Word Finder Assignment Report

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Problem: Create a REST API that takes in multiple paragraphs of text as input, stores each paragraph and the words to paragraph mappings on a postgreSQL database.

Software Stack:

- Server – Node.js, Express.js
- Database – PostgreSQL
- Dependencies – pg, nodemon, jsonwebtoken, dotenv, bcrypt

NOTE: This assignment exclusively contains backend functionality as the frontend was not requested. Additionally, this assignment is not based on Django Rest Framework and does not use Docker and Docker-compose since I am not yet familiar with them.

Process:

1) Setting up Environment and Tools:
    a. Installed Node.js and npm (Node Package Manager).
    b. Installed PostgreSQL and set up a database.
    c. Initialized Node.js Project:

2) Creating a new directory for the project:
    a. Run npm init to initialize a new Node.js project.
    b. Install necessary dependencies like Express, pg (PostgreSQL client), jsonwebtoken (for JWT authentication), etc.
    c. Create PostgreSQL Database: 'WordFinder'

3) Using PostgreSQL to create database tables:
    a. Create tables for user data and paragraph data and word mapping:
        i. Users
        ii. Paragraphs
        iii. Word_paragraph_mapping

4) Connect database with the server

5) Setting up RESTAPIs methods:

    a. Routes for users-signup, login, logout
    b. Routes for paragraphs – CRUD operations,
    c. Route for multiple paragraphs in single input
    d. Route for searching word

6) Middleware Implementation:

a. Middleware implementation using JWT for user authentication
b. Middleware implementation for handling server errors

7) Controllers for each routes.

8) Storing Multiple Paragraphs from single input functionality :

the createParagraphBatch function receives a batch of paragraphs, inserts them into a database, maps each word within those paragraphs to another table, and then sends a success response. It handles any errors that occur during the process.

The splitting of paragraphs is handled by the splitIntoParagraphs function, which takes a block of text as input and splits it into individual paragraphs. It does this by using the \n\n delimiter, which represents two consecutive line breaks in the text. Each paragraph is then trimmed to remove any leading or trailing whitespace. This process ensures that each paragraph is extracted accurately from the input text.

9) Mapping words in database functionality:

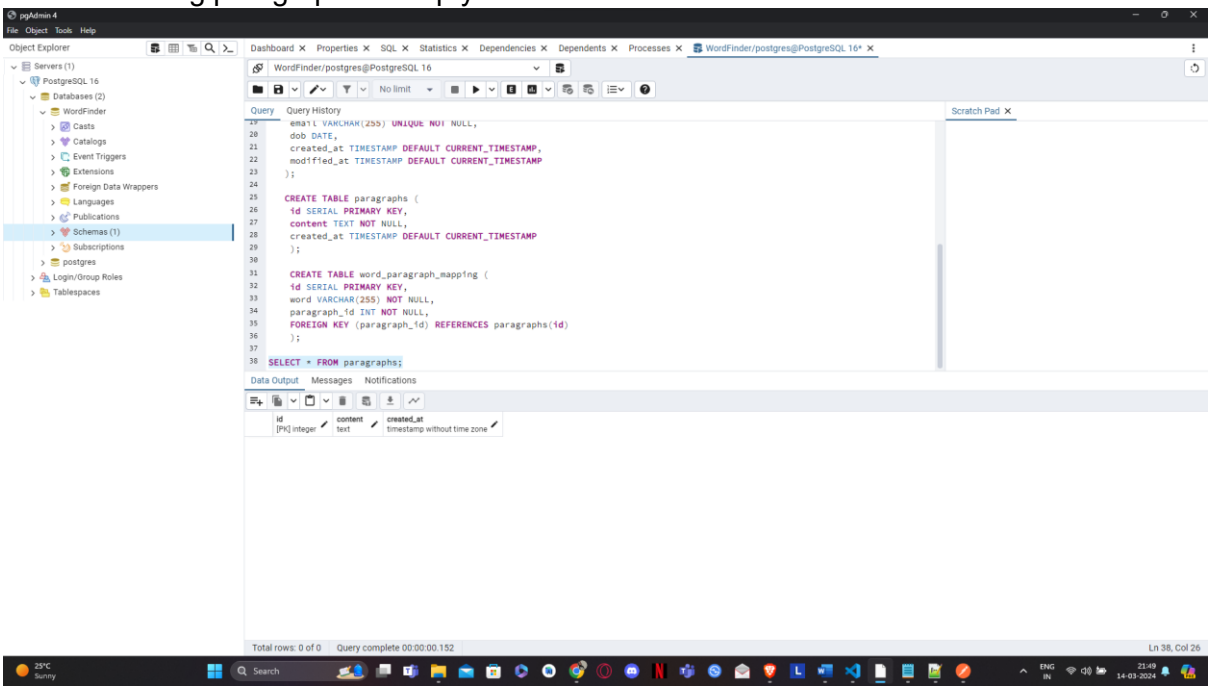
he function mapWordsToParagraphs retrieves all paragraphs from the database and iterates over each paragraph. For each paragraph, it splits the content into individual words using a regular expression \s+ to match one or more whitespace characters. Then, it iterates over each word and inserts it along with the paragraph ID into the word_paragraph_mapping table in the database.

