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## Survey Paper

# Promotion of Indian Languages Literature in Web by applying Natural Language Processing

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**Abstract:** With the aid of natural language processing, this study seeks to develop a web application that will promote, protect, and highlight India's literary heritage as well as the value of its languages. The application offers an interactive user experience that is visually beautiful and welcoming. It features a database exhibiting the many Indian languages, as well as information on their background, cultural importance, and important literary productions. Users can browse language-specific areas, use interactive maps to navigate, access language study tools, join in forums tailored to their language, and take part in virtual literary events. Overall, the website acts as a thorough platform for celebrating and learning about India's rich literary heritage and linguistic variety.

**Keywords:** Heritage literature, language, web application, natural language processing, css, html

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## 1. Introduction

Introduction By combining natural language processing (NLP), React.js, HTML, CSS, and JavaScript, the goal of this endeavor is to produce an engaging and instructive we platform for promoting Indian heritage literatures. This website celebrates and preserves India's rich literary heritage while also highlighting the value of the various languages and cultures that can be found there. India is a country with a vast variety of languages and cultures, and each community and region has contributed its own distinctive literary traditions. We want to give customers an immersive experience through this online application that not only highlights literary works but also highlights the significance of the numerous languages and cultures found in India. The online application's user interface is simple and attractive thanks to the usage of HTML, CSS, and JavaScript in its design. The usage of React.js improves the functionality of the application by enabling component-based, modular development, leading to a scalable and manageable solution. The web application's main goal is to promote and protect India's literary heritage. It has an extensive database that includes works from various genres, eras, and languages. Users can browse through this sizable collection to learn more about the breadth and diversity of Indian literature. The website application goes above and above by highlighting the value of diverse languages and cultures inside India in addition to commemorating literary legacy. It gives readers comprehensive details about the various languages used throughout the nation, including their historical background, regional influences, and cultural significance. Users can gain

a deeper knowledge of the unique tapestry of languages and cultures that coexist inside India by being more familiar with its linguistic variety. The web application also has interactive elements that let users interact with various languages and cultures. Users can explore the literature, poetry, and folktales related with each language in sections dedicated to that language. In order to communicate with native speakers, share cultural insights, and promote a sense of community, users can also take part in forums and conversations. The web application encourages users to explore India's many languages and cultures by incorporating educational resources like articles, films, and quizzes. This immersive learning environment fosters cross-cultural appreciation and understanding in addition to knowledge expansion. To sum up, HTML, CSS, JavaScript, and React were used to construct the web application. It offers users an interactive and informative space to explore, learn, and appreciate the richness of Indian literature and its intertwined relationship with the country's vibrant linguistic and cultural tapestry.

For many years, Indian literature, art, and culture have had a major impact on society's development. These artistic endeavours play an important role in the social and cultural fabric of India and represent the country's vast diversity, history, and ideals. Here is a closer look at how Indian literature, culture, and art contribute to Indian society:

**Preservation of Heritage and Identity:** The nation's heritage and identity are transmitted and preserved in large part through Indian art, culture, and literature. Through them, individuals can see into the past and learn about their

ancestry, customs, and the development of their civilization over time. Repository of knowledge and history are traditional rituals, music, dance, and literature.

**Promoting Diversity and Unity:** In terms of languages, religions, regions, and traditions, India is renowned for its enormous diversity. Indian literature, art, and culture all promote a sense of togetherness while recognizing this diversity. By presenting common themes, ideas, and experiences, these forms of expression unite people from many origins.

Indian literature, including the classic epics, poetry, and contemporary novels, frequently offers profound insights into society issues, customs, and difficulties. Through order to remark on societal injustices, gender roles, caste systems, and other important concerns, writers and artists have done so through their works, provoking debate and encouraging critical thought.

**Inspiration & Creativity:** India's artistic manifestations foster creativity in a variety of fields. Literature, music, dance, visual arts, and other kinds of culture inspire people to discover their own artistic abilities and support the expansion of creative enterprises, which promotes both social and economic advancement.

**Value for Education:** The literature and cultural practices of India are rich sources of information and wisdom. The Vedas, Upanishads, Ramayana, Mahabharata, and other prehistoric writings have served as a foundation for moral instruction for many centuries. Traditional artistic forms frequently communicate ethical principles, historical narratives, and moral lessons.

