Hello, I am Manua and I enjoy learning and exploring new tools and technologies!

This document presents a selection of my software projects demonstrating experience in:

FRONTEND WEB DEVELOPMENT

FULL-STACK APPLICATION DESIGN

BACKEND SYSTEMS AND APIS

DATA ANALYSIS AND MACHINE LEARNING

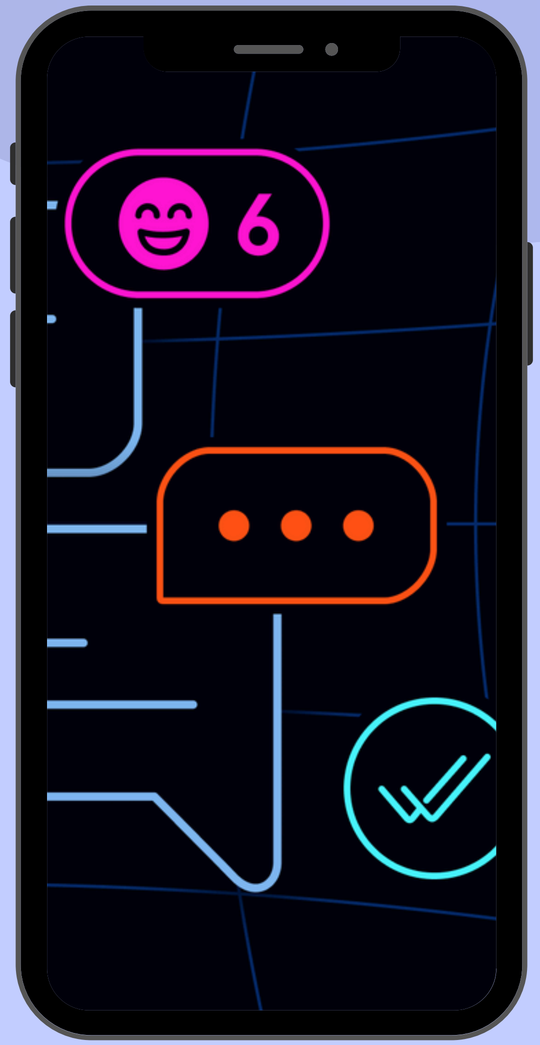
Each project highlights the problem addressed, the technical approach taken, and the key features implemented, with a focus on building reliable, maintainable, and scalable solutions.

Technologies & Tools

JavaScript · TypeScript · React · Node.js · Python · SQL · MongoDB · PostgreSQL · REST APIs · Machine Learning

REAL-TIME CHAT APPLICATION (INTERNAL TOOL)

React, Node.js, MongoDB, WebSockets (Socket.IO)



Overview

An internal real-time messaging application developed to improve communication and collaboration within the company. The system was designed for low-latency message delivery and reliability in a multi-user environment.

What I Built

- Designed and implemented a real-time communication system using WebSockets.
- Developed backend APIs to handle user sessions and message flow.
- Built a responsive frontend interface for seamless user interaction.
- Ensured scalability and stability for internal team usage.

Key Features

- Real-time messaging using WebSocket connections
- User session handling and message synchronization
- Responsive and intuitive UI
- Designed as a secure internal enterprise tool

Note

This project was developed for internal company use; therefore, the full source code is private.

TASK MANAGER APPLICATION (MERN STACK)

React, Node.js, Express.js, MongoDB, JWT, Mongoose

Overview

A full-stack task management web application that allows users to securely manage personal tasks from any device. The project demonstrates end-to-end MERN stack development, from backend APIs to frontend UI.

What I Built

- *Developed RESTful APIs for task and user management.*
- *Implemented secure authentication using JSON Web Tokens.*
- *Built a responsive React frontend with modern UI practices.*
- *Integrated frontend and backend using Axios.*

Key Features

- *User registration and secure login with JWT*
- *Create, update, delete, and manage tasks*
- *Protected API routes for authenticated users*
- *Responsive design for desktop and mobile*