10) Testing all the endpoints using POSTMAN

Demo:

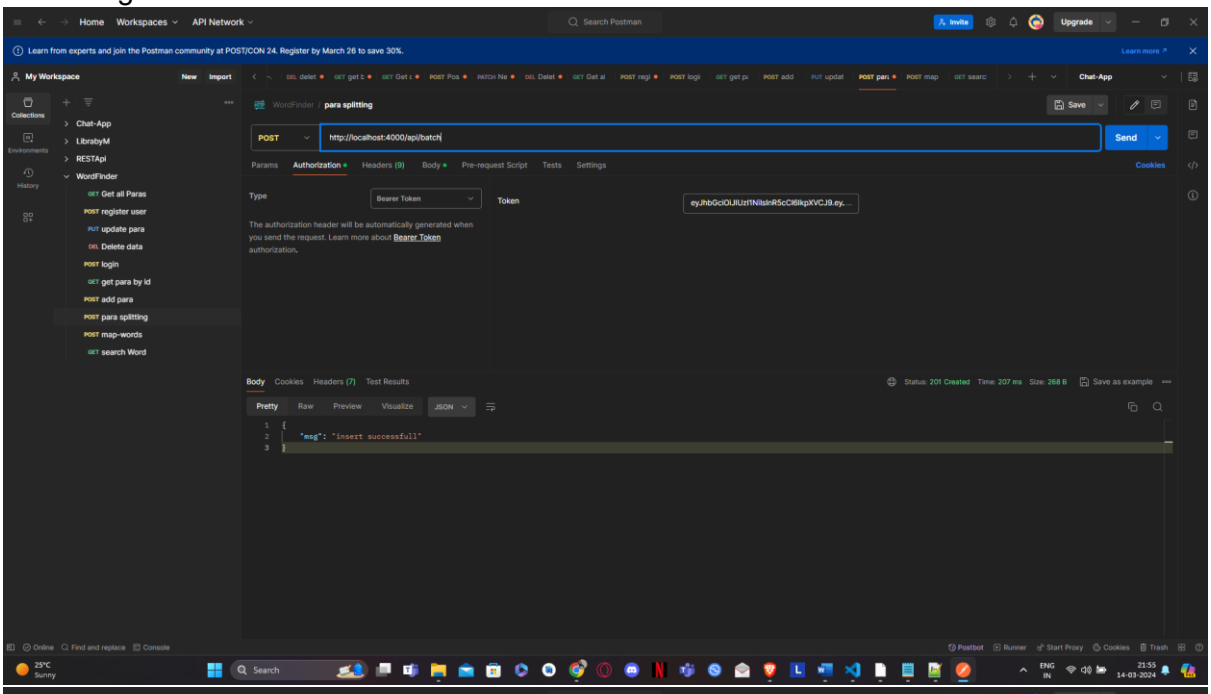
1) Adding Paragraphs:

