



# **SUCHETANA CHAKRABORTY**

## **DATABASE SYSTEM**

### **(CSL3050)**

# **RESEARCH**

# **VISUALISATION**

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- [Code\(GitHub\)](#)
- [website](#) (open iitj wifi)

# PROBLEM STATEMENT

Students often don't know which professor is working in which research area. This lack of clarity makes it hard to align their interests with professors.

Students have no clear view of ongoing projects or the number of students involved. This prevents them from finding collaboration opportunities.

While professors' research topics are available on the IITJ website, they are scattered across multiple pages. This makes it time-consuming and difficult for students to find relevant opportunities.

I am working as an Associate Professor at the *Department of Computer Science and Engineering, Indian Institute of Technology Jodhpur*. My research interests primary research interests are broadly in the domains of Ubiquitous Computing, IoT, Edge Computing, Wireless Sensor Networks, Wearables, and Ambient Sensing for smart living applications. I am leading the UbiSys Research Lab in the department that has created a unique facility of connected smart living testbeds in the institute. Currently, I am working as an Area Editor of Ad Hoc Networks journal, Elsevier. Also I am involved in organizing many conferences including IEEE ANTS 2021 (as Tutorial Co-chair), IEEE LCN 2021, 2022, 2023, 2024(as TPC member), COMSNETS 2022, 2023 (as TPC member), ICDCN 2023, 2024 (as Workshop Co-chair) to name a few.

I have a few PhD positions available. I am looking for **self-motivated BTech/MTech students (NET/GATE qualified)** with **high analytical skill, strong research aptitude and excellent academic background** to join our lab. If you are interested to work with me and pursue **PhD/Summer Internship/MTP/BTP**, write to me with your updated resume.

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# CURRENT STATUS

01

02

03

04

05

## AUTHENTICATION

Professors will log in through Email authentication. After signing in, they will provide details like their name, email, portfolio link, and password.

## RESEARCH FIELD

Professors can add new research fields or link existing ones to their profile. They can choose relevant fields to be a part of their research area.

## PROJECT

Under each research field, professors can add multiple projects. They can also view projects from other professors, though they cannot remove them.

## STUDENTS

Professors can add students to specific projects, including details like their portfolio link, email, and name. Professors can also remove existing students from a project.

## WEBSITE

All the changes made by professors, such as adding research fields, projects, and students, will be displayed in a tree format on a website. This allows easy visualisation of the data.

# METHODS ADOPTED

## Neo4j

### Graph Database

Used to store professors, research fields, projects, and student details. Relationships are defined using graph nodes, making data easy to query and visualise in a tree format.



## DATABASE

neo4j(Graph database)  
& firebase(nosql database)

## Firebase

### Authentication

Handles secure email authentication for professors and stores their data (email, portfolio link, password) in real-time, ensuring secure and dynamic data management.

## Flask

### Backend API

Manages API routes, interacts with Neo4j through Cypher queries, and serves as the backend driver for fetching and writing data.



## DRIVER & API

flask

## Flutter

### Mobile App

Provides a mobile interface for professors to add research fields, projects, and students. Only for Android.