AI-POWERED DOCUMENT LEARNING PLATFORM

Node.js, TypeScript, Express, PostgreSQL, Prisma, Hugging Face / OpenAI APIs

Overview

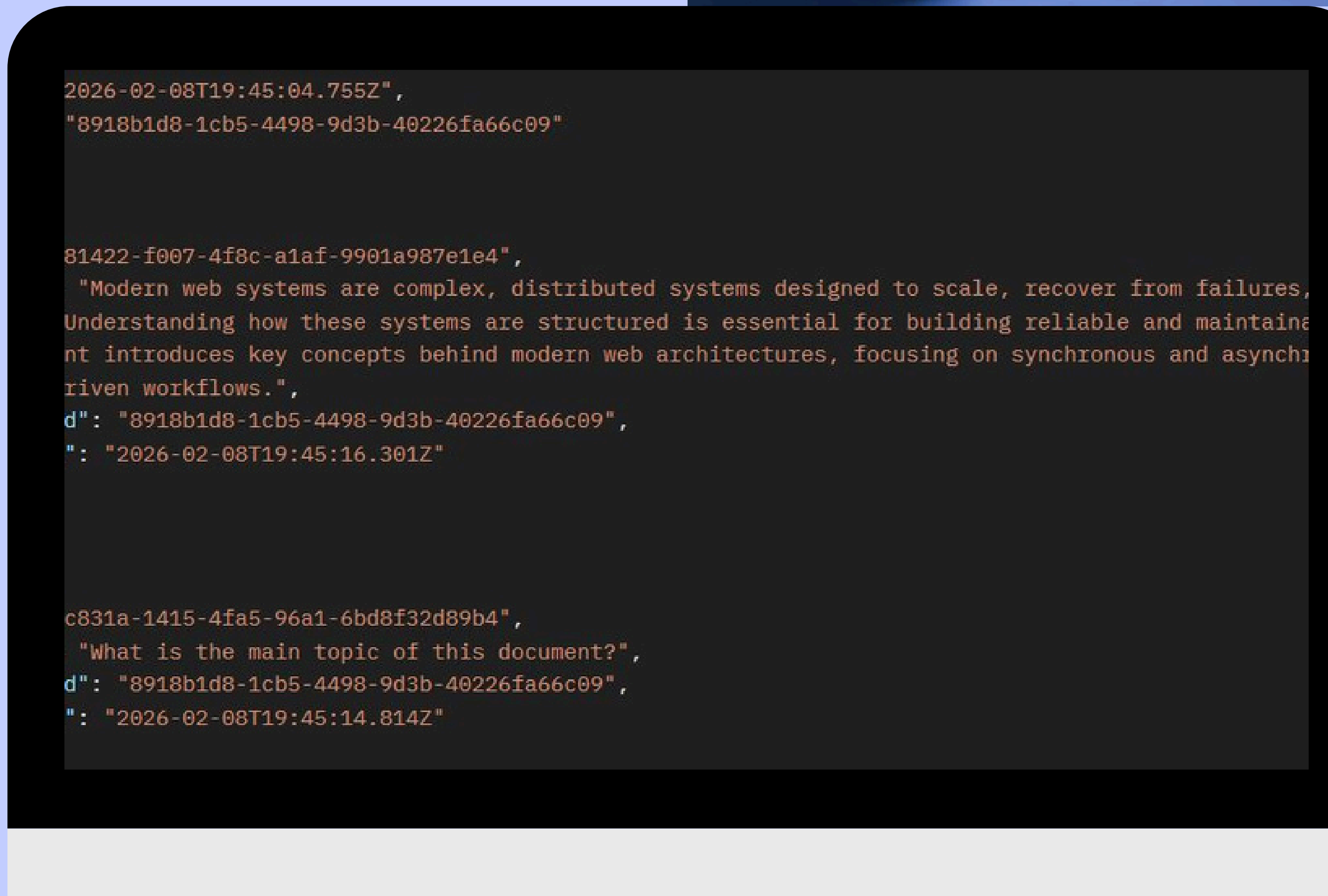
A backend system for an AI-powered document learning platform that processes uploaded documents and automatically generates summaries and study questions using large language models.

