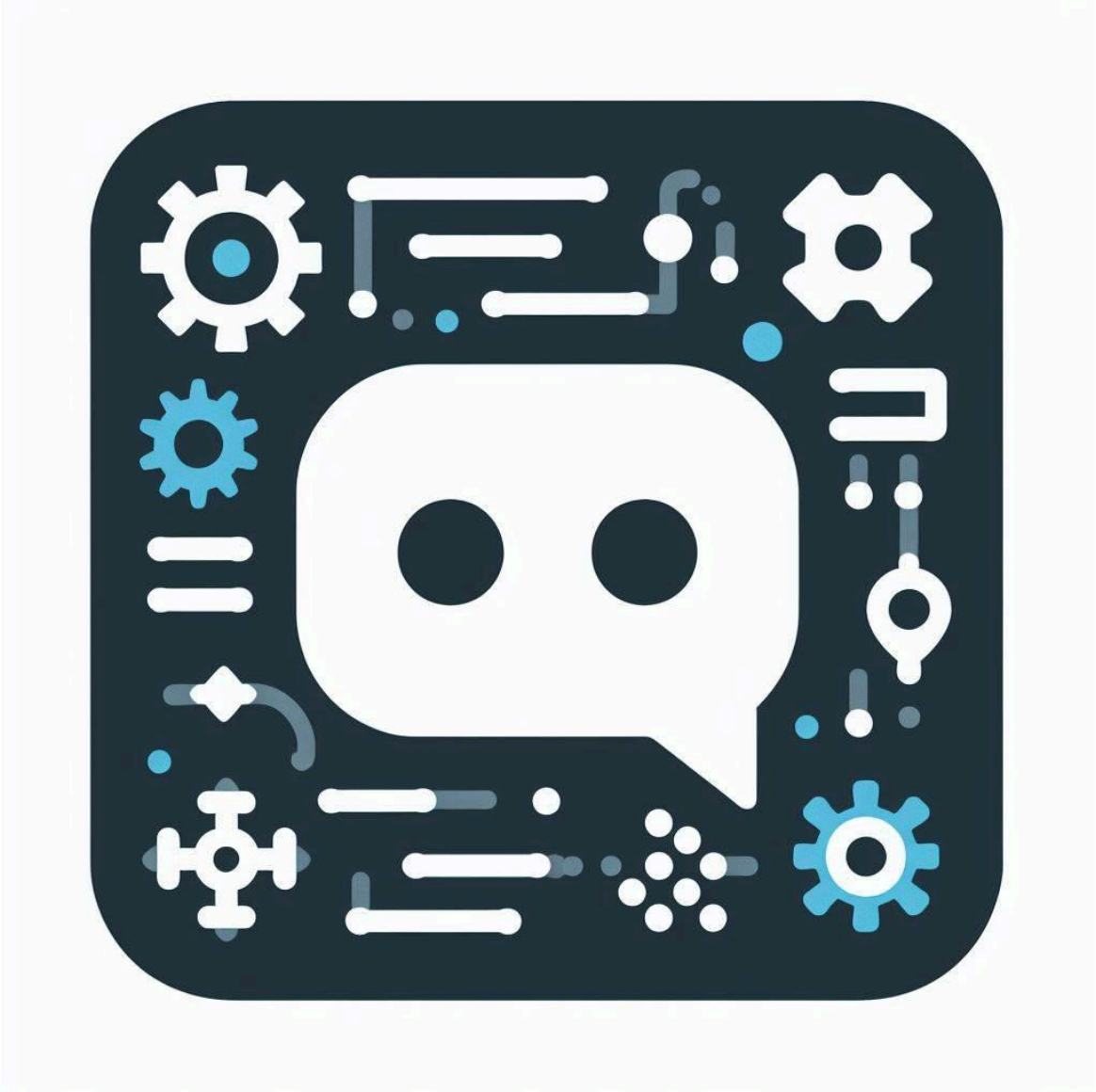
Offline CodeGPT



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INTERNSHIP REPORT

Submitted in partial fulfillment of the
Requirement for the award of the
Degree of