Indian art and culture frequently place an emphasis on the qualities of tolerance, acceptance, and harmony. Many literary and artistic works emphasize the interdependence of all living things and the value of compassion, helping to create a society that is more accepting and sympathetic.

India's rich cultural legacy, which includes historical sites, celebrations, and various arts forms, draws travellers from all over the world. This directly affects the economy by bringing in money and opening up positions in the tourism and hospitality industries.

**Fostering National and International Identity:** Indian literature, culture, and art are important for the development of the nation's international identity. Internationally recognized authors, artists, and entertainers present the nation's traditions and skills on a worldwide platform, promoting cross-cultural dialogue and diplomacy.

Social cohesion and community bonding are typically facilitated by traditional art forms, music, dancing, and festivals, which promote a sense of community and belonging. People can interact, share experiences, and celebrate shared ideals through these cultural platforms.

Indian literature, culture, and art are, in essence, deep tools for heritage preservation, social reform, and education as well as kinds of amusement. By reflecting on its past, addressing its present, and influencing its future, they have shaped India's identity and continue to have an impact on society. Through literature we can reach around the globe to spread India arts and cultures.

## 2. Literature Survey

This work aims to create a comprehensive platform using HTML, CSS, JavaScript, and React.js to celebrate and promote literary heritage. In this literature survey, we explore existing studies, projects, and related works that have addressed similar objectives and themes. The survey provides insights into the current state of the field, identifies gaps, and highlights key aspects that can inform the development of the proposed web application. **Digital Libraries and Literary Archives:** Numerous digital libraries and literary archives have been developed to preserve and provide access to literary works [1]. Projects such as Project Gutenberg, Internet Archive, and Google Books have made extensive collections of books available online [2]. These initiatives offer a wealth of literary content that can be leveraged to enrich the web application's database. **Literary Platforms and Communities:** Several online platforms and communities focus on literature and provide spaces for readers, writers, and enthusiasts to engage [3]. Good reads, Library Thing, and Wattpad are examples of platforms where users can discover, review, and discuss literary works [4]. The web application can draw inspiration from these platforms to incorporate social features and foster a sense of community among users. **Educational Resources and Literary Analysis:** Various websites and applications offer educational resources and tools for literary analysis. Websites like Spark Notes, Shmoop, and Literary Devices provide study guides, analysis, and literary terminology [5]. Integrating similar resources in the web application can enhance the educational value and promote a deeper understanding of literary heritage. **Cultural Heritage Preservation:** Projects related to cultural heritage preservation offer insights into techniques and approaches that can be applied to the preservation of literary heritage [6]. Digital repositories like European and the Digital Public Library of America (DPLA) demonstrate strategies for organizing and presenting cultural artifacts [7]. Adopting some of these methodologies can contribute to the effective organization and presentation of literary content in the web application. **Language and Cultural Diversity:** 10|Page Studies on language and cultural diversity can inform the inclusion of diverse languages and cultures within the web application [8]. Research on multilingual websites, language learning platforms, and cross-cultural communication can offer valuable insights into designing an inclusive and user-friendly interface that promotes linguistic diversity and cultural exchange [9]. **Web Development Frameworks and Technologies:** Existing literature on web development frameworks like React.js, JavaScript, HTML, and CSS provides guidance on best practices, design patterns, and performance optimization. Resources such as official documentation, tutorials, and case studies can aid in the

efficient development and implementation of the web application [10] [11]. By conducting this literature survey, we have gained a deeper understanding of the existing landscape related to the promotion of literary heritage and the utilization of web technologies. The findings from this survey will inform the design, development, and content curation strategies of the proposed web application, ensuring its relevance, effectiveness, and impact in celebrating and promoting literary heritage.

### 3. Proposed System

The proposed system aims to create an engaging and comprehensive platform that celebrates and promotes literary heritage using HTML, CSS, JavaScript, and React.js, and NLP. This system will provide users with a rich and immersive experience, enabling them to explore, learn, and engage with diverse literary works and cultural traditions.

**User Interface Design:** The system will have an intuitive and visually appealing user interface designed using HTML and CSS. The interface will incorporate modern design principles, ensuring a seamless and engaging user experience. It will feature a responsive layout, allowing users to access the application on various devices.

**Content Management:** A robust content management system will be developed to curate and organize literary content. Administrators will be able to add, amend, and manage literary works, author information, and cultural elements using this system's user-friendly interface. Additionally, it will have categorization, tagging, and search capability, allowing users to quickly find particular works or authors.

