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Bookinator-9000 :Book Recommendation Engine

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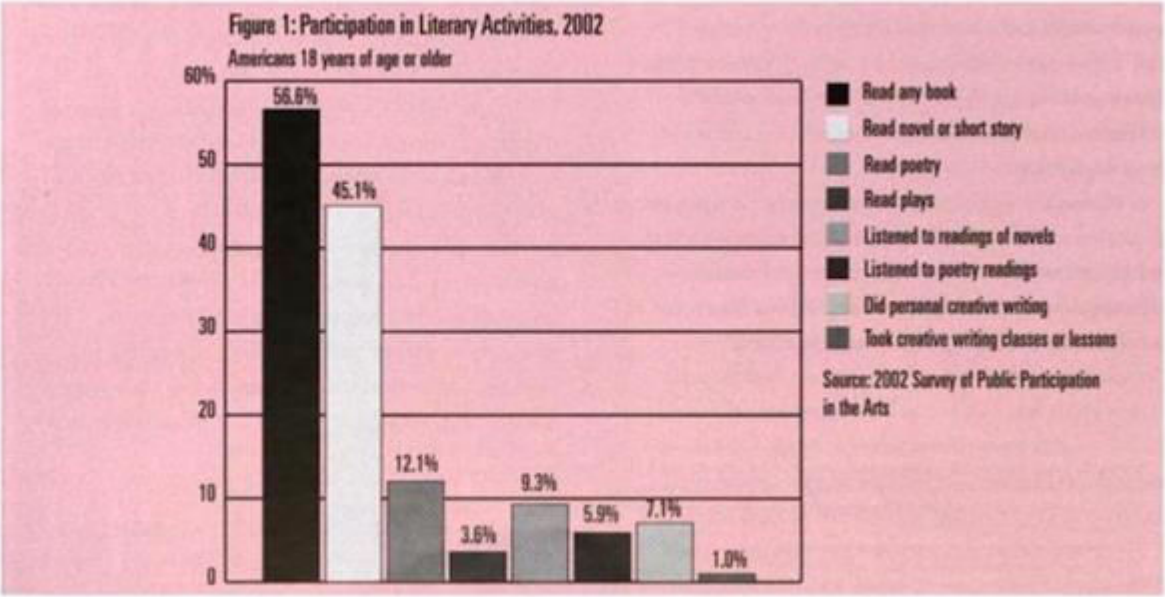
ABSTRACT: Novice readers may find it overwhelming to choose from the vast and diverse world of literature. To address this, our team is developing a software that recommends books based on a reader's preferences. The algorithm takes into account the reader's reading history, preferred genres, and other factors. This paper presents the research methodology, software design, and potential benefits for readers and the publishing industry. Our goal is to create a platform that assists readers in discovering new books while providing insights into readers' preferences and trends.

KEYWORDS: Recommendation Software, Book Recommendation, Supervised Machine Learning, Full Stack Web Application, MERN Stack Application

I. INTRODUCTION

The world of literature is vast and diverse, offering countless options for readers to explore. However, for novice readers, selecting the right book to read can be a daunting task, especially if they are not familiar with specific genres or authors. To address this challenge, our team is developing a software that provides book recommendations to novice readers based on their preferences. The software will use an algorithm that takes into account a reader's reading history, preferred genres, and other factors to suggest books that the reader is likely to enjoy. This paper presents an overview of the research methodology and the software's design, as well as a discussion of the potential benefits of such a tool for both readers and the publishing industry. Our goal is to create a platform that not only helps novice readers to discover new books but also provides the publishing industry with insights into readers' preferences and trends.

II. LITERATURE SURVEY



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Reading - as a hobby declining over the years:
The hobby of reading books experienced a decline over the years, with many people turning to other forms of entertainment such as social media and streaming services.
According to a 2019 survey by the National Endowment for the Arts, only 52% of American adults reported reading a book for pleasure in 2017, down from 54% in 2012 and 56% in 2008. Additionally, the survey found that the average time spent reading for pleasure had decreased over the years, from 23 minutes per day in 2004 to 17 minutes per day in 2017.

Resurgence of reading as a hobby:
However, the COVID-19 pandemic and subsequent lockdowns have led to a resurgence of interest in reading. With more people spending time at home, many have turned to books as a way to pass the time and escape the monotony of quarantine life.

The lockdowns have provided an opportunity for people to rediscover the joys of reading and reconnect with books. With libraries and bookstores closed, many have turned to e-books and audiobooks, which offer a convenient and accessible way to read. Social media platforms such as Goodreads have also become popular, providing a platform for readers to connect, share recommendations, and discuss books.

The benefits of reading as a hobby have become more apparent during the pandemic, with many people finding solace and comfort in books during difficult times. Reading can offer a way to escape from the stresses of the world, stimulate the mind, and provide a sense of connection and community. As a result, hobby of reading is continuing to grow in popularity, even after the pandemic has subsided

III. METHODOLOGY / APPROACH

Project Idea:
Novice readers often struggle with selecting books to read, especially if they are unfamiliar with specific genres or authors. In many cases, they may not know where to start or what books to choose. This is where a software that provides book recommendations can be extremely helpful. By using an algorithm that takes into account a reader's preferences, reading history, and other factors, the software can suggest books that the reader is likely to enjoy. This not only helps novice readers to discover new books and authors but also provides them with a sense of direction in their reading journey. Additionally, a software that provides book recommendations can help to expand a reader's horizons by introducing them to books that they may not have otherwise considered. This can be particularly useful for novice readers who are still exploring their interests and preferences. Overall, a software that provides book recommendations can be an invaluable tool for novice readers who are looking to broaden their reading experiences and discover new literary worlds.

