# FINAL PROJECT- TECHNICAL REPORT

## Application URL:

## <https://adt-26-frontend.onrender.com>

## Full GitHub URL:

## <https://github.com/abh1jith/adt2023_group-26/tree/main>

Project Summary:

The focus is put on developing a database application, Rate-My-Reads: A Book Rating Platform', with the goal of giving book lovers an in-depth understanding of worldwide fiction trends. Users of our platform will be able to seamlessly browse, rate, and discover books, benefiting from a vast repository of ratings and insights, ensuring an enriching reading experience.

Project Description:

**Team Member Details:**

* Viswa Suhaas Penugonda ([vpenugon@iu.edu](mailto:vpenugon@iu.edu))
* Abhijith Dameruppala ([adameru@iu.edu](mailto:adameru@iu.edu))
* Fhariya Aseem Fathima ([fha@iu.edu](http://fha@iu.edu))

Objective:

Our objective was to develop ‘Rate-My-Reads’: A Book Rating Platform’ a database application that our team worked to establish for book enthusiasts. This platform allows users to quickly search for books they desire; read comprehensive reviews and assist them in their journey to find their next beloved read. Using the vast 'Goodreads Books' dataset on Kaggle, the application we created ensures that users never lack recommendations by offering them an in-depth review of a wide range of titles. ‘Rate-My-Reads’ ultimately hopes to become the go-to resource for readers by providing reliable ratings and a glimpse into what the world's readers value most.

Usefulness:

For every bibliophile who's ever been daunted by the task of choosing their next book, ‘Rate-My- Reads’: A Book Rating Platform' emerges as a beacon. Our application is the most helpful for avid readers, book enthusiasts, and literary explorers. The platform serves as a hub where users can explore a wide selection of books, get a sense of community sentiment through ratings, reviews and even contribute their own ratings to guide others. By leveraging the extensive 'Goodreads Books' dataset from Kaggle, we ensure that our users are presented with a wide and varied selection of literature, helping them navigate the literary world with confidence.

The interactive interface of ‘Rate-My-Reads’ is designed with the user in mind. It allows for easy searching, rating, and exploration, offering readers a visual representation of how a book is received by the public. This promotes a feeling of community among readers and helps them make well-informed reading choices.

Although there are already databases and platforms that provide book ratings and reviews, such as Goodreads and BookBub, "‘Rate-My-Reads’" stands out for its user-centric design and its exclusive concentration on ratings. Our top priority is flawless user experience, so that readers can rapidly determine a book's level of popularity and community resonance. Whether they are avid readers or casual readers, our platform is especially designed for readers who appreciate community-driven insights when making reading decisions.

Technical Description:

**Data:**

Our chosen dataset for ‘Rate-My-Reads’: A Book Rating Platform' originates from Kaggle's "Goodreads Books" collection. This dataset represents the collective insights of the Goodreads platform, a global hub for book lovers. Over the years, Goodreads users have provided ratings and other information about a wide variety of books, resulting in a dataset that illustrates the diversity and preferences in reading habits around the world. The main goal behind this dataset's curation was to offer a comprehensive view of various books, capturing intrinsic details as well as the broader reading community's sentiments.

Data set link: <https://www.kaggle.com/datasets/jealousleopard/goodreadsbooks>

We will be using ‘books.csv’ from this Kaggle Goodreads-books data set.

**Pre- Processing:**

1. Few columns were removed such as ‘Language Code’ and ‘Review count in text’ since they were deemed not necessary for our analysis and final output.
2. The main dataset file ‘books.csv’ has been split into four csv files namely Books (which consisted of information such as ID, Title, Author Names, Number of pages, and publisher information), Ratings (ID, Book ID, Average Ratings and, Count of Ratings), ISBN (ISBN, ISBN13 and, Book ID) and Authors (ID, and Author Name) and loaded into our SQL environment (MySQLWorkbench). The splitting of the main dataset file eased our process of loading the data into relational schema.
3. Ensured the data in UTF-8 format while creating tables.
4. Converted the data types of the columns into the right ones for analysis.

