

Personalized Book Recommendation System

Aim:

The aim of this project is to create a personalized book recommendation system that suggests books to users based on their reading preferences. The system will use a combination of natural language processing and machine learning algorithms to analyze user data and provide personalized recommendations.

Introduction:

The personalized book recommendation system is a web-based application that allows users to input their reading preferences and receive personalized book recommendations. The system uses a combination of natural language processing and machine learning algorithms to analyze user data and provide recommendations. The system is designed to be user-friendly and easy to use, with a simple and intuitive interface.

Services Used:

AWS EC2: Amazon Web Services Elastic Compute Cloud (EC2) is a web service that provides resizable compute capacity in the cloud. It is used to host the web application and provide a scalable infrastructure for the system.

AWS Lambda: AWS Lambda is a serverless compute service that allows developers to run code without provisioning or managing servers. It is used to analyze user data and provide personalized recommendations.

AWS DynamoDB: AWS DynamoDB is a fast, fully managed NoSQL database service that is designed for large-scale applications. It is used to store user data and book metadata.

Apache HTTP Server: Apache HTTP Server is a free and open-source web server software that is widely used for hosting websites and web applications. It is used to serve the web application and provide a user-friendly interface.

Project Steps Workflow:

Step 1: Launch an EC2 Instance and Install Dependencies

Launch an EC2 instance with the necessary dependencies, including Apache HTTP Server and AWS CLI.

Configure the EC2 instance to allow incoming traffic on port 80 (HTTP) and port 443 (HTTPS).

Install the necessary dependencies, including Apache HTTP Server and AWS CLI, using the following commands:

- + `sudo yum install httpd` (to install Apache HTTP Server)
- + `sudo yum install awscli` (to install AWS CLI)

Step 2: Create a DynamoDB Table

Create a DynamoDB table to store user data and book metadata.

Define the table schema, including the primary key, secondary indexes, and attribute definitions.

Use the AWS CLI to create the DynamoDB table, using the following command:

```
+ `aws dynamodb create-table --table-name UserTable --attribute-definitions AttributeName=id,AttributeType=S --key-schema AttributeName=id,KeyType=HASH --provisioned-throughput ReadCapacityUnits=1,WriteCapacityUnits=1`
```

Step 3: Create a Lambda Function

Create a Lambda function to analyze user data and provide personalized recommendations.

Define the function code, including the programming language, handler function, and dependencies.

Use the AWS CLI to create the Lambda function, using the following command:

```
+ `aws lambda create-function --function-name RecommendBooks --runtime python3.8 --role lambda-execution-role --handler lambda_function.handler --zip-file fileb://lambda_function.py`
```

Step 4: Configure the Lambda Function

Configure the Lambda function to trigger on user input and provide recommendations.

Define the function's event source, including the event type, event pattern, and event handler.

Use the AWS CLI to configure the Lambda function, using the following command:

```
+ `aws lambda create-event-source-mapping --function-name RecommendBooks --event-source-arn arn:aws:iam::123456789012:event-source/RecommendBooks`
```