BACHELOR OF TECHNOLOGY

In

INFORMATION AND COMMUNICATION TECHNOLOGY

By

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This is to certify that the internship entitled was carried out by **PATLOLLA ROHAN REDDY(202001076)**, BTECH 4th year during the academic year 2024-2025. This report is being submitted in the partial fulfillment of the requirements for the award of the degree of **“B.TECH IN INFORMATION AND COMMUNICATION TECHNOLOGY”**

Introduction

This document outlines both, functional and Nonfunctional requirements of Offline CodeGPT

This Document basically gives a detailed overview of the working of the software product and how it is expected to perform. The document describes the product's user interface, hardware and software requirements.

Project Description

The Offline Code GPT project aims to develop a web-based application that integrates open-source AI large language models (LLMs) for text processing and generation, designed to operate fully offline within the restricted internet environments of Research Centre Imarat (RCI), Defence Research and Development Organisation (DRDO).

This application utilizes local data storage and processing, ensuring compliance with security measures and enabling users to perform natural language tasks without internet connectivity. By providing a user-friendly interface. The project seeks to enhance operational efficiency and analytical capabilities in secure settings, effectively bridging the gap between cutting-edge technology and stringent security requirements. The Objective of this project is to build a web interface which integrates LLM which should run without internet connection.

Solution

Web Application : Used by Users to login and also to do clear their respective queries using the application

User Categories and Privileges

1. **Administration**
   The Administration will have control over the data stored
2. **Employee**
   The employee will use the web-app to complete their respective works

Requirements

- **Data Management and Scheduling**

Administration should be able to manage data i.e employee management and should also able to edit data stored in the database

- **Optimized data storage system**

Storing Data is in an optimized way is important as we are storing the locations of employee his basic account information and his route schedule.

- **Implementing a user-friendly and stable software**

The employee desires ease of access. We thus need to create an software and a user interface that is easy to use and doesn't crash or have glitches

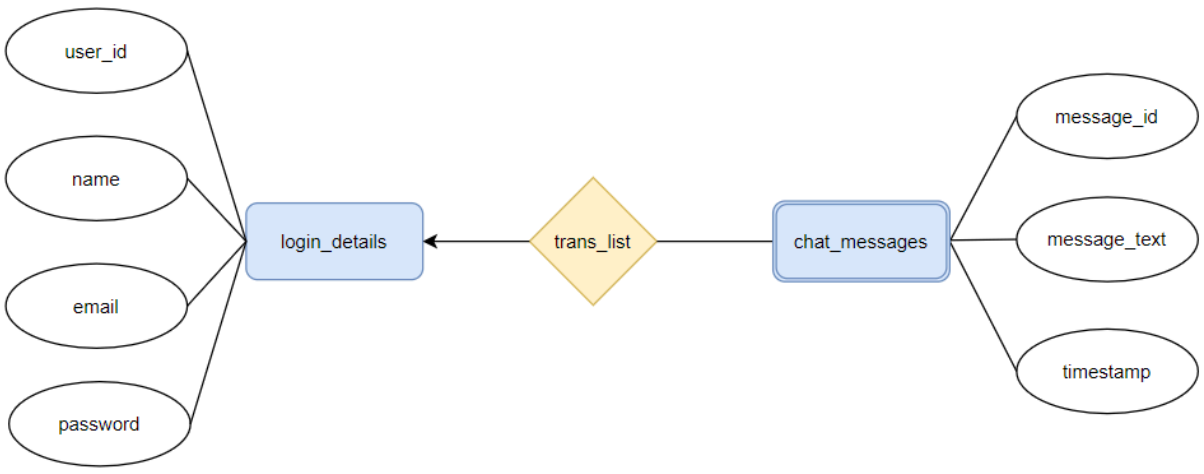
- **Access on multiple devices**

The Offline CodeGPT application should be able to work on multiple devices

Other Requirements

- Database should be designed in such a way that it can be scaled according to the number of users.
- System should ensure consistency and integrity of the user's transactions.
- It should be possible to monitor the database from time to time.
- Users should have complete control on their account and the ability to manage their account on their multiple devices

E-R diagrams



Relational Database

Database

In this development project I used a Postgresql database to store the data in the project.

