MANKARAN ROOPRAI

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EDUCATION

McMaster University   **Expected Graduation: Apr 2026**
Bachelor of Engineering in Software Engineering   *GPA: 3.85*
- **Relevant Coursework:** Computer Architecture, Relational Databases, Software Concurrency
- **Activities & Interests:** GDSC Open Source Member, Muay Thai, Running Club, Huge Lakers fan

SKILLS

Programming Languages: Java, JavaScript, Python, C#, SQL
Software Tools: React.js, Spring Boot, PostgreSQL, Flask, .NET, JUnit, pandas, scikit-learn, Docker, Kubernetes, GCP, Linux
Certifications: AWS Certified Cloud Practitioner, Coursera Deeplearning.ai

PROFESSIONAL EXPERIENCE

IBM   Sep 2024 – Present
Software Engineering Intern | *Python, LangChain, Neo4j, PostgreSQL, Streamlit, Podman*   *Toronto, ON*
- Designing and developing an **LLM-based system** using **Python, LangChain, and Streamlit**, to define business requirements and test cases, facilitating the transition from **12MM+ lines** of legacy COBOL code to microservices.
- Architected **search infrastructure** on a **PostgreSQL** database by building a weighted full-text search engine using tsvectors and tsqueries, leading to a **20%** improvement in query performance and **35%** increase in search accuracy.

Questrade   May 2024 – Aug 2024
Software Engineering Intern | *React.js, Flask, Slack Bolt, GitLab CI/CD*   *Toronto, ON*
- Developed the **complete backend microservice architecture** for an internal tools application, enabling **400+ users** to delete Artifactory packages and perform Git actions, using **Flask** for requests and **Slack Bolt API** for integration.
- Led the creation of a **role-based authentication service** integrated with the **GitLab API**, resulting in a **15% reduction** in unauthorized access attempts and ensuring that only authorized users could perform critical actions.
- Built a scalable **tracking and logging system** leveraging **Google Sheets API** and **React.js** to display the logs, offering visibility into user activity for **1000+ transactions** and aiding in the detection of unauthorized package deletions.

Telus   Jan 2024 – Apr 2024
Software Engineering Intern | *React.js, Spring Boot, PostgreSQL, Python, GCP Looker, Splunk SPL*   *Toronto, ON*
- Led the conversion of a **CLI-based 5G node monitoring tool** into a **full-stack web app** using **React.js**, **Spring Boot**, and **PostgreSQL**, allowing staff to monitor network node issues in real-time, thus eliminating manual CLI checks.
- Developed a **Python** script for the monitoring system to collect and compare node data, automate hourly email alerts, and ingest data into the **PostgreSQL** database, reducing error detection from **10 minutes to 10 seconds**.

Royal Bank of Canada (RBC) Capital Markets   May 2023 – Aug 2023
Software Engineering Intern | *React.js, Spring Boot, PostgreSQL, Docker, Kubernetes, Jenkins*   *Montreal, QC*
- Engineered an enterprise-wide **full-stack financial rules engine** for **100+ internal users** to manage financial regulatory rules, serving as a key resource in an attempt to secure funding for project expansion.
- Developed the engine with a **React.js** frontend and a **Spring Boot** and **PostgreSQL** backend, implementing **user authentication** via **Spring Profiles** and security configurations for tailored access across different environments.

PROJECTS

Book Wishlist - **Full-stack web app to keep track of books to read** | *React.js, Spring Boot, MySQL*

Plutus @ Hack the North - **Budget tracker web app to let students track expenses** | *React.js, HTML, CSS*

NBA Player Comparator - **AI-powered web app for NBA player comparisons** | *React.js, Spring Boot, Spring AI, OpenAI*

Island Generator - **Interactive island generator with extensive features** | *Java, Maven, JUnit*

Heart Disease Predictor - **Analyzes factors to detect the presence of heart disease using ML** | *Python, scikit-learn*