LIBRARY BOOK RECOMMENDATION SYSTEM

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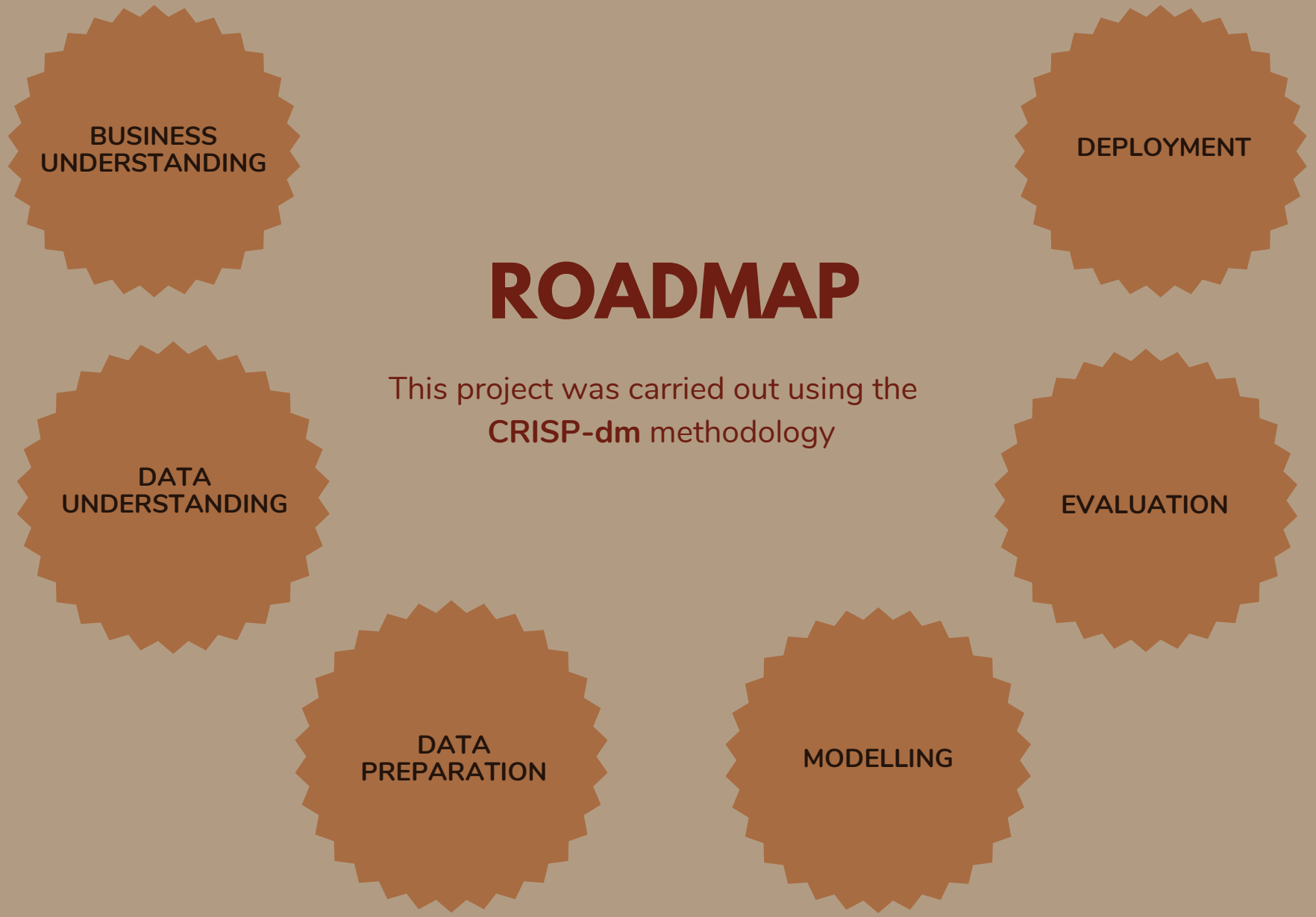

BUSINESS UNDERSTANDING
DEPLOYMENT
ROADMAP
This project was carried out using the **CRISP-dm** methodology
DATA UNDERSTANDING
EVALUATION
DATA PREPARATION
MODELLING

OVERVIEW

Libraries are valuable when looking for information on a particular topic or subject.