Here are some snapshots of the database:-

1).login_details Table contains user details

	id [PK] integer	username text	email text	password text
1	1	rohan	example@email.com	password123

2).chat_messages table contains chat history

	message_id [PK] integer	id integer	message_text text	timestamp timestamp without time zone
1	1	1	User: write a code to add two integers a and b in C++	2024-05-02 21:01:14.938857
2	2	1	CodeGPT: write a code to add two integers a and b in C++.	2024-05-02 21:01:14.938857
3	3	1	User: write a code to multiply two integers a and b in C++	2024-05-02 21:02:24.33977
4	4	1	CodeGPT: write a code to multiply two integers a and b in C++.	2024-05-02 21:02:24.33977
5	5	1	User: write a code to add two integers a and b in C++	2024-05-02 22:16:51.800869
6	6	1	CodeGPT: write a code to add two integers a and b in C++.	2024-05-02 22:16:51.800869
7	7	1	User: write a code to add two number in C++	2024-05-02 23:04:15.170531
8	8	1	CodeGPT: write a code to add two number in C++	2024-05-02 23:04:15.170531
9	9	1	User: write a code to add two numbers	2024-05-02 23:10:55.569723
10	10	1	CodeGPT: write a code to add two numbers	2024-05-02 23:10:55.569723
11	11	1	User: write a code to add two numbers in C++	2024-05-02 23:25:50.237667
12	12	1	CodeGPT: write a code to add two numbers in C++	2024-05-02 23:25:50.237667
13	13	1	User: write a code to add two integers	2024-05-02 23:28:41.239386
14	14	1	CodeGPT: write a code to add two integers	2024-05-02 23:28:41.239386
15	15	1	User: write a code to add two numbers in C++	2024-05-03 00:11:03.829639

Offline CodeGPT application

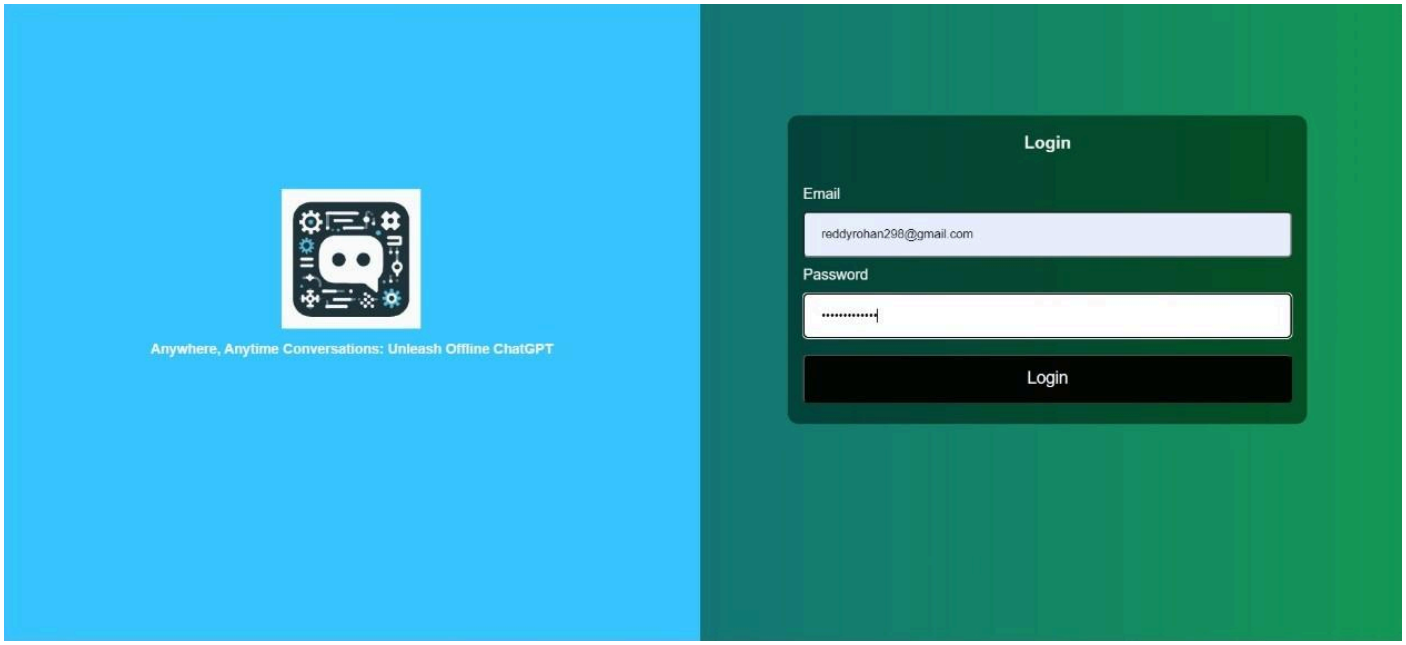
I used HTML,CSS,Javascript for the development of the website and python flask for backend