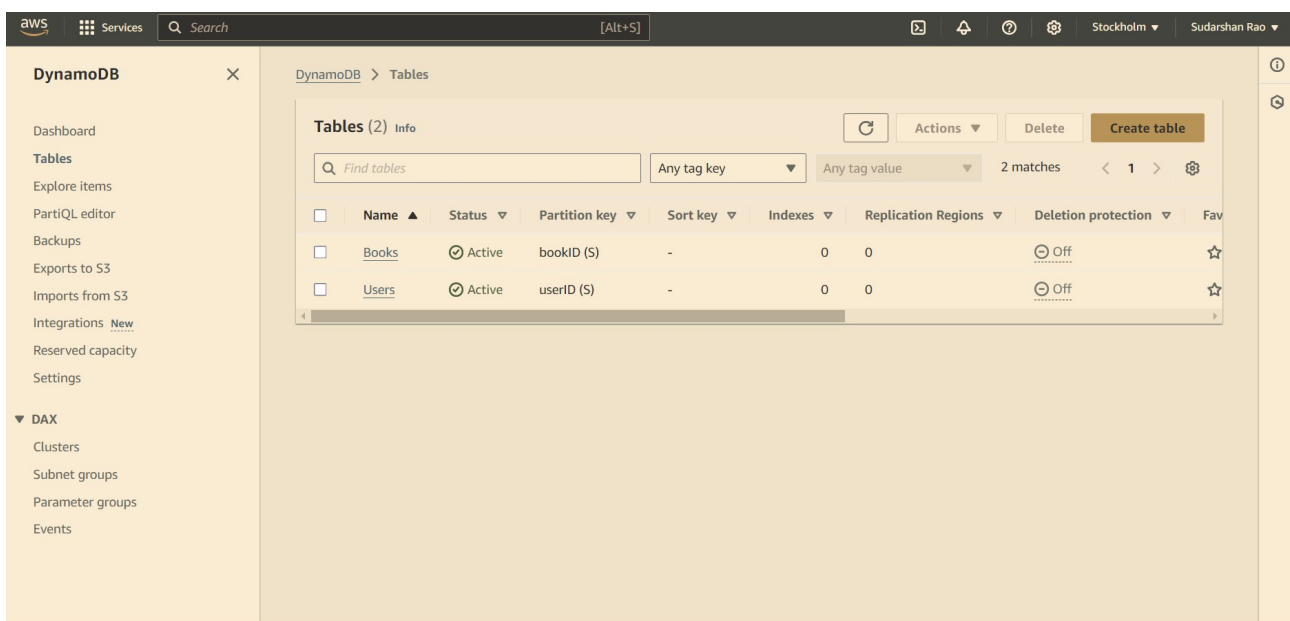
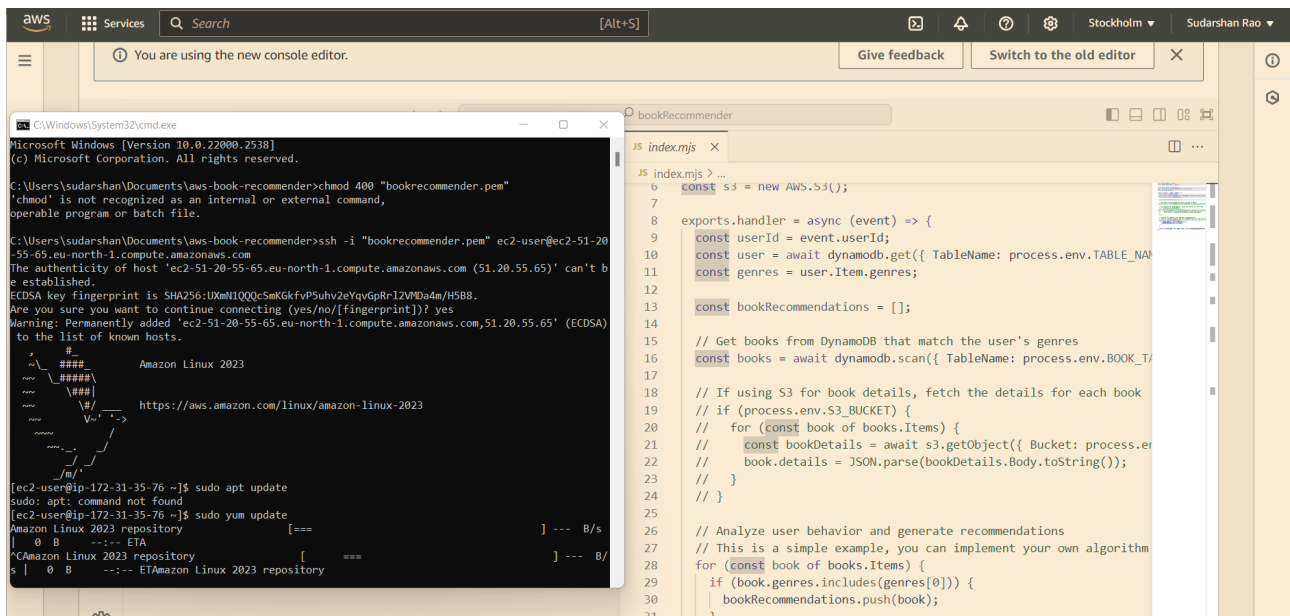
Step 5: Test the System

Test the system to ensure that it is working as expected.

Use the Apache HTTP Server to serve the web application and provide a user-friendly interface.

Test the system using a web browser, by navigating to the EC2 instance's public IP address and inputting user data.

Images:



Conclusion:

The personalized book recommendation system is a web-based application that uses a combination of natural language processing and machine learning algorithms to provide personalized book recommendations to users. The system is designed to be user-friendly and easy to use, with a simple and intuitive interface. The system uses a combination of AWS services, including EC2, Lambda, and DynamoDB, to provide a scalable and reliable infrastructure. The project workflow involves launching an EC2 instance, creating a DynamoDB table, creating a Lambda function, configuring the Lambda function, and testing the system.