An information filtering technique that presents books according to user preferences ensures increase in library book circulation.

PROBLEM STATEMENT

Libraries often suffer from information overload due to the sheer number of books they hold. This leads to poor utilization of resources and makes it difficult and overwhelming for library users, our stakeholders, to navigate through. To overcome this challenge, incorporating a library book recommendation system is essential as it would enable users to quickly find relevant books and make the most of the library resources.

BUSINESS OBJECTIVES

Apply **Natural Language Preprocessing** on book description for implementation in the system

Develop a library book recommendation system using different approaches

Deploy the recommendation system using **Streamlit**

DATA UNDERSTANDING

BOOKS.CSV
(271,044 BOOKS)

ISBN

TITLE

AUTHOR

PUBLISHER

PUBLICATION YEAR

USERS.CSV
278,858 USERS

USER_ID

LOCATION

AGE

RATINGS.CSV
(1,149,780 RATINGS)

USER_ID

ISBN

RATINGS

BOOKS-EXTRA.CSV
271,044 BOOKS

DESCRIPTION

CATEGORIES

LANGUAGE

PAGE COUNT

DATA PREPARATION

THE DATASETS WERE PREPARED FOR ANALYSIS BY IMPLEMENTING THE FOLLOWING PROCESSES

SELECTING

THE DATA TO BE USED

CLEANING

THE DATA TO CORRECT AND REMOVE ERRONEOUS VALUES