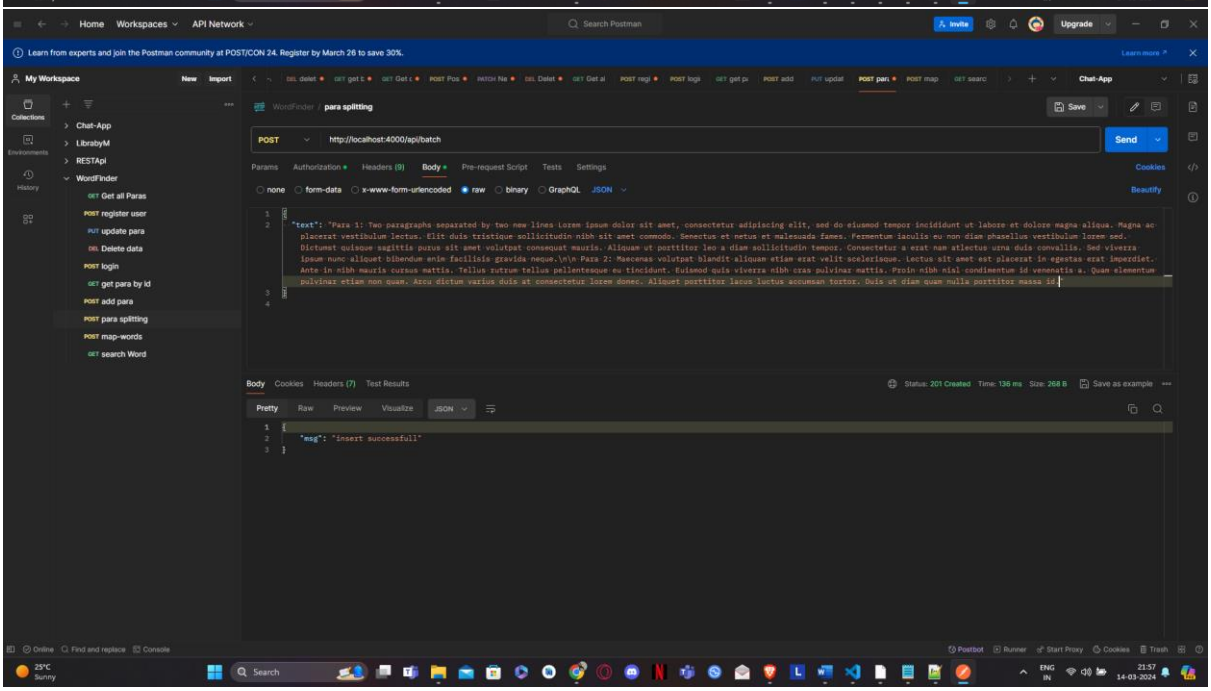
before inserting paragraphs – empty table



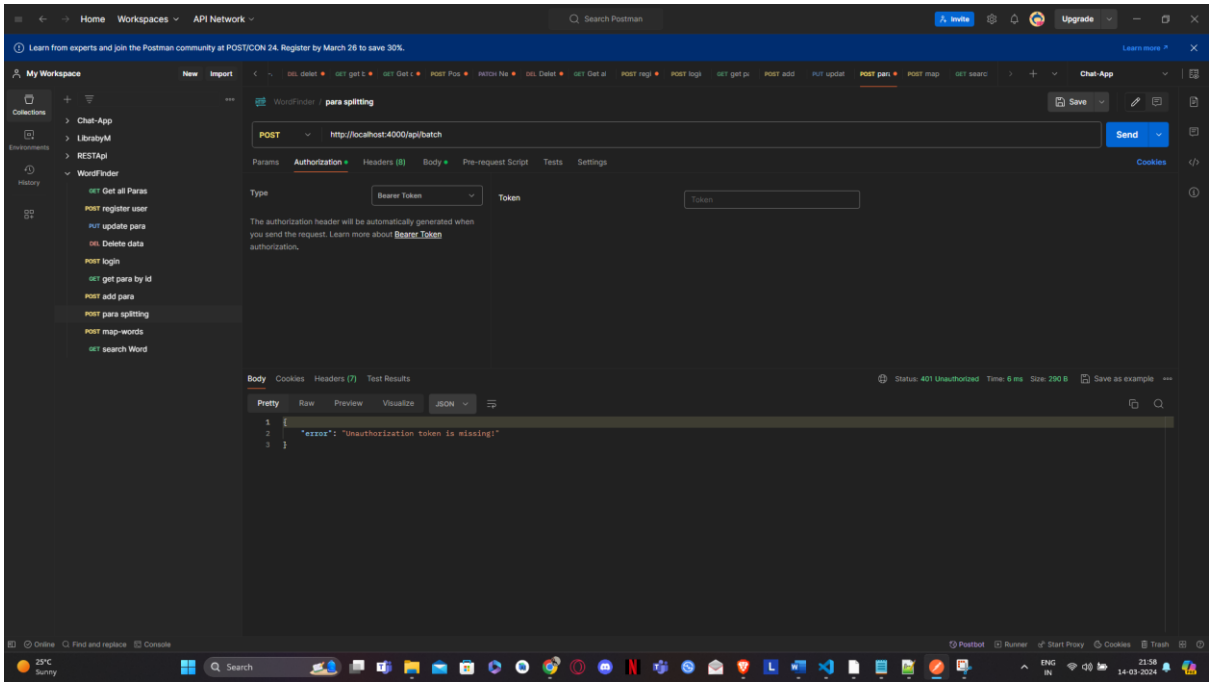
inserting paragraphs through endpoints using postman

