MD AMIMUL EHSAN

@ amimulehsan@iut-dhaka.edu   📞 +880-1841088726   🌐 Personal Website   in amimul-ehsan

○ md-amimul-ehsan   🌐 Google Scholar   📍 Mohammadpur, Dhaka, Bangladesh

EMPLOYMENT HISTORY

Software Engineer | Therap (BD) Ltd.

📅 April 2022 – Present   📍 Dhaka, Bangladesh

A US-based software company specializing in the healthcare sector that provides Software as a Service (SaaS) to government and private organizations globally that serve people with intellectual and developmental disabilities.

Responsibilities:

- Developed web APIs in accordance with the clients' and internal team's requirements using Java Spring MVC Framework.
- Designed and developed engaging and responsive client-facing interfaces using Java Server Pages (JSP) to facilitate user interaction.
- Designed and optimized database structures and queries on an Oracle database management system using MyBatis, Hibernate, and Java Persistence API (JPA).
- Actively participated in technical discussions with project managers, team leads, quality assurance engineers, and other developers to collaborate on devising viable solutions.
- Conducted code reviews for peers, ensuring adherence to clean coding practices and implementing design patterns to achieve efficient, sustainable, and comprehensible solutions.

Software Engineering Intern | Kernel Technologies Limited

📅 August 2021 – October 2021   📍 Dhaka, Bangladesh

A software company designing and developing products to aid the ministries of the People's Republic of Bangladesh.

Responsibilities:

- Collaborated in a team of 2 interns to research and develop a news classification model in Bengali for a future product.
- Set up a backend in NodeJS and ExpressJS to send the responses of the aforementioned model from the server side.
- Developed a website frontend for dataset annotation using ReactJS library.

EDUCATION

Bachelor of Science in Computer Science and Engineering | Islamic University of Technology

📅 January 2018 – May 2022   📍 Gazipur, Bangladesh

- **CGPA 3.87** (8th in a class of 69 graduating students)
- First class with Honors
- **Thesis:** Semi-Supervised Question Answering with Question-Answer Pair Generation in Bengali [Link]
  - Conducted research under the supervision of Dr. Abu Raihan Mostofa Kamal, Professor, CSE.
  - Defended before the Network and Data Analysis Thesis Group faculty panel in April 2022.
  - Focused on leveraging state-of-the-art language models to synthetically generate Question Answer (QA) pairs and supplement the existing limited training datasets for the Question Answering task in Bengali.

RESEARCH PUBLICATIONS

Question Answer Generation in Bengali: Mitigating the scarcity of QA datasets in a low-resource language

- Accepted at the 13th International Joint Conference on Natural Language Processing and the 3rd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics (IJCNLP-AACL 2023).
- Explores a novel work on generating synthetic Question Answering (QA) datasets using Question Answer Generation (QAG) pipeline in Bengali, a low-resource language.

- Extension of the final year undergraduate thesis work co-authored by two other students from the same class and the honorable supervisor.
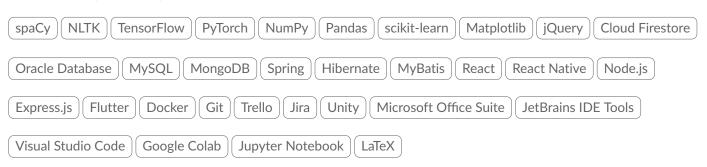
RESEARCH INTERESTS

- Exploring methods to circumvent the constraints posed by sparse datasets, especially in low-resource languages. For example, generating synthetic datasets and cross-lingual transfer learning.
- Techniques to increase the computational capability of language models, such as parameter-efficient fine-tuning and model size reduction.
- Multilingual large language models (LLMs), token classification (such as named entity recognition, part-of-speech tagging, etc.), and question-answering (QA).
- Recently, I have also developed a keen interest in multimodal NLP and weakly supervised (few-shot, one-shot, or zero-shot) learning,

PROGRAMMING SKILLS

Languages

C   C++   Python   MATLAB   Java   JavaScript   Dart   XML   HTML   CSS   SQL   XSLT

Frameworks, libraries, and other tools

spaCy   NLTK   TensorFlow   PyTorch   NumPy   Pandas   scikit-learn   Matplotlib   jQuery   Cloud Firestore

Oracle Database   MySQL   MongoDB   Spring   Hibernate   MyBatis   React   React Native   Node.js

Express.js   Flutter   Docker   Git   Trello   Jira   Unity   Microsoft Office Suite   JetBrains IDE Tools

Visual Studio Code   Google Colab   Jupyter Notebook   LaTeX

SOFTWARE PROJECTS

InnoFund | ○ | ○ | ⊕

- A crowdfunding web application to raise funds for startups by offering equity, a share of profits, or rewards.
- Collaborated in a team of 4 people and developed backend APIs using Node.js and Express.js to listen to requests from the user and respond accordingly.

Real Estate App | ○

- A prototype mobile application for Real Estate businesses to post property-selling advertisements.
- Collaborated with another peer and developed responsive frontend components using the Flutter framework.

Blog App | ○

- A blogging application to upload blog posts and comment and react to others' posts.
- Designed and developed the full-stack cross-platform responsive mobile application using React Native framework and Firebase Cloud Firestore for databasing.

Diagnostic Center Management System | ○

- A system for diagnosis centers to manage doctor appointments, facilitate the maintenance of patients' health records, and generate invoices.
- Collaborated with two other trainees to propose the idea, define the requirements, and design the database structure and the development workflow.
- Developed backend APIs and frontend interfaces of several modules of a Spring Boot application using MySQL as the database and Hibernate for database operations.

- Worked under a senior developer's guidance and received training to use design patterns and clean coding practices properly.

ACCOLADES AND ACHIEVEMENTS

1. Partial scholarship from the Organisation of Islamic Cooperation (OIC) for exceptional performance in the Islamic University of Technology (IUT) Admission Test during the 2017-2018 session

This is awarded to the top 120 candidates during the admission process based on merit.

2. 8th in IUT Intra First Year Programming Contest 2018

- Participated in a team of two contestants.
- Participated by 69 teams.

EXTRACURRICULARS

- Assisted in problem setting and served as a judge in the "Code Catalyst: Refactoring contest" event at the 11th IUT ICT Fest 2024.
- Member of IUT Computer Society and organized and volunteered for multiple events, including IUT ICT Fest 2019.
- Advisor of IUT intra-programming sub-committee, and facilitated and organized programming contests.
- Solved more than 500 problems across multiple online problem-solving platforms (Codeforces, Leetcode, Hackerrank, Atcoder, Codechef, etc.).