Hereis the working of the website:-

1).Login page:-The login functionality is provided through a form in HTML, styled with CSS, and uses Bootstrap for responsive design. When a user visits the application, they are greeted with a login screen where they must enter their email and password. The page's visual appeal is enhanced by a gradient background and a centralized login form, making it modern and attractive.

Key Components of the Login Page:

- **HTML Form:** The login page includes an HTML form where users input their email and password. This form submits the data to a server-side endpoint (`/login`) that handles authentication.
- **CSS Styling:** The form and other elements are styled using a separate CSS file that applies a dark theme with text inputs and buttons that are styled to stand out against the gradient background.
- **Responsive Design:** Integration with Bootstrap ensures that the login page is responsive and looks good on devices of various sizes.



2).Chat Interface:-After authentication, users are redirected to the main chat interface where they can interact with Offline ChatGPT. This part of the application allows users to send messages and view responses from the AI.

Key Components of the Chat Interface:

- **Chat Display:** The chat history is shown on the left side of the screen, where users can also select different dates to view past conversations. This is dynamically loaded using JavaScript that fetches and displays the chat data.
- **Message Input Area:** Users can type their messages in an input field and send them using a "Send" button. This setup uses JavaScript to handle message submission and display the response from the server.
- **Styling:** The chat interface is styled to provide a clear separation between user messages and AI responses, enhancing readability.

- Past conversations i.e chat history is stored as shown in the picture below and also can be retrieved

	message_id [PK] integer	id integer	message_text text	timestamp timestamp without time zone
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3).Backend Logic:-Includes handling the login and message processing logic. It would involve authenticating users, storing session data, and managing the interaction between the user inputs and the AI responses.

3).Styling and Usability:-Both the login and chat interfaces use modern web design principles with responsive layouts. The use of CSS for backgrounds, buttons, and forms ensures that the application is visually appealing and functional across different devices and browsers.

Overall Functionality:

- The application provides a secure and user-friendly environment for users to interact with an AI model offline.
- It uses modern web technologies to ensure a smooth user experience while maintaining a stylish interface.

Summary

This project aims to make AI interactions accessible anywhere, anytime, by removing the dependency on internet connectivity. It showcases the integration of front-end and back-end technologies to deliver a seamless and functional user experience in offline settings.

This setup is ideal for environments where internet access is unreliable or non-existent, providing users with continuous access to AI-driven chat functionalities.