Software:
The software in its early stage
(Bookinator-v1.0) is able to choose and recommend one book from a library of books.
The Software is a full stack web application and we intend to build an android application as another endpoint for our backend.

Functionality and Features:
The Home-page greets user with two options; the user can (a) Get a recommendation for a book or, (b) add a book to our library (so that the quantity and quality of our recommendations increase)

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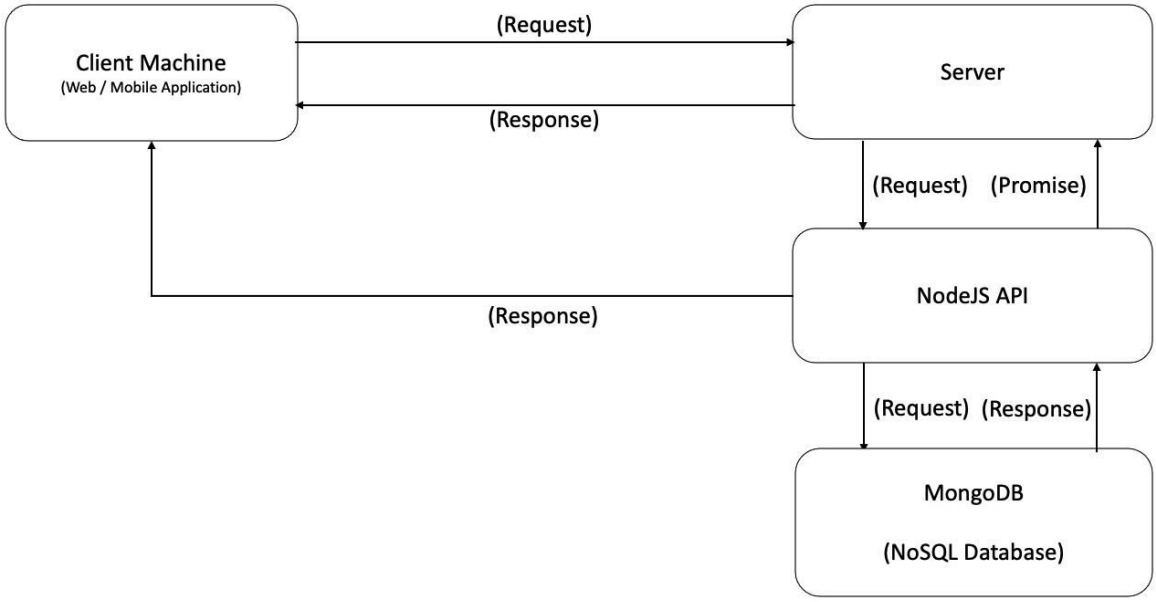
The Software in its current version (v1.0) recommends a random book from the plethora found in the library and the target audience of this version is novice readers. For next releases, we intend to use TensorFlow's machine learning libraries along with python which will help us take information from the user about the books they have read or intend to read and recommend based on those parameters. The target audience of future releases is primarily intermediate, advanced and veteran readers. For the v2.0 audience, we run into the issues faced by Jose Moreno in his paper – "Addressing the Cold Start Problem in Recommender Systems" which highlights the cold start problem in recommendation systems, where the system has to make recommendations for new users or items with little or no rating history, and proposes several approaches to address this problem in book recommendation systems.

Tech Stack:
The database used for this software is MongoDB – it is a schema-less database, which means it can manage data without the need for a blueprint. Data in MongoDB is stored in documents with key-value pairs instead of rows and



columns which makes the data more flexible and easier to work with when compared to a SQL database. One drawback of it is that it is not scalable; so if we intend to grow this software down the line, we will have to migrate to a table - based – SQL like database.

The Middleware of this software is a NodeJS API which provides 2 different routes – (a) a get method to access the library of books stored in the database and (b) a post method to add books to the library. We have hosted the middleware using a service called cyclic.sh and the routes for accessing the API are made public. You can access them at:
https://dead-tan-beaver-robe.cyclic.app -Root Route
/getbooklist -
Get request for accessing the library
/addbook -
Post request for adding books

The project's frontend has two endpoints; (a) A ReactJS single page web application
and (b) A Flutter Android Application.

The Web application is intended to be used on desktop (and possibly iOS devices) while the android application is intended to be used specifically on android devices.

The web application is built using the ReactJS framework as it provides us with interactive user interfaces and web applications quickly and efficiently with significantly less code than when using just vanilla JavaScript. As the

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framework allows us to create single page applications, the website would not be hitting the backend API over and over again for different requests and would feel a lot quicker than it actually is.
The flutter framework allows the unification of app developers into a single mobile, web, and desktop app team, building branded apps for multiple platforms out of a single codebase. Flutter speeds feature development and synchronizes release schedules across the entire customer base.
Thus, using the framework will help us build the android application robustly and effectively.

IV. CONCLUSION

Our team's development of a software that recommends books to novice readers based on their preferences is a valuable contribution to the world of literature. By leveraging the power of technology and data analysis, our software provides an effective solution to the challenge of selecting the right book to read. The software's algorithm takes into account a reader's reading history, preferred genres, and other factors to suggest books that are tailored to their interests. Not only does this tool help novice readers to discover new books and authors, but it also provides the publishing industry with insights into readers' preferences and trends. As such, our software has the potential to benefit both readers and the publishing industry. Going forward, our team aims to continue refining the software's recommendation and improving its functionality to enhance the user experience. Overall, our software is a promising development in the world of literature, and we look forward to seeing its impact on the industry and readers alike.

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