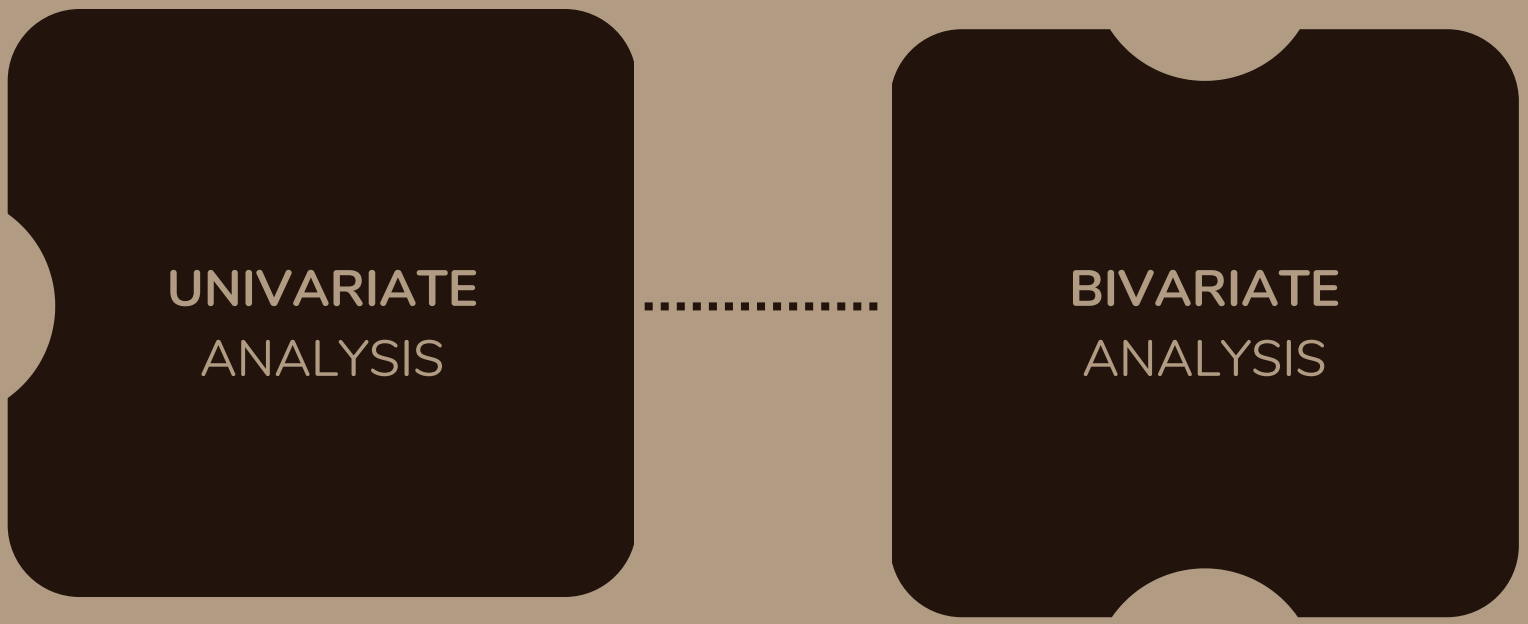
FORMATTING

THE DATA TO PERFORM MATHEMATICAL OPERATIONS

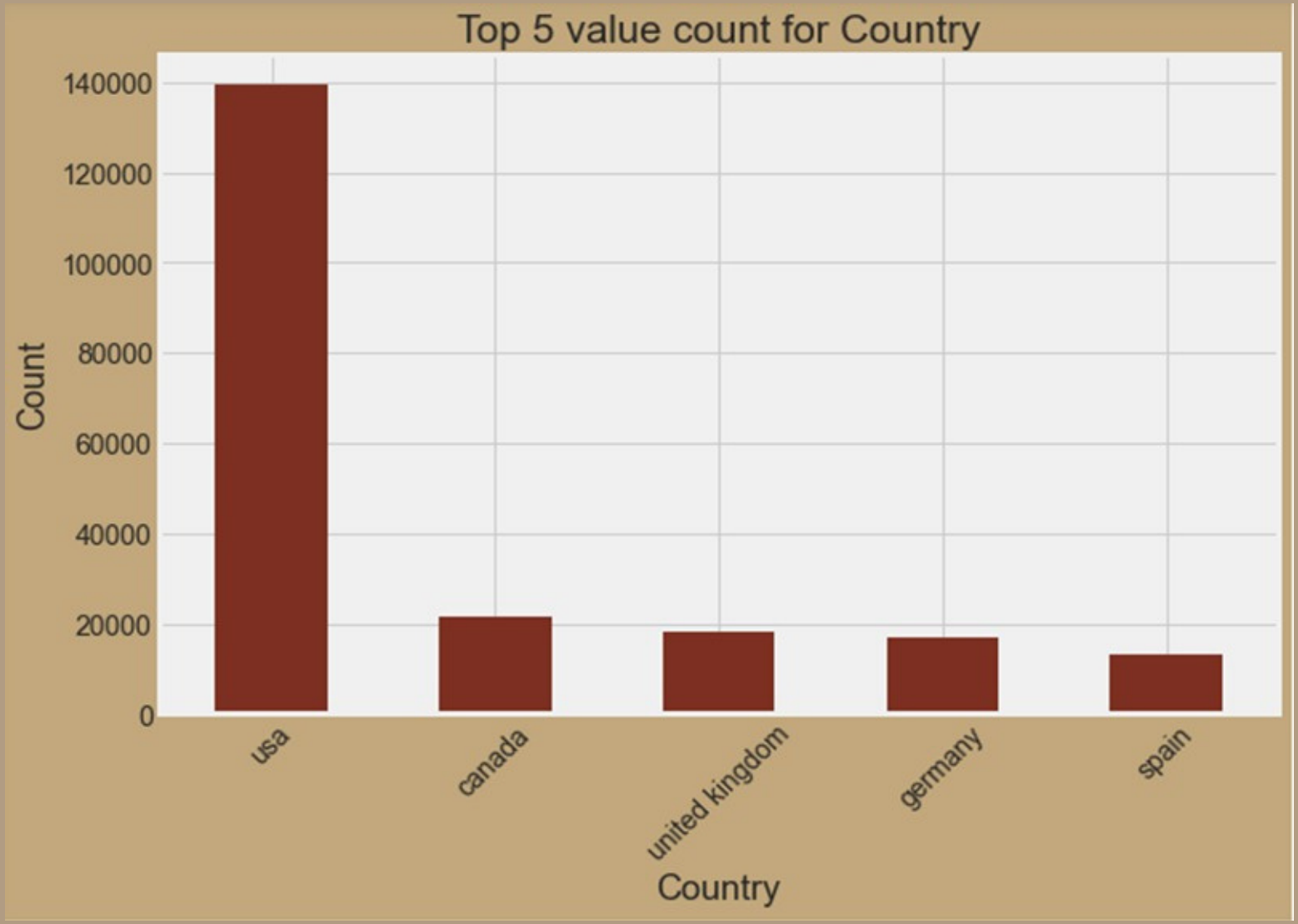
INTEGRATING

THE DATASETS TO CREATE A MERGED DATASET

EXPLORATORY DATA ANALYSIS

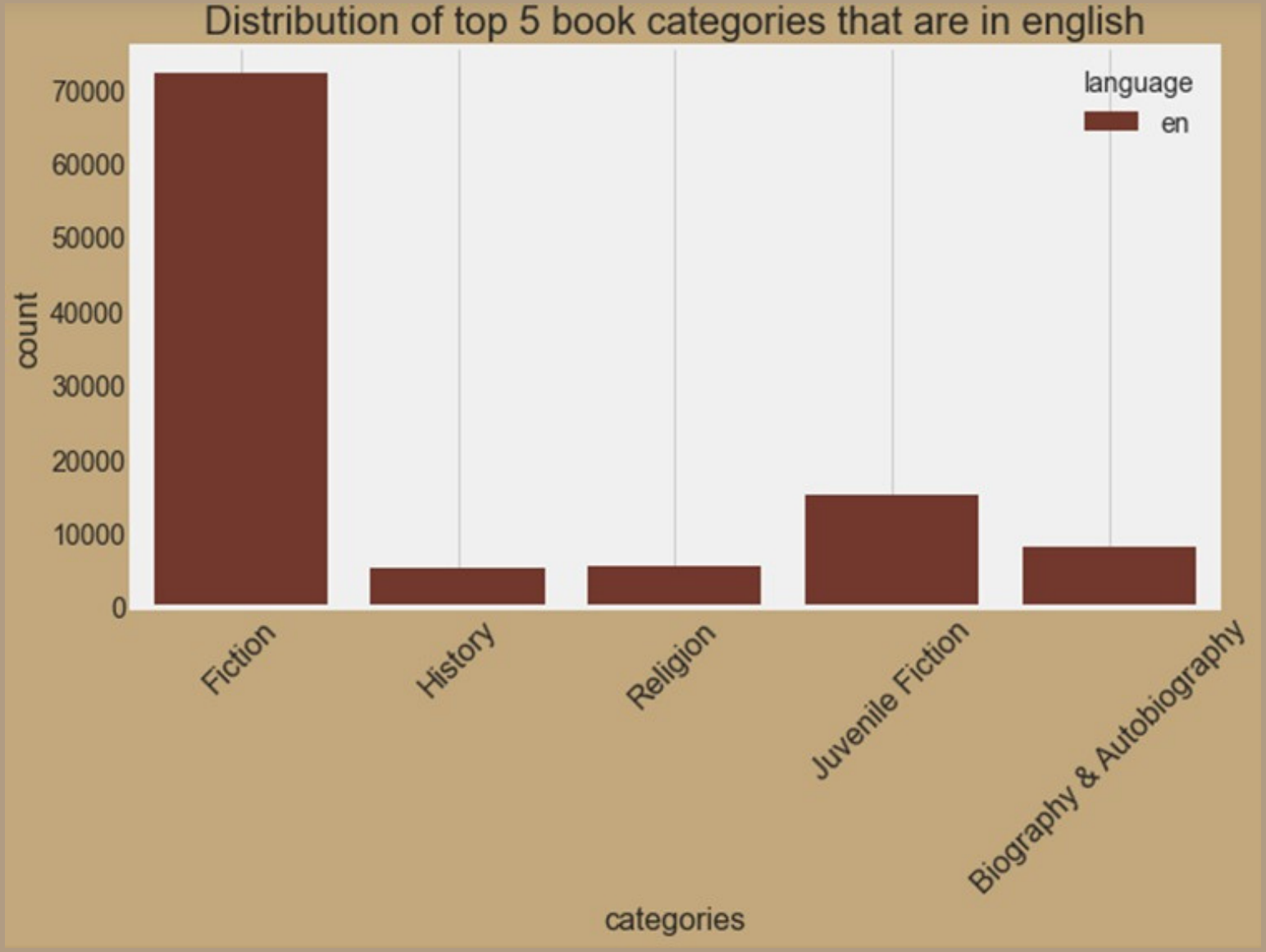


UNIVARIATE ANALYSIS OF THE LIBRARY USERS PER COUNTRY



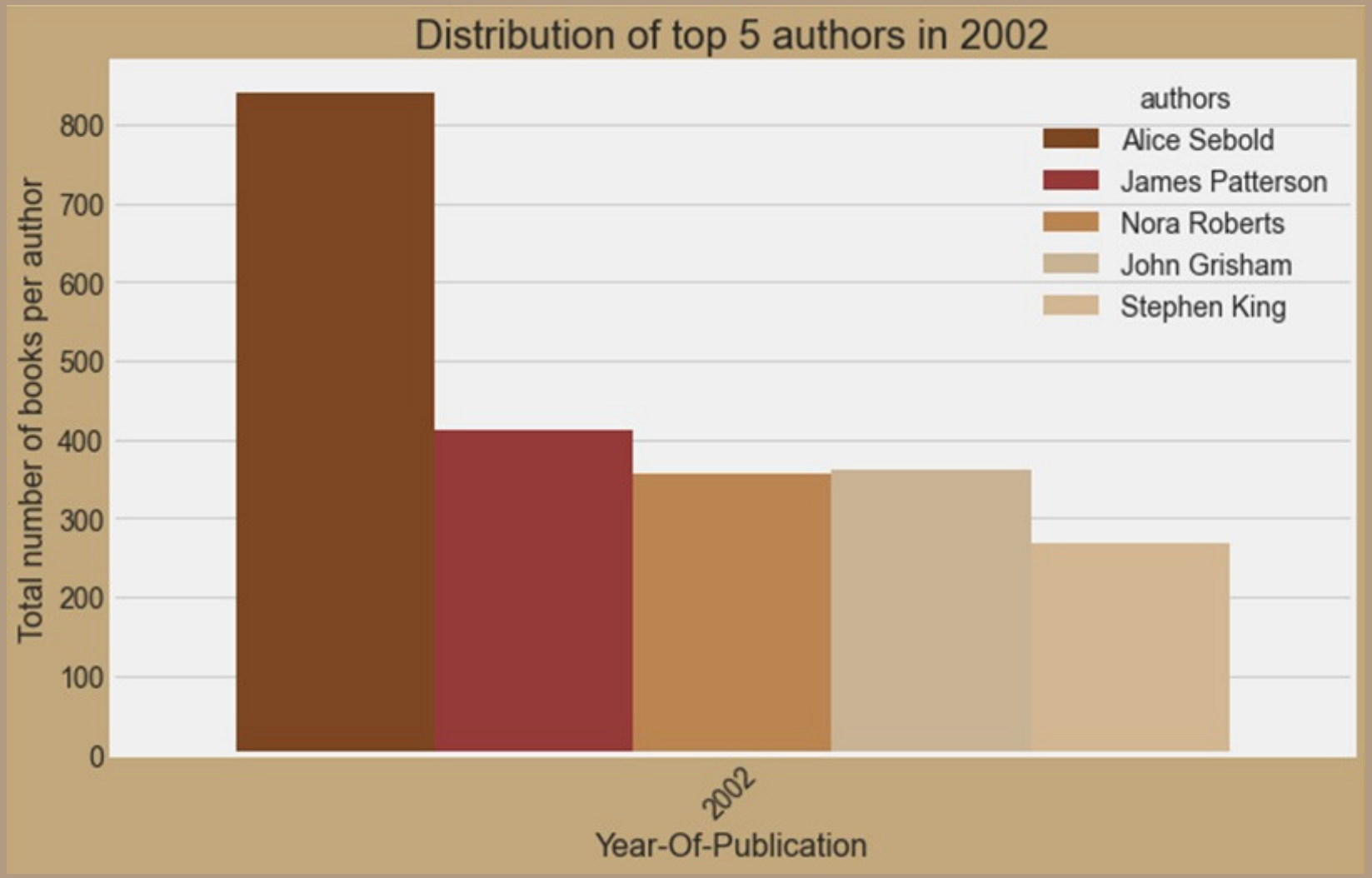
THE MAJORITY OF LIBRARY USERS ARE BASED IN THE **USA**.