What I Built

- *Designed a pipeline-based backend architecture for document processing.*
- *Implemented asynchronous background job processing.*
- *Integrated LLM providers for AI-generated content.*
- *Built clean REST APIs for frontend consumption.*

Key Features

- *PDF document upload and text extraction*
- *Asynchronous job processing with retry and failure handling*
- *Automatic summary and study question generation*
- *Pluggable LLM support (OpenAI / Hugging Face)*
- *Relational data persistence with PostgreSQL*



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MOVIE EXPLORER APPLICATION

React, Context API, TMDB API, CSS

Overview

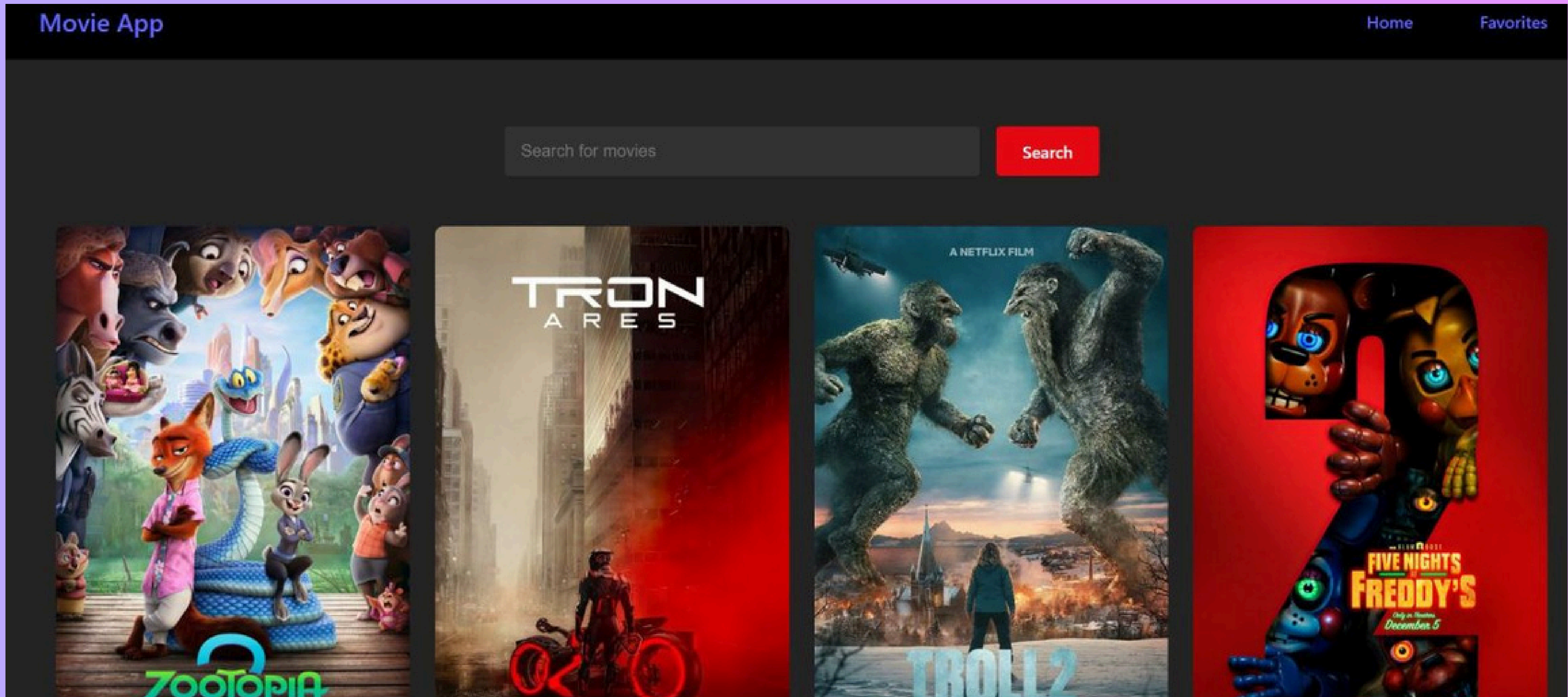
A React-based movie browsing application that allows users to search movies and manage a favorites list using live data from the TMDB API.

