote)*
- Self-taught Spring Boot and **Apache frameworks (Camel, Maven, Kafka)** to design, develop, and maintain REST APIs in an **Agile Scrum** environment, including those supporting early COVID-19 operations
- Developed back-end service for Web services supporting the Canada Pension Plan and Old Age Security
- Tested **REST/SOAP APIs** using **Postman** and **SoapUI** prior to the release of Government services during COVID-19

PROJECTS

www.moebachrouch.com | *HTML, CSS, JavaScript, Bootstrap, jQuery, Formspree, AOS library*
- Designed, developed, and deployed an HTTPS personal portfolio website with a custom domain
- Implemented a contact form using Formspree and validated the form using JavaScript/jQuery and RegEx
- Embellished the website by adding animations using the animation on-scroll (AOS) library

RLC Circuit Design | *C, PLplot library*
- Built a C application from the ground-up using the PLplot library
- The program plots a function derived from Kirchhoff's second law based on user input by using an incremental search root-finding method with a total of 100 points

Beatwire | *React.js, react-i18next*
- Designed, developed, and deployed a React.js website to rate and purchase beats from different music genres
- Implemented an internationalization feature using the react-i18next library to switch between English and French
- Hosted the app on Netlify

Menace | *Java*
- Developed a machine-learning tic-tac-toe algorithm for a course project based on a 1961 paper by Donald Michie
- The AI learns how to play automatically against a human via reinforcement learning