UNIVARIATE ANALYSIS OF THE BOOK CATEGORIES



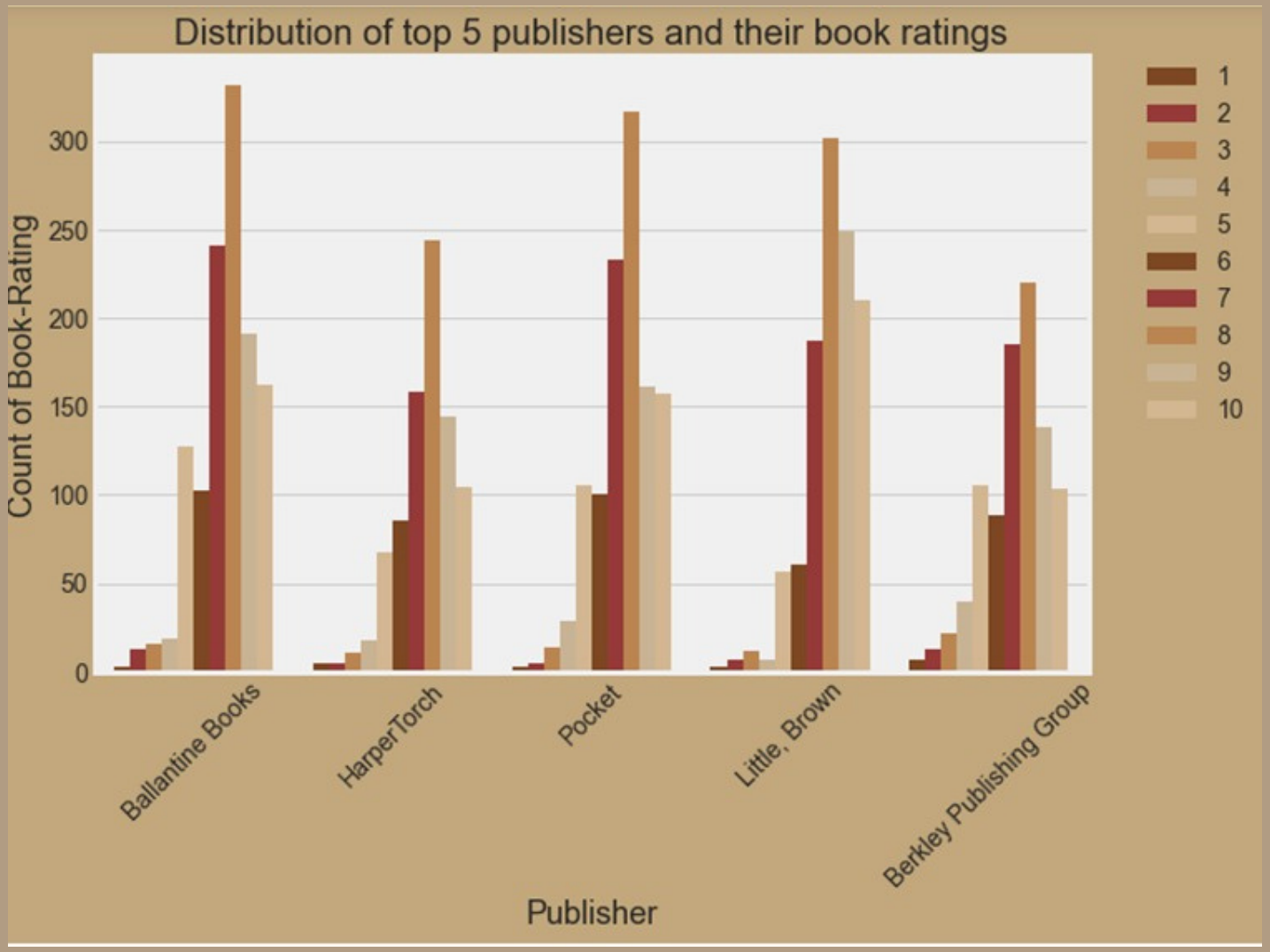
THE MOST PREFERRED ENGLISH BOOK CATEGORY IS **FICTION** WITH **70,000 BOOKS**

BIVARIATE ANALYSIS OF THE DISTRIBUTION OF BOOK AUTHORS IN 2002



THE MOST POPULAR AUTHOR IN 2002 WHEN MAJORITY OF BOOKS WERE PUBLISHED IS ALICE SEBOLD.

BIVARIATE ANALYSIS OF BOOK RATINGS PER PUBLISHER



THE MOST RECOGNIZED PUBLISHER IS BALLENTINE BOOKS WHILE THE MOST GIVEN RATING FOR VARIOUS PUBLISHERS IS 8.

MODELLING

POPULARITY-BASED SYSTEM

A system that recommends books based on the ones that are currently trending.

ITEM-BASED SYSTEM

A system that involves finding similar books based on other users' preferences

USER-BASED SYSTEM

A system that involves finding users that have rated similar content and using their preferences to recommend new items.

CONTENT-BASED SYSTEM

A system that finds the similarity in a book based on the book title, author, publisher, and book category and recommends it to a user.

HYBRID SYSTEM

A system that combines content-based, item-based, and popularity systems to recommend based on the correlation of a specified book.

EVALUATION

