

# 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, ASP.NET, and cloud-native development (AWS Certified Solutions Architect). Adept at building distributed systems, microservices, and RESTful APIs, with expertise in MongoDB, PostgreSQL, and MySQL.

Passionate about clean code, test-driven development (TDD), and DevOps practices (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, React Native, Java (Spring boot), C#, ASP.NET

**Databases:** MongoDB, MySQL, PostgreSQL

**Testing & Development:** Unit Testing (Jest, Junit) & Test-Driven Development (TDD)

**DevOps and Tools:** CI/CD pipelines, Docker

**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 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

## PROJECTS

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- **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. [\[git-link\]](#)
- **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 [\[git-link\]](#)
- **Dynamic UI:** Developed a dynamic and responsive student registration form built using modern web development tools including Typescript, React, Vite, Tailwind, React bootstrap [\[git-link\]](#)
- **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) [\[git-link\]](#)
- **Payroll Management System:** Spearheaded the development of a comprehensive web application for seamless management of employee payment systems, utilizing core Typescript and tailwind to ensure efficient functionality [\[git-link\]](#)
- **Movie Catalog .NET Application(Blazor):** Architected a cutting-edge .NET application utilizing the Blazor framework and MySQL database, enabling seamless management of a movie catalog with features for viewing, creating, editing, and deleting entries [\[git-link\]](#)
- **ASP.NET KnowledgeWebApp:** Developed a dynamic web application using ASP.NET framework with C#, providing users with a platform to register, login, and explore a variety of general knowledge questions, demonstrating expertise in ASP.NET development [\[git-link\]](#)
- **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

## WEBSITES LINK

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

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