What I Built

- *Integrated external APIs to fetch real-time movie data.*
- *Implemented global state management using React Context API.*
- *Added localStorage persistence for user favorites.*
- *Designed a clean, responsive UI.*

Key Features

- *Live movie search using TMDB API*
- *Movie cards with posters, titles, and release years*
- *Add and remove favorites*
- *Persistent favorites across sessions*



BLOG APPLICATION WITH USER AUTHENTICATION

Laravel, PHP, MySQL, Blade Templates

Overview

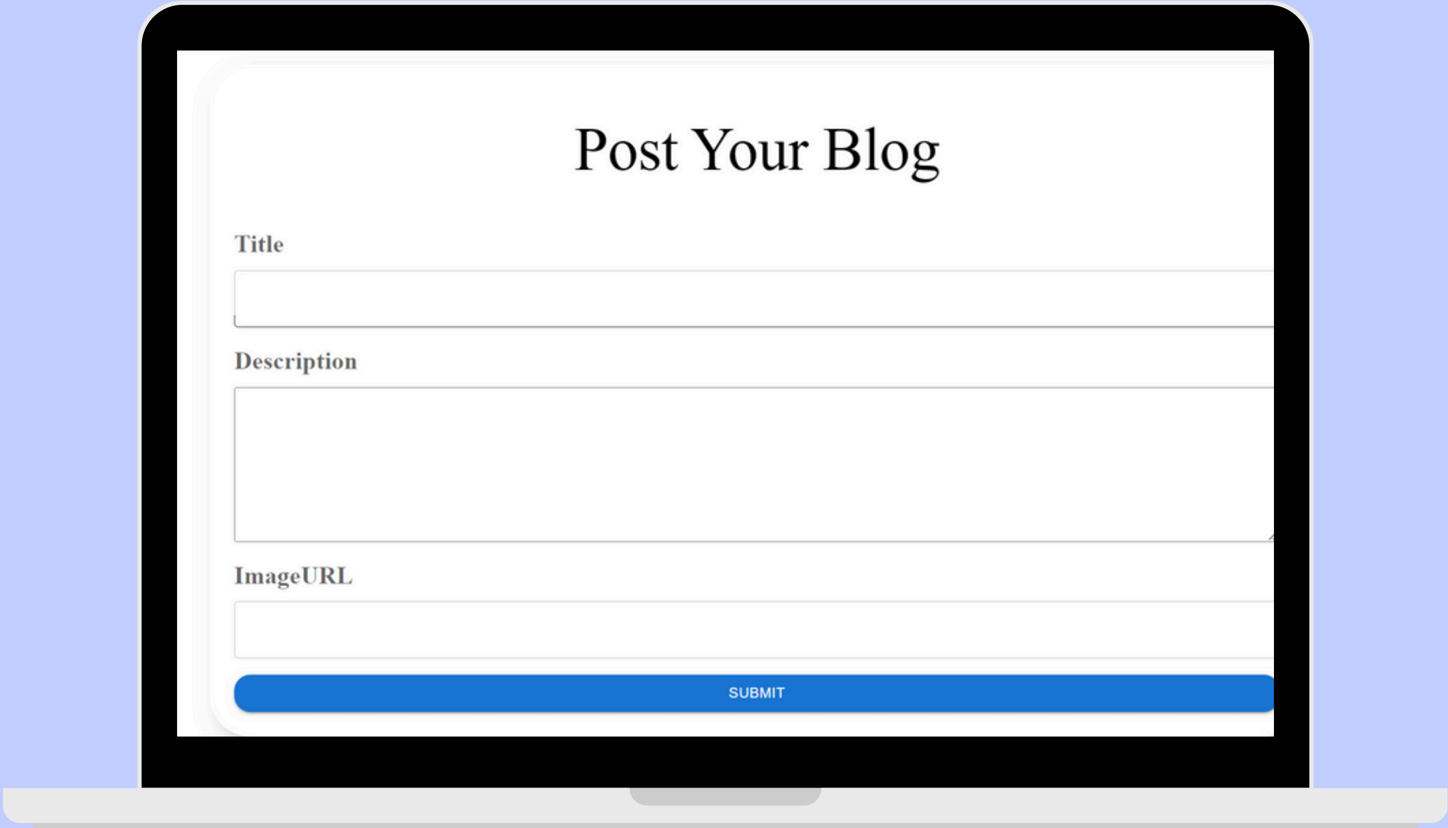
A blog platform demonstrating user authentication, authorization, and CRUD operations using the Laravel framework.