MEAN ABSOLUTE ERROR WAS USED TO MEASURE THE AVERAGE OF ABSOLUTE DEVIANCE BETWEEN THE ACTUAL AND PREDICTED RATINGS GIVEN BY USERS.

CONTENT-BASED	0.041
ITEM-BASED	0.019
HYBRID RECOMMENDER	0.019

THE LOWER THE MEAN ABSOLUTE ERROR AS DISPLAYED BY THE VALUES OBTAINED, THE MORE ACCURATE THE PREDICTION.

DEPLOYMENT

Azegele/**Phase-5-Project**

4 Contributors | 0 Issues | 3 Stars | 2 Forks

Phase-5-Project/index.ipynb at main · Azegele/Phase-5-Project

Contribute to Azegele/Phase-5-Project development by creating an account on GitHub.

GitHub

CONCLUSIONS

The book recommendation system increases the visibility and availability of books in a library.

The library book recommendation system is adaptive since it changes according to the preferences of a user.

The majority of library users lie between the age brackets of 20 to 30 years.

RECOMMENDATIONS

Incorporating data security and privacy measures to protect the personal details of users. This could include; encryption of personal data and strict access controls.

Incorporate more feedback channels to improve the accuracy and performance of the recommendation system. For instance; a ratings system or a comments section.

THANK YOU!

ANY QUESTIONS?