**Literature Database:** The system will come with a wide-ranging literary database that includes works from many genres, eras, and languages. Detailed information about authors, their biographies, literary trends, and important works will be included in this database. Users will get access to book summaries, be able to browse this enormous collection, and receive recommendations according to their interests.

**Language and Cultural relevance:** By detailing the various Indian languages and their cultural relevance, the system aims to highlight the value of language and cultural diversity. The display of literary works in multiple languages will allow visitors to delve further into the diversity of each linguistic tradition. Language-specific sections will emphasize each language's history, folklore, and noteworthy writers.

**Interactive elements:** The system will contain interactive elements like user forums where book lovers can connect, discuss, and share their opinions on literary works and cultural issues. This will encourage engagement and community participation. Users will have the chance to share their own opinions, reviews, and suggestions, encouraging a sense of community and cooperation. The system will provide instructional tools to improve users' comprehension of literary legacy. It will have articles, essays, and tests on well-known writers, literary movements, and genres. These materials will give users in-depth information and act as teaching aids to encourage a greater appreciation for literature and cultural customs.

**Social Sharing and Integration:** By integrating with social media platforms, users will be able to tell their networks about their favorite authors, literary masterpieces, or cultural insights. The system's reach

will be expanded by this feature, which will also enable greater involvement and participation. The system will be designed using a responsive design approach, guaranteeing excellent performance across various devices and screen sizes. To increase the system's speed and effectiveness, performance optimization techniques including caching, code magnification, and picture compression will be used. To sum up, the suggested system will use HTML, CSS, JavaScript, and React.js to provide an immersive and interactive platform that honors and promotes literary history. The system will enable users to study a variety of literary works, grasp cultural value, and develop a community of literary aficionados through its user-friendly interface, thorough content, interactive features, and educational materials.

### 4. System Model

The system model explains about the software requirement specifications and design phases of the web application.

#### SOFTWARE REQUIREMENT SPECIFICATION:

The model is a web based application to promote the literary heritage of India. It is built using HTML, CSS, JavaScript, and React. The outlines the software requirements for the development of the web application are stated here.

Functional Requirements:

- (I) User registration and authentication: Users should be able to register an account with the application. The system should provide secure authentication mechanisms, such as password hashing and encryption.
- (II) User profile management: Users should have the ability to manage their profiles, including updating personal information and profile pictures. Users should be able to customize their preferences and notification settings.
- (III) Literary database: The application should have a comprehensive database of literary works, including books, poems, essays, and articles. The database should support categorization, tagging, and searching for easy navigation and retrieval of content. The system should provide detailed information about authors, including their biographies, literary contributions, and works. Users should be able to access author profiles and explore related content.
- (IV) Language and cultural significance: The application should highlight the significance of various languages and cultures in India. It should provide information about different languages, including their history, regions where they are spoken, and cultural importance. Users should be able to explore literary works categorized by languages and access information about cultural traditions.
- (V) User interaction and engagement: The system should include interactive features such as discussion forums, where users can engage in conversations, share insights, and exchange ideas. Users should be able to rate and review literary works, providing feedback and recommendations to others.

(VI) Educational resources: The application should offer educational resources such as articles, essays, and quizzes on literary genres, movements, and significant literary figures. Users should have access to study materials and learning tools to deepen their knowledge of literary heritage.

(VII) Social media integration: The system should allow users to share their favorite literary works or author profiles on social media platforms. Integration with social media APIs should enable easy sharing and increase the reach and visibility of the application.

#### **Non-functional Requirements:**

(I) Performance: The web application should be responsive and provide a seamless user experience across different devices and screen sizes. The application should be optimized for fast loading times and efficient data retrieval.

(II) Security: The system should implement secure authentication mechanisms to protect user accounts and sensitive data. Proper data validation and sanitization techniques should be employed to prevent security vulnerabilities.

(III) Scalability: The application should be designed with scalability in mind to accommodate an increasing number of users and growing content database. The system should be able to handle concurrent user interactions without significant performance degradation.

(IV) Accessibility: The web application should adhere to accessibility standards, making it accessible to users with disabilities. It should provide appropriate alternative text for images, keyboard navigation support, and readable content for screen readers.

#### **System Constraints:**

(I) Technology stack: The web application should be developed using HTML, CSS, JavaScript, and React.js. The application should be compatible with modern web browsers.

(II) Database: The system should utilize an appropriate database management system (DBMS) to store and retrieve data efficiently. The choice of the DBMS should consider scalability and data security requirements.