What I Built

- *Implemented user registration, login, and logout functionality.*
- *Built secure CRUD operations for blog posts.*
- *Enforced authorization rules to protect user-owned content.*
- *Designed dynamic views using Blade templates.*

Key Features

- *Authentication middleware for protected routes*
- *Secure password hashing and validation*
- *Post ownership enforcement*
- *Clean MVC architecture with Eloquent relationships*



Post Your Blog

MOTION ANALYSIS USING PYTHON

Python, MediaPipe, OpenCV, Pandas

Overview

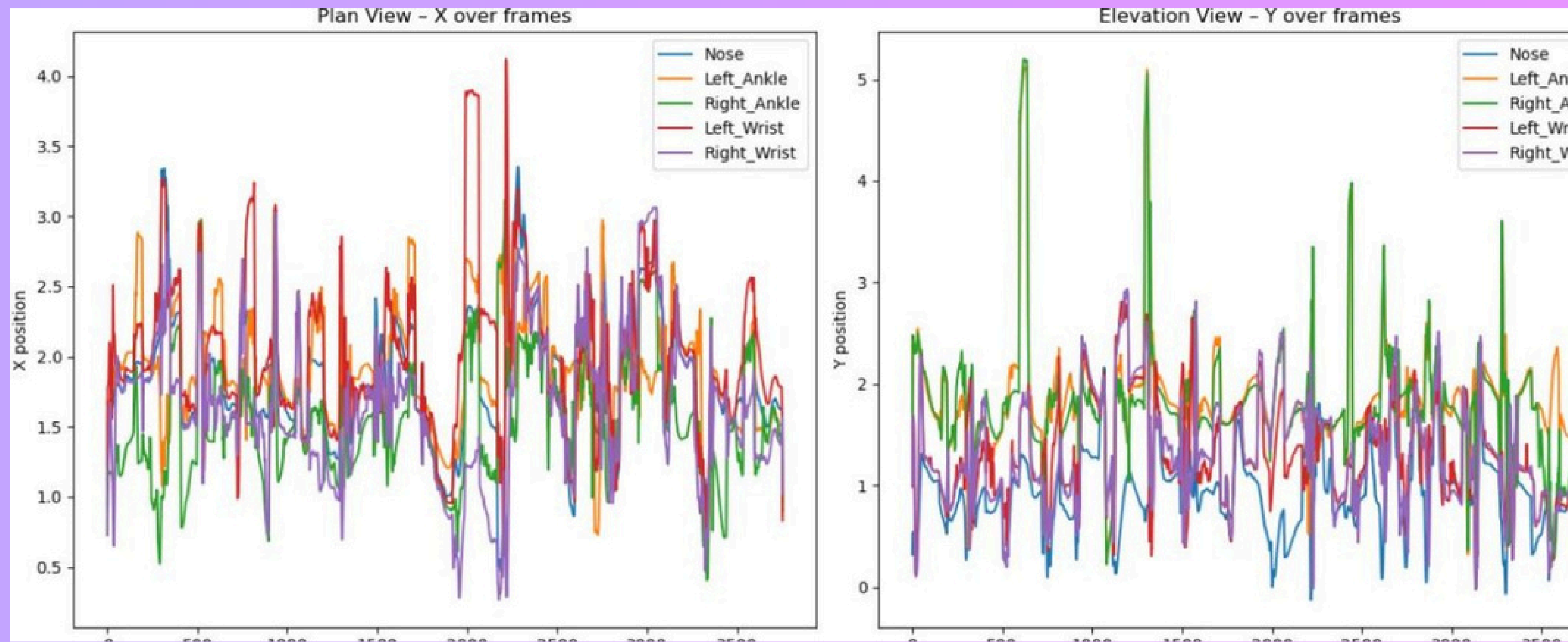
A computer vision project analyzing movement patterns of the Kalaripayattu martial art using pose estimation and motion visualization techniques.