with using bearer token:

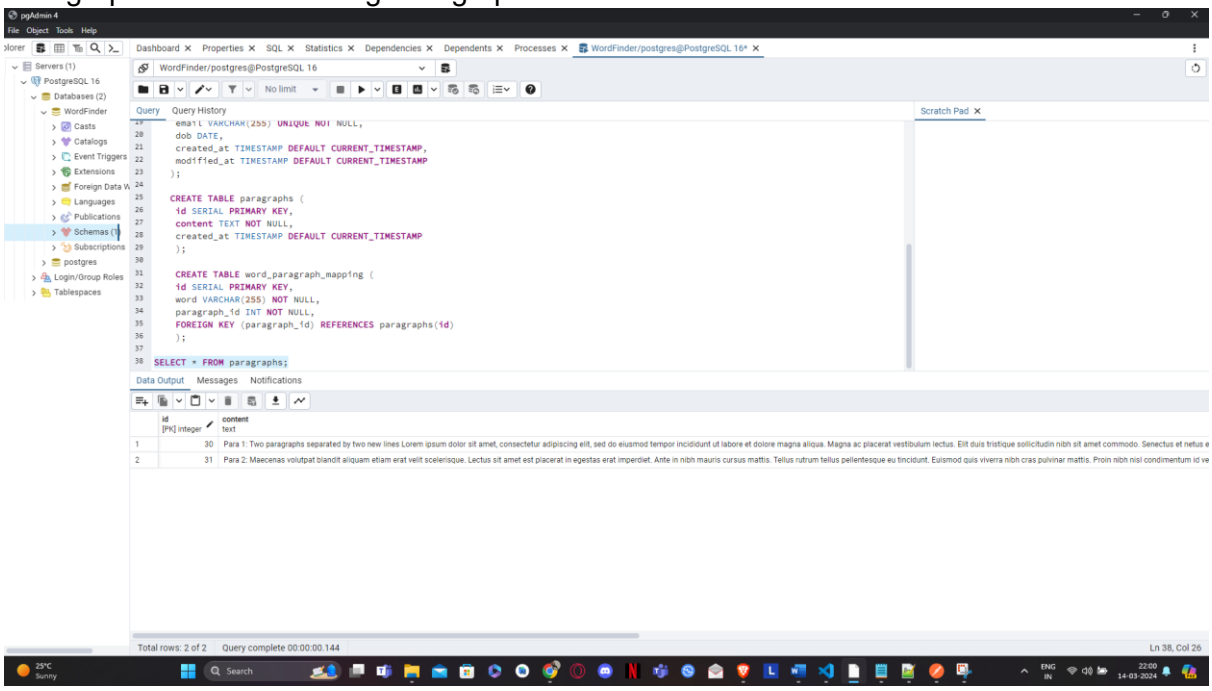




Usinging without bearer token:



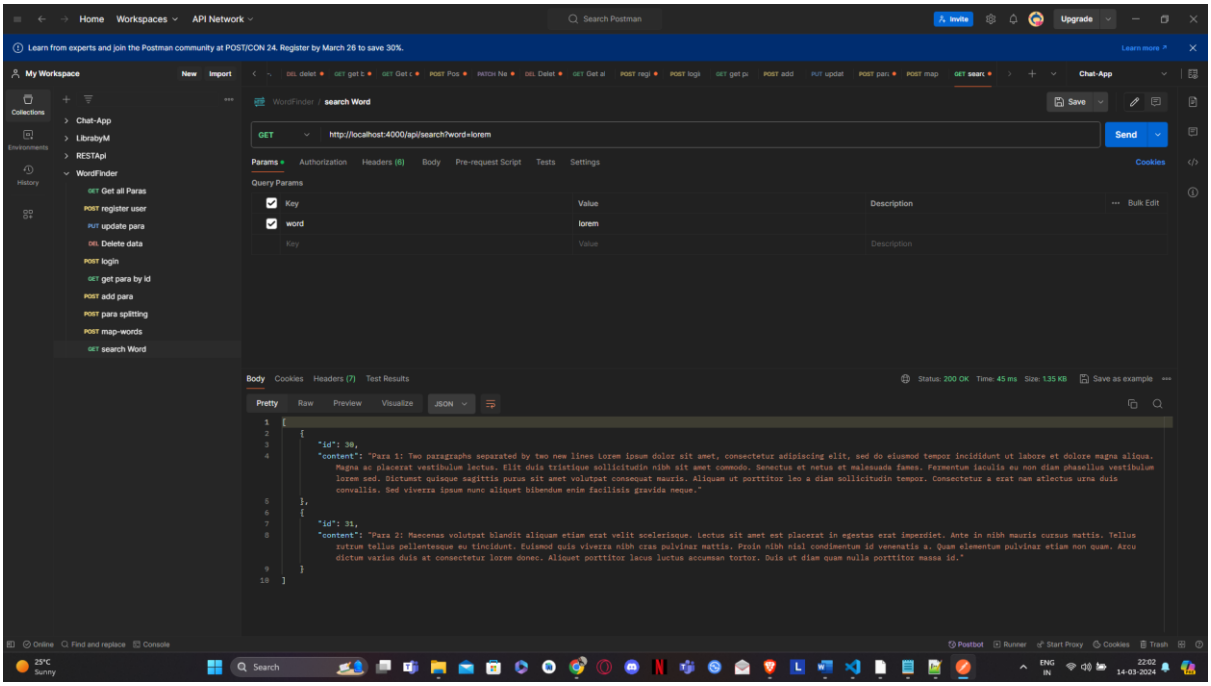
Paragraph Table after adding Paragraphs:



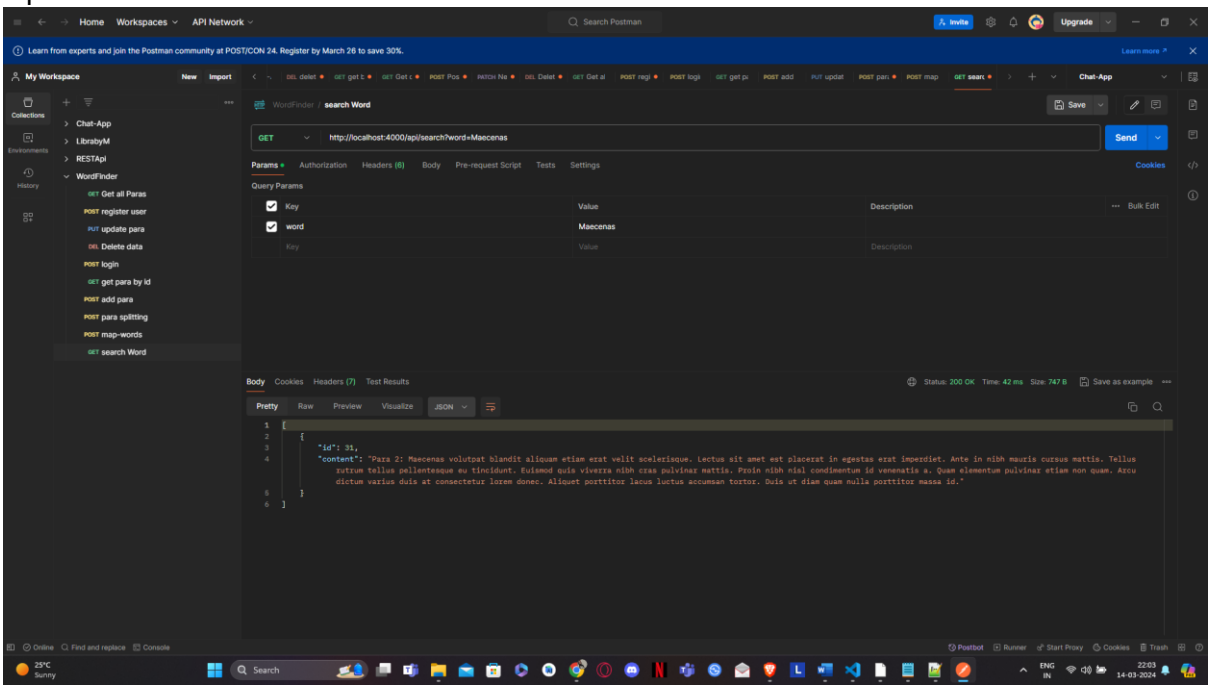
2) Searching Words:

Using Postman to take query parameter to return Paragraphs:

input: lorem:

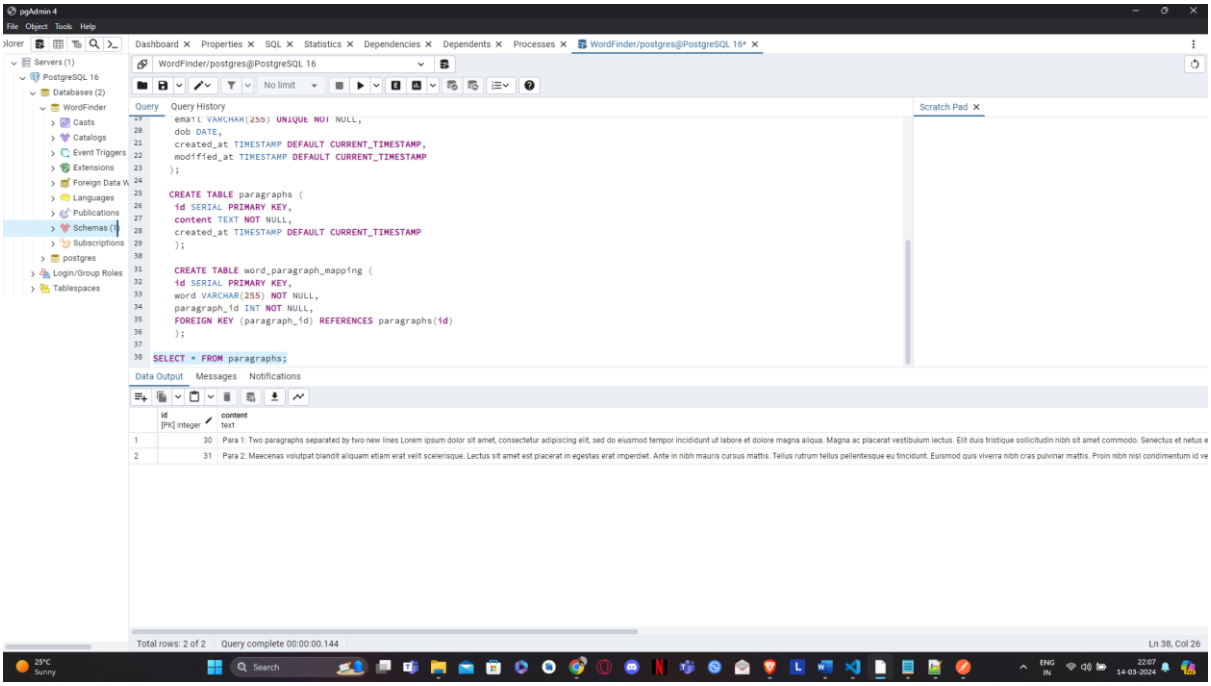


input: - Maecenas:

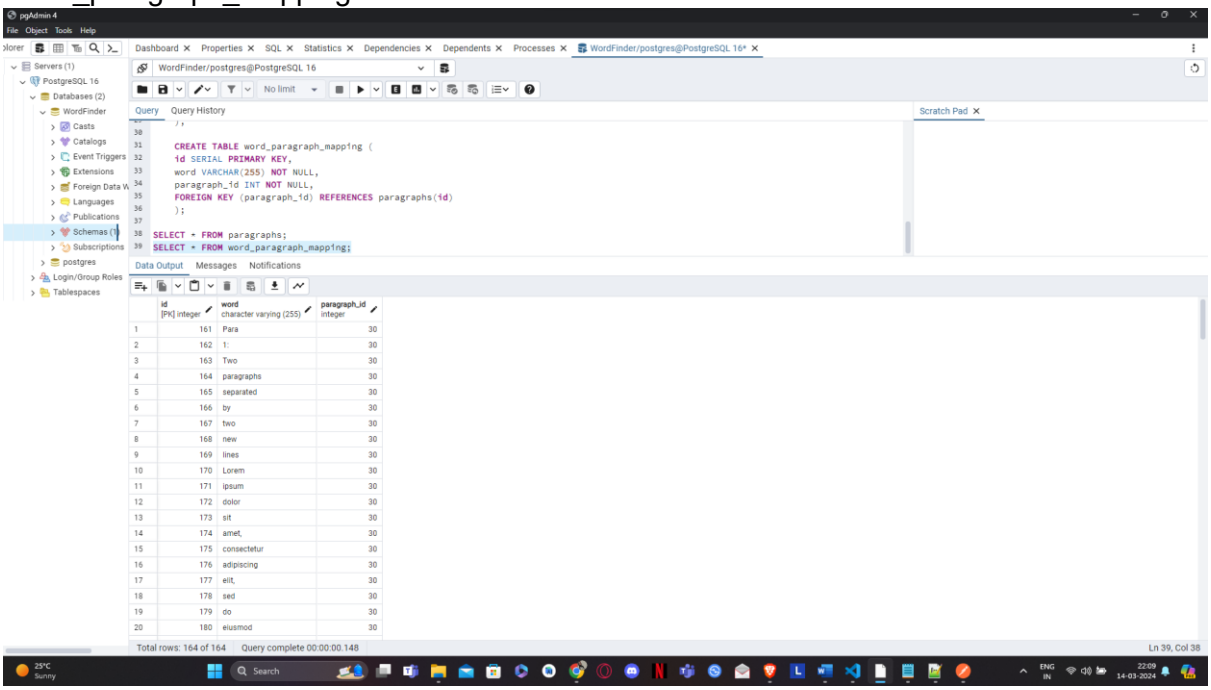


Tables:

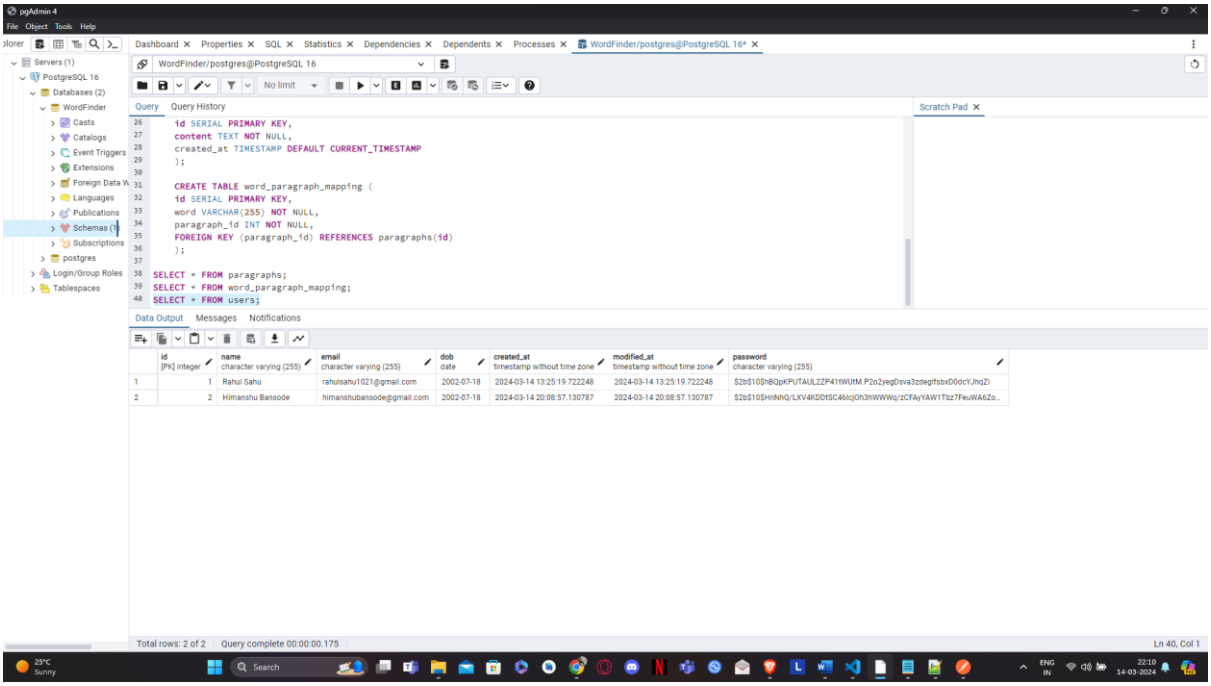
Paragraph table:



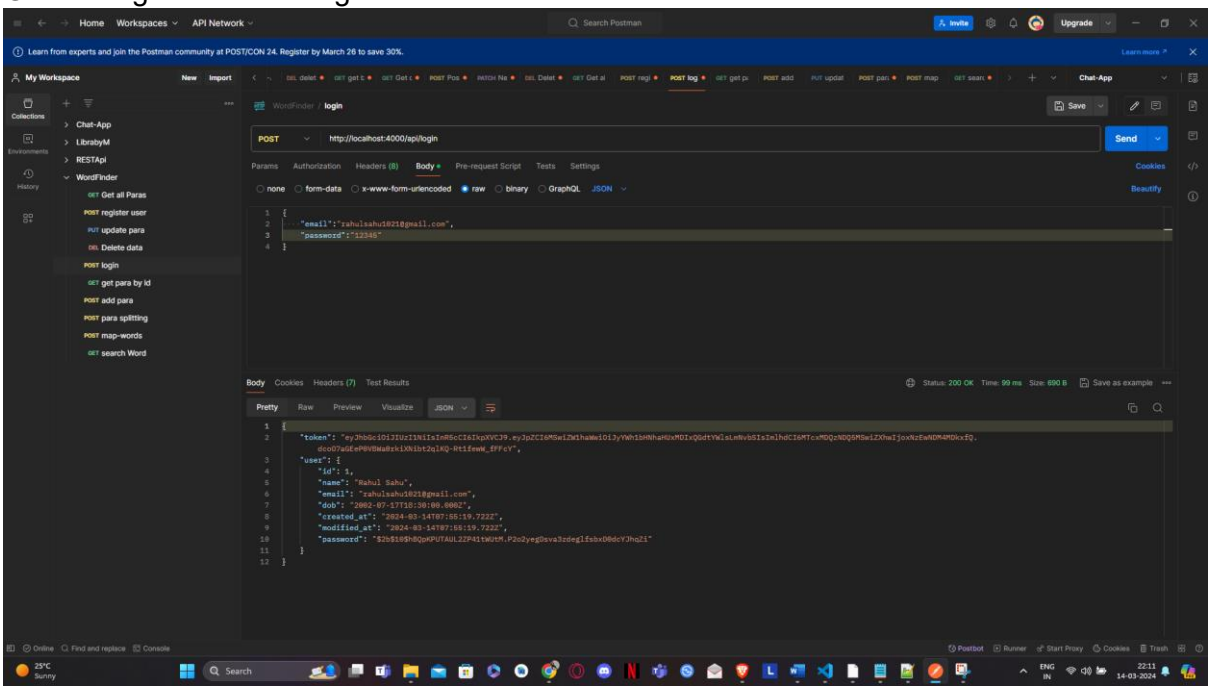
Word_paragraph_mapping table:



Users table:



Generating token while login:



Conclusion:

I have successfully demonstrated the primary purpose of the program. Additionally, there are several more methods that can be thoroughly reviewed through the code.