**Tools Used:**

1. MySQLWorkbench- The database has been created for the purpose of querying through the dataset.
2. NodeJS- Execute JavaScript code on the server-side.
3. React- Used to create the user interface which includes the login/signup page, home page along with the reviews/ratings pages.

**Functionalities:**

Our project, "RateMyReads: A Book Rating Platform," is designed with a suite of functionalities that cater to the avid reader's quest for book discovery and evaluation. At its core, the platform operates as a robust system allowing users to browse, rate, and review a vast collection of books, drawing from the comprehensive "Goodreads Books" dataset. Here's an outline of the primary features and how the system accomplishes its goals:

1. User Account Management:
   * Account Creation: Users can register on the platform by creating a new account, providing a seamless registration process.
   * User Authentication: Ensures secure login, maintaining data integrity and security.
   * Logout Feature: Allows users to securely exit their accounts, ensuring their session is safely terminated.
2. Book Search and Exploration:
   * Search Functionality: A robust search feature enabling users to find books from the extensive Goodreads database collection.
   * Book Details Display: Shows detailed information about books, including author names and other relevant data.
3. Review and Rating System:
   * Writing Reviews: Users can write reviews for books, sharing their opinions and experiences.
   * Reading Reviews: This feature allows users to read reviews written by others, aiding in decision-making for their next read.
   * Editing Reviews: Users have the flexibility to edit their reviews, keeping their feedback accurate and up to date.
4. User Interaction and Feedback:
   * Liking/Disliking Reviews: Users can interact with reviews by liking or disliking them, reflecting their agreement or disagreement.
   * Review Management: Users can manage their reviews, including viewing all their reviews in one place and editing them as needed.
5. Data Security and Integrity:
   * Password Hashing: Utilizes bcrypt for hashing passwords, ensuring high levels of security for user data.
   * Database Management: Continuous updating and maintenance of the database to reflect user interactions in real-time.
6. User Interface and Experience:
   * Intuitive Design: The platform is designed with a user-friendly interface, supported by ReactJS and Bootstrap CSS.
   * Responsive Layout: Ensures a seamless experience across various devices and screen sizes.
7. Backend and Database Integration:
   * Robust Backend: Powered by Node.js and Express.js, providing a stable and efficient backend structure.
   * Database Connectivity: Seamless integration with MySQL database for storing and retrieving data efficiently.
8. Access Control:
   * The platform restricts access to certain features, like editing or deleting reviews, based on user authentication to ensure proper access control.

**Issues and Solutions**

During our project, we encountered several technical and design challenges. Here's a summary of these issues and how we addressed them:

1. Database Integration Challenge: Integrating the Goodreads database presented data formatting inconsistencies. We developed a custom script to standardize data formats for seamless integration.
2. User Authentication Security: To enhance the security of our user authentication process, we implemented bcrypt for password hashing.
3. Responsive Design Issues: Our initial user interface design was not fully responsive across different devices. We addressed this by employing Bootstrap CSS and conducting thorough testing on various devices.
4. Performance Optimization: We experienced slow loading times with the book database. This was improved by optimizing backend queries and employing efficient data retrieval methods.

**Contribution**

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| **Team Member** | **Contributions** |
| **Abhijith Dameruppala** | Project Leadership and Coordination: Oversaw the project direction and team coordination. |
| Front-End Development: Developed user interface using ReactJS. Managed responsive design with Bootstrap CSS. |
| User Authentication & User Interaction Features: Implemented secure login features, user data protection and managed features related to user interactions like review postings, likes, and dislikes. |
| **Fhariya Aseem Fathima** | Back-End Development: Developed the backend using Node.js and Express.js. |
| Database Management: Contributed to database optimization and managed backend queries. |
| **Viswa Suhaas Penugonda** | Database Integration: Spearheaded the integration of the Goodreads database with our platform. |
| Performance Optimization: Enhanced the performance of the platform, particularly in data retrieval. |
| Review and Rating System: Developed the review and rating functionalities. |