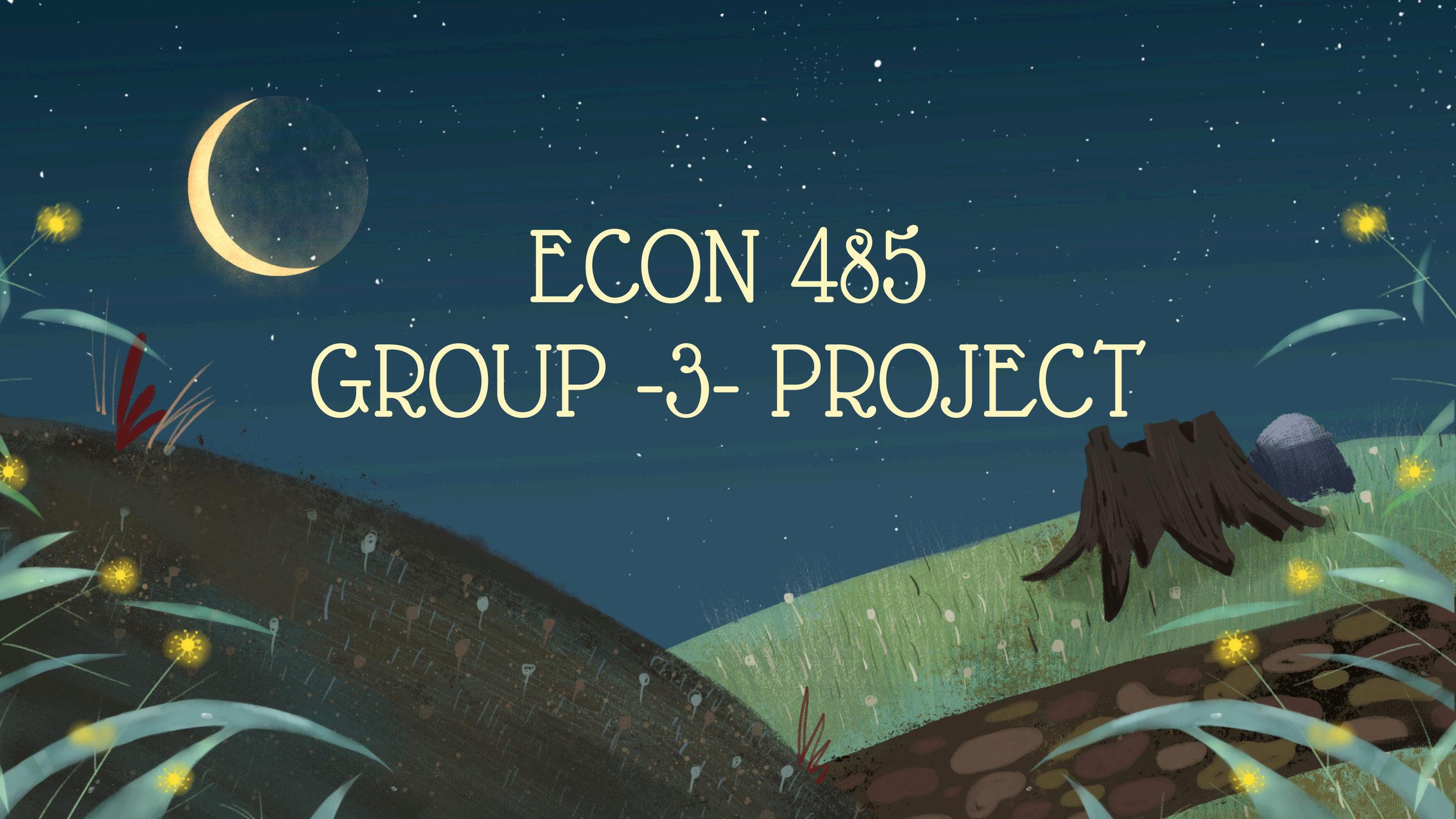
ECON 485
GROUP -3- PROJECT

# Team Members

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# Content

- Higher visitor spending directly increases regional tourism revenue
- Seasonal peaks in tourism activity indicate periods of temporary employment growth
- Regions with longer average hotel stays show stronger local economic circulation
- Spending patterns (food, transport, shopping) reflect the diversification of local economies
- Data-driven insights support targeted tourism and investment policies