## FRONTEND

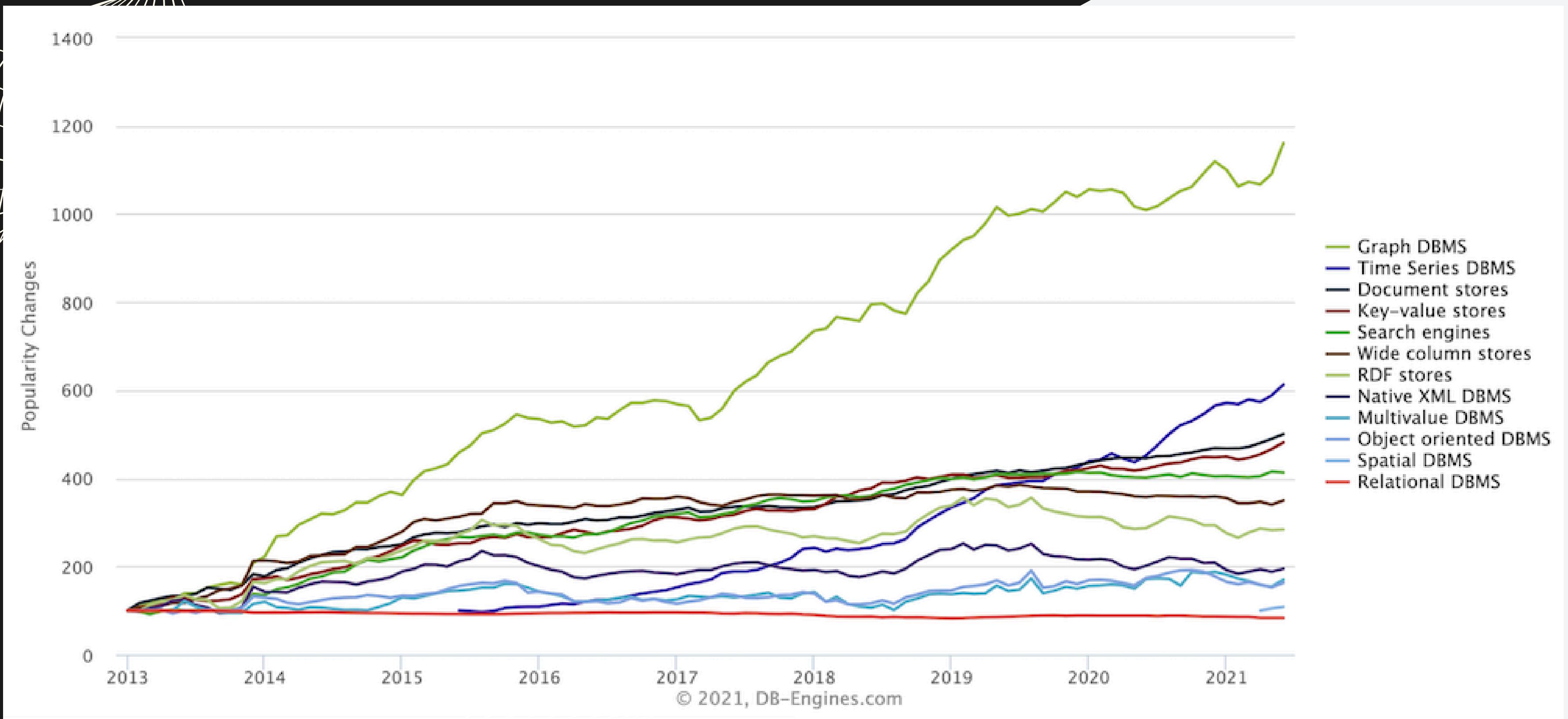
flutter & reactjs

## React JS

### Frontend Website

Displays professor, research, and student data in a tree format. Fetches real-time data from Flask API and presents it in an interactive, user-friendly interface.

# STATISTICS



# DEMO

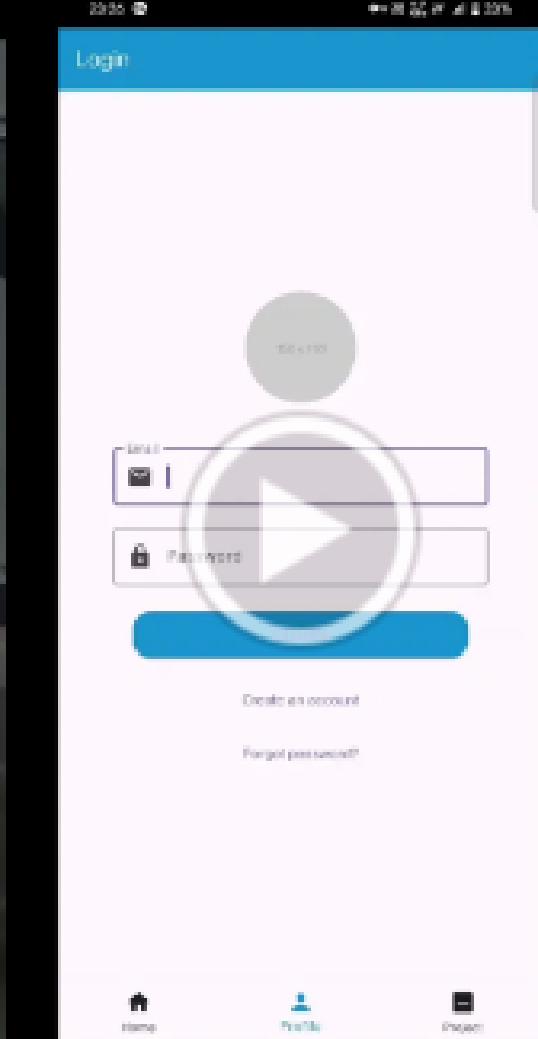
APP

APP

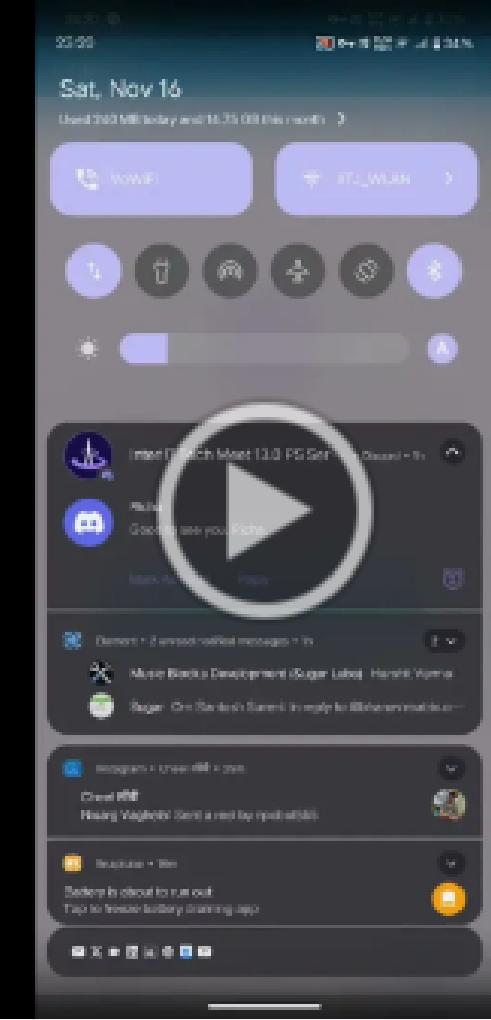
WEB



# website



# app2



app1

# OUTCOME & CONCLUSION



The project effectively used Neo4j for managing research data, Firebase for real-time syncing, and Flask for backend integration, enabling seamless collaboration.

LEARNING



- Add a chat feature for communication between professors and students, or among students.
- Add task tracking and progress monitoring for better project management.

FUTURE EXTENSION



Facilitates better collaboration by making ongoing projects, research areas, and student involvement easily accessible to both professors and students.

INNOVATION

# THANK YOU

## Important Links

(all open iitj wifi)

- [App](#)
- [Neo4j Browser](#)
- [Web](#)
- [code\(github\)](#)

## Resources:

- [Neo4j \(Query & Driver\)](#)
- [Medium](#)



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