# Tarana Ara

## Software Developer

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Results-driven Full-Stack Software Developer with 4+ years of experience in designing and implementing scalable, high-performance applications. Proficient in modern tech stacks including React, TypeScript, Node.js, Java, and cloud-native development (AWS Certified Solutions Architect). Proficient in designing and implementing distributed systems and microservices, with hands-on experience in building REST APIs and working with MongoDB, PostgreSQL, and MySQL. Passionate about clean code, event driven architecture, test-driven development (TDD), and DevOps practices (terraform, CI/CD, Docker). Committed to Agile methodologies, collaboration, and continuous learning—delivering secure, efficient solutions that drive business value.

## TECHNICAL SKILLS

**Programming Languages & Frameworks**: React, TypeScript, Node.js, Javascript, Java (Spring boot)
**Databases**: MongoDB, MySQL, PostgreSQL
**Testing & Development**: Unit Testing (Jest, Junit) & Test-Driven Development (TDD)
**DevOps and Tools**: CI/CD pipelines, Docker, Jenkins
**Cloud & Certification**: [AWS Certified Solutions Architect – Associate](), [AWS Certified Cloud Practitioner]()
**Version Control**: Git/GitHub
**Operating Systems**: Linux OS, Windows, Mac OS
**Soft Skills**: Teamwork, Collaboration, Problem-solving, Agile methodologies

## EDUCATION

**Master's of Software Engineering —**Computer Science                                January 2024
*Ontario Tech University, Oshawa, ON*
**Bachelor of Science —**Computer Science & Engineering
*Rajshahi University of Engineering & Technology, Bangladesh*

## WORK EXPERIENCE

**Technical Mentor - Full Stack Development**                      May 2024 – September 2024
MERN Stack Boot Camp course, ComIT, Calgary, AB
- Mentored developers in MERN stack (React, Node.js,Express.js, MongoDB), delivering hands-on training in REST APIs, database modeling, and deployment while providing 1:1 code reviews, Git version control, and Agile methodology implementation for real-world team environments

**Graduate Research & Teaching Assistant**                      September 2021 – December 2023
Ontario Tech University, Oshawa, ON

Technical Development & IoT Research (Embedded Software & IoT Lab)

- Developed and optimized TSCH-Sim (a discrete-event IoT network simulator) using JavaScript, Node.js, and Express.js, improving simulation accuracy by 20% and reducing energy consumption by 30%
- Designed RESTful APIs to enable dynamic network reconfiguration via MATLAB co-simulation, leveraging JSON for data exchange
- Implemented a Reinforcement Learning algorithm for real-time scheduling in wireless networks, reducing latency and enhancing data transmission efficiency

Teaching & Technical Mentorship

- Led labs/tutorials for 3 courses (Discrete Math, Software Quality, Intro to Programming), emphasizing OOP, graph theory, and software testing

Research Publications & Conferences

- Published 4 peer-reviewed papers on IoT networks (IEEE PIMRC, FNC, JUSPN, SensorNet), focusing on TSCH optimization, co-simulation, and Reinforcement Learning
- Presented research at IEEE PIMRC 2024 (Spain) and FNC 2022 (Canada), discussing IoT protocols, energy efficiency, and API-driven simulations

**Lecturer/ Instructor, Computer Science**                    January 2019 – December 2019

Bangladesh Army University, Bangladesh

- Delivered courses and sessional in C Programming & Database Systems, designed hands-on labs, and mentored students on technical projects

**Lecturer/ Instructor, Computer Science**                    January 2018 – December 2018

Bangladesh University of Business & Technology, Bangladesh

- Taught Data Structures and Database Design, guiding students in project implementation

## FEATURED PROJECTS

- **Dynamic UI**: Developed a dynamic and responsive student registration form built using modern web development tools including Typescript, React, Vite, Tailwind, React bootstrap [git-link]
- **Pet Adoption App**: A full-stack web application built with React + TypeScript on the frontend and Node.js + Express + MongoDB on the backend, designed to manage pet adoption registrations efficiently. [git-link]
- **Payroll Management System**: Built a comprehensive web application for seamless management of employee payment systems, utilizing core Typescript and tailwind to ensure efficient functionality [git-link]
- **MERN Stack Application**: Developed a dynamic full-stack web application to meticulously track exercise routines, showcasing proficiency in React, Node.js, Express, and MongoDB (MERN-stack) [git-link]
- **Patient Management**: Constructed a robust system for managing patient data, leveraging the MERN stack and deployed on AWS Cloud infrastructure (Elastic Beanstalk) using CodePipeline for continuous integration and continuous deployment (CI/CD) in Ubuntu environment
- **Library Management**: RESTful API using Java's spring framework and PostgreSQL, React, and Bootstrap empowering efficient management of library resources including adding new collections, updating information, deleting, and retrieving comprehensive book data [git-link]

## WEBSITES LINK

Portfolio Link: https://taranagit.github.io/

Github Link: https://github.com/TaranaGit