# Introduction

Tourism plays a vital role in regional and national economies by generating revenue, creating employment, and supporting local businesses. Understanding tourism revenue and visitor trends is therefore essential for effective planning and policy-making. This project focuses on designing a relational database system that enables a tourism board or local authority to systematically track visitor numbers, hotel stays, and spending patterns across different regions. By organizing tourism-related data in a structured and reliable way, the system aims to support data-driven decision-making and economic analysis.

# Background

With the growth of tourism activities, large volumes of data related to visitors, accommodations, and expenditures are generated. However, without a well-designed database, this information may remain fragmented, redundant, or difficult to analyze.

Tourism authorities increasingly rely on digital database systems to monitor regional performance, identify seasonal trends, and evaluate economic impacts. Relational databases, supported by normalization principles and SQL-based reporting, provide an effective solution for managing complex tourism data involving multiple entities and relationships.

# Problems

One of the main challenges in tourism data management is the lack of an integrated structure that connects visitors, hotels, regions, and expenditures in a meaningful way. Poorly designed systems often suffer from data redundancy, inconsistent records, and limited analytical capabilities. Additionally, without proper relationships between entities, it becomes difficult to generate reliable reports such as average spending per visitor or peak tourism periods. Another challenge is ensuring data quality while incorporating AI-assisted tools, which may produce incorrect or misleading outputs if not carefully verified.

# Goals

- The primary goal of this project is to design a normalized relational database that accurately represents tourism activities and supports economic analysis. Specifically, the project aims to:

  - Track visitor numbers, hotel stays, and expenditures by region
  - Establish clear one-to-many (1-N) relationships between entities
  - Eliminate data redundancy through Third Normal Form (3NF) design
  - Enable the generation of meaningful SQL-based reports
  - Demonstrate the responsible use of AI tools to support, but not replace, human judgment
  -

