

# SWARNIM BARAPATRE

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## EDUCATION

**BITS, Pilani**

Dual Degree: BE Chemical Engineering + MSc Biological Sciences

May 2019 – Aug 2024

## WORK EXPERIENCE

**Intern, Software Engineer, R&D Department, Mastersoft**

Aug 2023 – Jun 2024

- Co-developed system architecture for a high-traffic product, as part of a three person team.
- Built scalable backend systems with FastAPI, for optimal performance and reliability.
- Researched and developed backend systems in Go to assess advantages over currently used backend technologies.
- Developed internal toolchain for automating database management tasks, improving system reliability and data integrity.
- Collaboratively resolved critical Linux related issues, preventing significant downtime and data loss.

## SKILLS

**Languages:** Python, Go, Powershell, Bash, C, C++, Java, Pascal  
**Frameworks:** Flask, FastAPI, Microsoft SQL Server  
**Tools:** Linux, Git, Vim, Emacs, Nginx, L<sup>A</sup>T<sub>E</sub>X

## PROJECTS

**Employee Performance System**

[Git](#)

- Designed and developed an innovative multi-tenant, multi-threaded application for streamlined productivity tracking, reducing annual costs by **Rs 53 Lakhs** by eliminating reliance on [external services](#).
- Facilitated confident remote talent recruitment through accurate productivity metrics.
- Implemented features such as interventionless atomic app updates, a live-updating configuration system, and encrypted logs for enhanced security.
- Utilized a diverse tech stack including Python, Powershell, Pascal, and Win32 APIs.

**MS-SQL Suite of Tools**

[Git](#)

- Crafted a suite of tools for the Microsoft SQL Database for SQL developers and database administrators achieving 85% time reduction in SQL task flows.
- Developed a tool to optimize memory consumption by identifying memory leaks in Stored Procedures.
- Developed tools to compare and contrast database stored procedures and SQL functions, visualizing differences via automated reports and generating alter scripts to synchronize databases.
- Leveraged Python along with a host of useful libraries such as difflib, sqlparse, and pyodbc.

**Persistent Queue System**

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- Developed a resilient queue system to automate time-intensive tasks, ensuring FIFO completion and allowing for remote task addition.
- Implemented persistence to maintain queue integrity during system crashes.
- Currently enhancing the system with optional asynchronicity for improved processing speed.
- Used FastAPI as the backend framework along with Pydantic for data validation.

**OpenAI APIs**

[Git](#)

- Developed a suite of APIs, harnessing the power of GPT-3.5 and GPT-4 to enhance educational practices.
- Implemented AI solutions for rubrik-based grading, SQL-driven report generation, question paper and course outcome generation to name a few.
- Used OpenAI via Python frameworks such as Flask and FastAPI with MS-SQL as the database.

**Other Projects**

[Git](#)

Other projects include: [golang API blueprint](#), [website vulnerability identifier](#), automation tools for Azure Blob Storage, etc.

## EXTRA CURRICULARS

**Swimming:** Represented Maharashtra in National Championships. Multiple State Level Gold Medalist.