What I Built

- *Extracted human pose landmarks from video input.*
- *Generated trajectory data and saved it in structured CSV format.*
- *Created multiple visualization outputs for movement analysis.*

Key Features

- *Pose landmark tracking using MediaPipe*
- *Trajectory extraction and CSV export*
- *Motion plots (plan and elevation views)*
- *Overlay videos and animated GIFs with movement trails*
- *Offline execution after setup*



LOGIN & REGISTRATION SYSTEM

PHP, MySQL, HTML, CSS, JavaScript

Overview

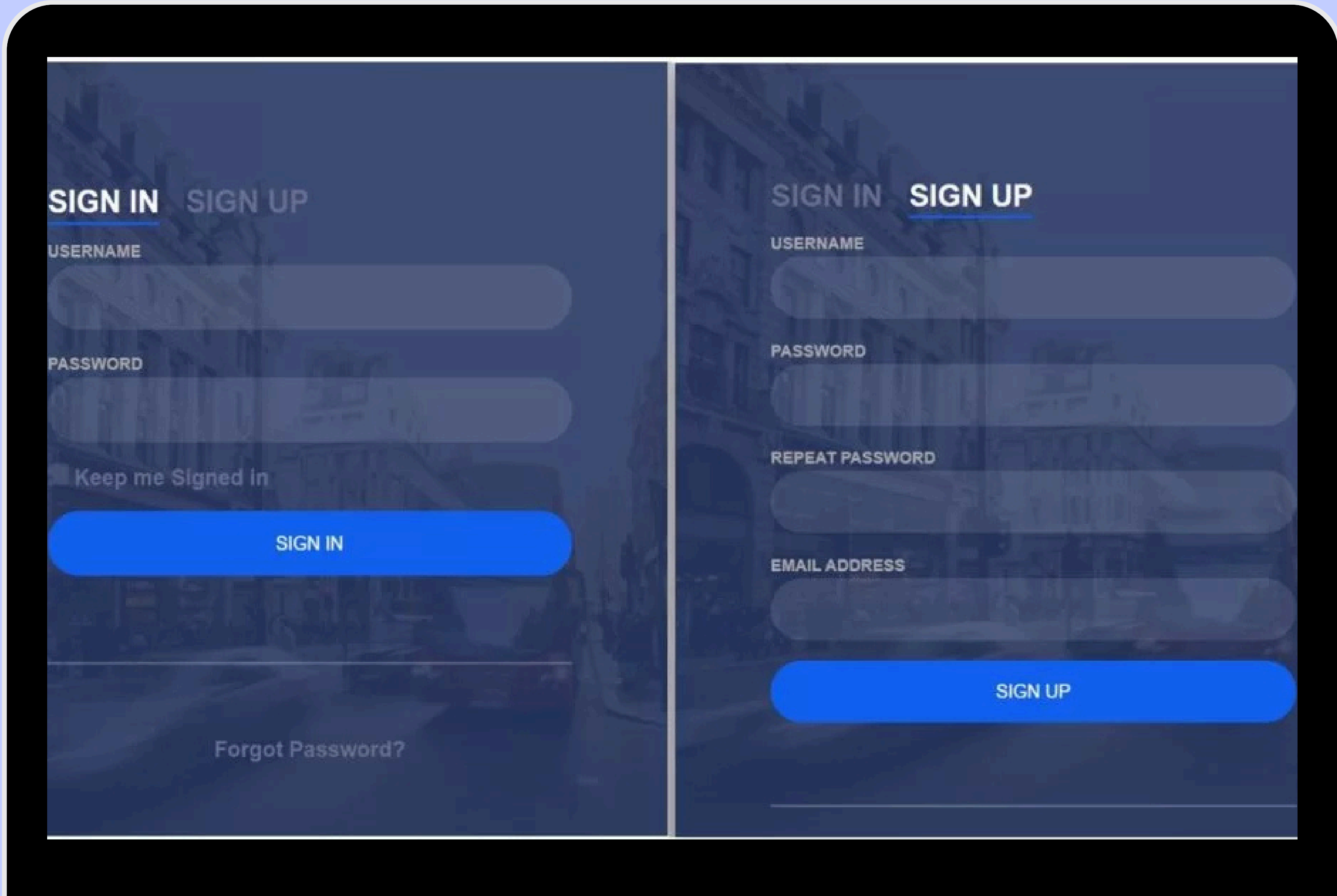
A role-based authentication system allowing users and admins to log in and access different dashboards.