The software requirements specified above outline the key functionalities and features for the development of the web application mentioned in this paper. These requirements will serve as a foundation for the development team to create an engaging and user-friendly web application that celebrates literary heritage and promotes cultural diversity.

**DESIGN:** The system model design for the web application to promote literary heritage encompasses the architectural components and their interactions are narrated here. The design is based on HTML, CSS, JavaScript, and React.js, ensuring a responsive and dynamic user interface. Here is an overview of the system model design:

(I) User Interface (UI) layer: The user interface layer is responsible for presenting the web application to users. It includes HTML, CSS, and React components to create an engaging and intuitive user interface. The UI layer interacts with other layers to fetch and display data, capture user input, and facilitate navigation.

(II) Presentation layer: The presentation layer handles the business logic related to user interactions. It comprises JavaScript and React.js components that manage the application state, handle user input validation, and orchestrate the flow of data between the UI layer and the application logic layer.

(III) Application logic layer: The application logic layer is responsible for processing user requests, performing data operations, and implementing the core functionality of the web application. It consists of JavaScript modules and functions that handle data retrieval, manipulation, and storage. This layer interacts with the data layer to access and modify data.

(IV) Data Layer: The data layer manages the storage and retrieval of data required for the web application. It may include a database management system or an external API to store and retrieve information related to literary works, author details, user profiles, and cultural data. The data layer communicates with the application logic layer to provide the required data for the application.

(V) External APIs and Services: The web application may integrate with external APIs and services to access additional data sources or provide additional functionality. This may include language translation APIs, social media APIs for sharing content, or authentication services for user registration and login.

(VI) Database: The database stores the application's data, including literary works, author information, user profiles, and system configurations. It is accessed by the Data Layer to perform CRUD (Create, Read, Update, Delete) operations on the data. The database can be a relational database management system (such as MySQL or PostgreSQL) or a NoSQL database (such as MongoDB or Firebase).

(VII) Third-Party Libraries and Frameworks: The system model design may involve the use of various third-party libraries and frameworks to enhance the web application's functionality and efficiency. These could include React libraries for UI components, CSS frameworks for responsive design, JavaScript libraries for data manipulation, and testing frameworks for quality assurance.

(VII) Web Server: The web application is deployed on a web server that handles incoming requests and serves the appropriate web pages and resources to users. The server communicates with the presentation layer to receive user requests and deliver responses. Common web server technologies include Apache, Nginx, or Node.js servers.

(VIII) Client Devices: Client devices, such as desktop computers, laptops, tablets, or smartphones, access the web application through web browsers. The web application's responsive design ensures compatibility and optimal user experience across different devices and screen sizes.

In the end, the system model design for the web application involves a layered architecture that includes the user interface layer, presentation layer, application logic layer, data layer, and integration with external APIs and services. The design ensures efficient data management, dynamic user interactions, and a seamless user experience in promoting literary heritage.

## 5. Prototype Demonstration

This section shows the pictures of the real developed model for promoting Indian heritage literatures. The beta version is accessed through: <https://thelibrary.digital/wp/>.

Figure 1 shows the home page of the web application.



Figure 1. Home screen of the web application

Figure 2 shows NLP embedded in the web application. Here 104 different languages are embedded to read the literature through online.



Figure 2. NLP embedded in the web application.

## 6. Conclusion

In conclusion, the web application developed using HTML, CSS, JavaScript, and React successfully promotes literary heritage by providing a dynamic and engaging platform for users to explore and appreciate literary works. This work aims to bridge the gap between traditional literature and the digital era, making literary heritage more accessible and interactive for modern audiences. Through the implementation of HTML, CSS, and JavaScript, the web application offers an intuitive user interface with aesthetically pleasing designs, ensuring a visually appealing and user-friendly experience. The use of React enhances the application's functionality, enabling seamless navigation, efficient data management, and real-time updates. The key features of the web application include a comprehensive database of literary works, categorized by genres, authors, and time periods. Users can search, browse, and discover various pieces of literature, accompanied by detailed descriptions, reviews, and ratings.

Additionally, the application provides an interactive reading experience, with options for users to bookmark their favorite works, leave comments, and engage in discussions with other users. The incorporation of social media integration allows users to share their favorite literary works and spread awareness about literary heritage. This feature promotes community engagement and fosters a sense of belonging among literature enthusiasts.

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