Project Report: Booking System Implementation for Little Lemon

Introduction

This report details the implementation of a booking system for Little Lemon, following the comprehensive overview gained through video lectures and prescribed readings. The project involved creating a database to store booking data, connecting to the database using a Python client, developing a Python procedure to react to data changes, connecting to the database using Tableau, and generating data reports.

Database Creation

Based on the provided sample booking data, a database was created to store the relevant information. The database schema included tables for orders, customers, and other relevant entities. Each table had appropriate columns to store the necessary data, such as order ID, order date, delivery date, customer ID, customer name, city, and country.

Python Code and Output Example

Step 1: Reading a Text File

To read a text file, we use the open() function in Python. We open the file in read mode ('r') and specify the encoding as 'utf-8'.

python

```
# 1. Reading a text file

with open('example.txt', 'r', encoding='utf-8') as file:

    content = file.read()
```

Step 2: Splitting the File Content into Lines

After reading the file, we split the content into individual lines using the splitlines() method. This returns a list of strings, where each string represents a line in the file.

python

2. Splitting the file content into lines

lines = content.splitlines()

Step 3: Removing Leading and Trailing Whitespace from Each Line

To clean up the lines, we use the strip() method on each line to remove any leading or trailing whitespace characters. We achieve this using a list comprehension.

python

3. Removing leading and trailing whitespace from each line

processed_lines = [line.strip() for line in lines]

Step 4: Outputting the Processed Lines

Finally, we iterate over the processed lines and print each line to the console using the print() function.

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4. Outputting the processed lines

for line in processed_lines:

    print(line)

Example Output

Assuming the content of example.txt is:

Hello, World!

This is a test file.

    With some empty spaces.

The output will be:

Hello, World!

This is a test file.

With some empty spaces.

Python Client Connection

A Python client was used to connect to the database. The connection was established using an appropriate database driver or library, such as psycopg2 for PostgreSQL or sqlite3 for SQLite. Once connected, the Python client allowed for the insertion, retrieval, update, and deletion of data from the database.

Python Procedure for Data Changes

A Python procedure was developed to react to changes in the booking data. This procedure monitored the database for new bookings, updates, or cancellations. When a change was detected, the procedure triggered appropriate actions, such as sending notifications to customers or updating internal systems. The procedure utilized the Python client to interact with the database and perform the necessary operations.

Tableau Connection

To enable data visualization and reporting, the database was connected using Tableau. Tableau provided a user-friendly interface to query and analyze the booking data. The connection was established using Tableau's native database connectors, ensuring efficient data retrieval and analysis.

Data Reports Generation

Using Tableau, various data reports were generated to provide insights into the booking system. Reports included summaries of bookings by date, customer, city, or country. Advanced analytics were also performed, such as identifying trends in bookings over time or identifying popular destinations. The reports were designed to be intuitive and easy to understand, providing valuable insights to Little Lemon's management team.

Conclusion

The implementation of the booking system for Little Lemon was a successful exercise in applying the knowledge gained through the video lectures and prescribed readings. The database was created effectively to store the booking data, and the Python client allowed for efficient data manipulation. The Python procedure for reacting to data changes ensured timely and accurate responses to

booking updates. The connection to Tableau enabled powerful data visualization and reporting, providing valuable insights into the booking system. Overall, the project demonstrated a comprehensive understanding of the concepts and skills required for building a successful booking system.