What I Built

- *Implemented secure login and registration workflows.*
- *Designed role-based access control and redirection.*
- *Managed user sessions for authentication persistence.*
- *Built a responsive UI with client-side form handling.*

Key Features

- *User and Admin role separation*
- *Secure password hashing and verification*
- *Session-based authentication*
- *Responsive frontend with JavaScript-driven form switching*

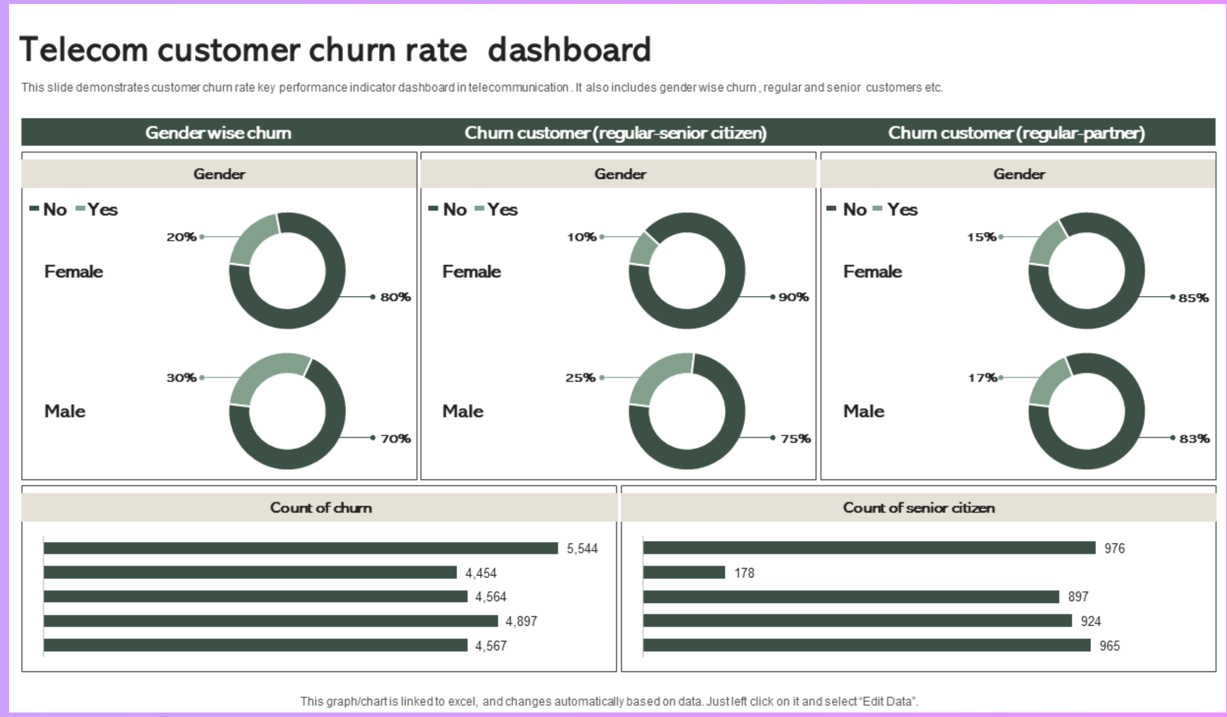


CUSTOMER CHURN ANALYSIS USING ML (TELECOM DATASET)

Python, Pandas, Scikit-learn, Matplotlib

Overview

A machine learning project focused on predicting customer churn based on historical behavioral data to support proactive retention strategies.



Telecom customer churn rate dashboard

This slide demonstrates customer churn rate key performance indicator dashboard in telecommunication . It also includes gender wise churn , regular and senior customers etc.

This graph/chart is linked to excel, and changes automatically based on data. Just left click on it and select "Edit Data".

What I Built

- *Performed data preprocessing, cleaning, and feature engineering.*
- *Conducted exploratory data analysis to uncover churn patterns.*
- *Trained and evaluated multiple machine learning models.*
- *Interpreted results to derive business insights.*

Key Features

- *Multiple ML models: Logistic Regression, Random Forest, XGBoost, SVM, AdaBoost*
- *Model comparison using Accuracy, Precision, Recall, F1-Score, ROC-AUC*
- *Feature importance analysis to identify churn drivers*

Results & Insights

- *Best model: Random Forest (Accuracy: 85%, ROC-AUC: 0.91)*
- *Key churn drivers: tenure, contract type, monthly charges*

Thank you

Contact Details

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