# Theory

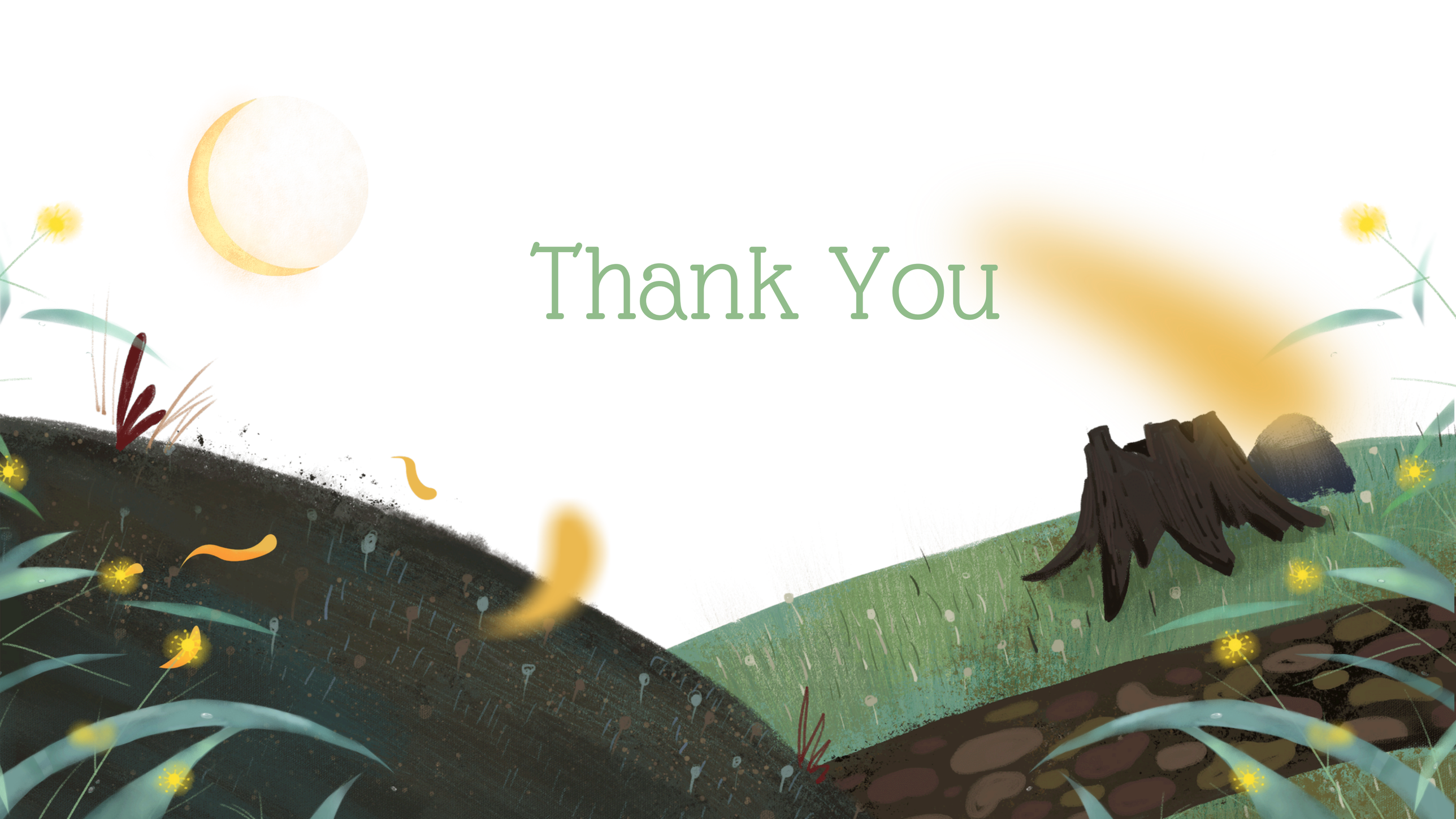
This project is grounded in relational database theory and normalization principles. The database is designed according to the Third Normal Form (3NF), ensuring that each table contains only attributes directly related to its primary key. One-to-many relationships are used to reflect real-world tourism structures, such as regions containing multiple hotels and hotels hosting multiple visits. Entity-Relationship (ER) modeling is applied to visualize these connections clearly. From an economic perspective, the project is informed by tourism economics theory, which emphasizes visitor spending, seasonality, and regional economic impact as key indicators of tourism performance.

# Discussion

The database consists of five main tables: Regions, Hotels, Tourists, Visits, and Expenditures. These tables are connected through logical and efficient relationships that reflect real tourism behavior. The ER diagram was created using dbdiagram.io and implemented in MariaDB, where the schema was tested using sample data. AI tools such as ChatGPT and SQLAI were used to generate and refine SQL queries. However, all AI-generated outputs were manually verified, corrected when necessary, and documented to highlight both correct and incorrect results. This process demonstrates a critical and transparent approach to AI-assisted development. The current database successfully supports sample queries and lays the foundation for more advanced reporting.

# Conclusion

This project demonstrates how a well-structured relational database can support the analysis of tourism revenue and visitor trends. By integrating data on regions, hotels, tourists, visits, and expenditures, the system enables meaningful insights into tourism activity and its economic implications. The use of normalization ensures data consistency and reliability, while SQL-based reporting supports practical decision-making. In future stages, the project will generate reports such as total revenue by region, average spending per visitor, and peak tourism months. With additional economic indicators or expanded datasets, the system could become an even more powerful tool for tourism planning and policy analysis.


Thank You