

# Abhyudai Singh

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## EDUCATION

**University of Texas at Arlington**, Texas, US

**Jan 2022 - Dec 2023**

Master of Science in Computer Science

GPA: 3.67/4

**Guru Gobind Singh Indraprastha University**, New Delhi, INDIA

**Aug 2014 - June 2018**

Bachelor of Technology in Electronics and Communication

GPA: 3.7/4

## TECHNICAL SKILLS

**Programming Languages:** C, Python, Java, RUST, PHP, HTML5, JavaScript

**Framework:** Bootstrap 5, Flask, Django

**IDE & Tools:** Postman, Git, VS Code, Jupyter Notebook, MySQL Workbench

**Cloud:** Azure Cloud Service, AWS Cloud Service (EC2 Instance)

**Database Systems:** MySQL, Postgres, Oracle 12c, Mongo DB

## PROFESSIONAL EXPERIENCE

**Software Engineer**, Capgemini

**Dec 2019 - Dec 2021**

- Deployed the web application for a marketing firm using **Python**, **HTML**, **CSS** and **React** on the **Azure cloud**, based on the **Flask** framework while working in an **Agile** and **Waterfall** environment and reduced development time by 20% by efficient deployment strategies and process optimization.
- Designed GUI and backend for the login module with email-based authentication and authorization. Also created two modules for bidding and ticketing for the app.
- Incorporated content display and text processing with **Redis** cache and **SQL** database for multiple instances using distributed computing, resulting in a 10-fold increase in time efficiency.
- Structure the web app securely, using three different types of security techniques: **encryption**, **regex**, and the KMP string-matching algorithm hosted using Azure Cloud Service.
- Stored encrypted data in a SQL database with two appropriate data types and decrypted it when needed.
- Static typing, memory-safe programming, and object-oriented programming concepts improved security against 70% of CVEs.
- Technology Stack: Python, React, HTML, CSS, Flask, Azure Cloud Services SQL, KMP string-matching algorithms.

**Associate Engineer**, Spectra

**Aug 2018 - Dec 2019**

- Worked with stakeholders to understand the requirements of the database and then designed the database schema.
- Once the database schema was designed, implemented the database using a **DBMS**.
- Optimized databases to improve performance.
- Secured databases to protect the data from unauthorized access.
- Backed up and restored databases to protect the data from loss.
- Monitored databases to identify and troubleshoot problems.

## ACADEMIC PROJECTS

**Distance Vector Protocol Deployment**

- Implemented the **Distance Vector Protocol** based on the **Bellman-Ford Algorithm**. Developed an application to simulate a router/router protocol using **sockets programming** and software-defined routing, utilizing **TCP** and **UDP** packets. Achieved a significant improvement of 35% in convergence time.
- Used multithreading techniques to parallelize tasks and enhance performance, resulting in a significant 15% reduction in processing time for constructing the topology table, configuring router configurations, and exchanging routing information with neighboring routers.

**Calculator (Rust)**

- Designed a secure calculator in **Rust** to implement three types of operations: arithmetic, bitwise, and single-operand operations using a vector as a stack for different data types.
- Represented the 3 operations as index choices to keep it easy to use.

**Marketplace**

- Developed web application to facilitate car rental for university students.
- Technology Stack: HTML, Django, MySQL, Azure cloud, JavaScript, Bootstrap

## CERTIFICATES/ACHIEVEMENTS

- Awarded as "Best Employee of the Team" at Capgemini, India.
- Python Basic Certification from HackerRank.