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Bharat Darpan: A Web-Based Interactive Platform for Preserving and Promoting India's Cultural Heritage

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***Abstract*—This paper presents Bharat Darpan, a static web-based interactive platform developed to document and promote India's cultural heritage in a unified and student-friendly format. India's vast tangible and intangible cultural traditions spanning 28 states and 8 union territories remain largely scattered across fragmented online sources, with no dedicated platform designed for structured exploration by students and young learners. Bharat Darpan addresses this gap through six core modules — a state-wise interactive India map, festivals, monuments, art gallery, and facts section — built using HTML5, CSS3, and JavaScript, and deployed on Replit's cloud hosting environment. Cultural content was compiled through secondary research from authoritative sources including the Archaeological Survey of India and the Know India portal. The platform aligns with SDG 4, SDG 9, SDG 10, and SDG 11. User evaluation indicates positive reception among student users across navigation, content quality, and visual design.**

***Keywords*— Cultural heritage, digital preservation, web-based platform, Indian culture, interactive portal, heritage documentation, cultural awareness, SDG alignment, digital India, NEP 2020.**

I. Introduction

India possesses one of the world's oldest civilizations, featuring a cultural heritage that spans over 5,000 years. This vibrant mosaic of 28 states and 8 union territories contains a vast repository of languages, folk traditions, and architectural marvels. However, this immense cultural wealth faces a digital documentation crisis. Existing online resources are fragmented across unrelated platforms, making it difficult for students and younger generations to access organized information. Without centralized promotion, regional traditions risk fading due to globalization-driven cultural homogenization.

To bridge this gap, this paper presents Bharat Darpan, an interactive web-based platform designed to document and promote India's diverse heritage. The system curates state-level information on both tangible heritage (historical landmarks and culinary traditions) and intangible heritage (performing arts and rituals)[1] through a streamlined user interface. Beyond technical implementation, Bharat Darpan aligns with United Nations Sustainable Development Goals (SDG 4, 9, 10, and 11), highlighting its role as a socially impactful initiative for heritage preservation.

The remainder of this paper is organized as follows. Section II reviews related literature. Section III describes the proposed system. Section IV outlines the methodology adopted. Section V details the implementation. Section VI presents results and discussion. Section VII concludes the paper with future directions.

II. Literature Survey

A thorough review of the existing papers was conducted. To understand the current state of documentation of the rich cultural heritage of India Seven research papers were relevant to preserving and documenting the cultural heritage.

A. Web-Based Documentation of Cultural Heritage

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T. K. Gireesh Kumar[2], in the Journal of Cultural Heritage Management and Sustainable Development, emphasizes the need for detailed documentation to protect India's cultural heritage from permanent loss. The paper points out the lack of consistent identification and documentation methods, particularly for heritage sites that do not have official protection. The author notes that current preservation efforts are scattered and not fully used, which puts much of India's tangible and intangible wealth at risk. As a solution, the paper suggests creating a web-based cultural heritage register that acts as a single gateway. This register would blend digital technology with community involvement, allowing people to add locally known cultural information to a central database. This approach helps ensure the sustainability and promotion of India's rich history for future generations. This work lays the groundwork for the proposed system, which aims to create a unified digital gateway where users can explore India's cultural wealth organized by state.

B. Understanding Indian Culture: Historical and Thematic Foundations

Dr. V. Manikanda Sethupathy [3], in the book Introduction to Indian Culture and Heritage, explains that Indian culture reflects unity in diversity. It also talks about contributions of different kings and their kingdoms for Indian architecture and festivals celebrated in India. This work provides historical backbone for the proposed platform

C. Digital Preser tion of Cultural Heritage in India

Sudipta Shee [4], in her work “Digital preservation of cultural heritage in India: A digital age”,This work contains a detailed survey regarding the strategies being adopted in India to preserve and protect cultural heritage in the modern age. The paper discusses several major national initiatives: the National Digital Library of India (NDLI), the National Mission for Manuscripts (NMM), the Digital India Programme, the National Virtual Library of India (NVLI), the Indian Culture Portal, and the National Archives of India (NAI). The paper examines how the preservation techniques like digitization, metadata creation, cloud storage, and Artificial Intelligence (AI), all of which help to bridge the gap between tradition and technology . It highlights significant challenges like technological obsolescence,high costs,cybersecurity threats,legal and copyright issues. The proposed platform is built by taking insights to understand how to store,organize and present cultural data in a sustainable and structured manner.

D. Examining The Impact Of Digitalization On Indigenous Cultural Heritage Preservation In India

Bhawani Singh and Ashok Kumar [5] discuss how digitalization affects the preservation of India’s rich cultural heritage,which is threatened by globalization and modernization.The study contains both qualitative and quantitative findings. It shows that out of 150 participants 83% participants agreed that digitalization breaks down barriers to cultural resources.This research strongly validates the relevance of the proposed platform and guides its responsibility toward inclusive, accurate, and ethically grounded representation of India's diverse communities.

E. Cultural Valu and Their Role in Heritage Preservation

Dr. Radhika Kapur [6] examines the significance of understanding Indian culture and heritage in enhancing individuals' overall quality of life. The paper argues that despite the wide diversity in caste, religion, socio-economic background, and lifestyle across India, people are united through shared cultural values and traditions. The author defines culture as encompassing patterns of thought and behavior, including both material aspects such as technology and architecture, and non-material aspects such as values, norms, and ethics. The study also highlights the intellectual contributions of ancient scholars such as Aryabhata and Patanjali. Furthermore, the paper outlines factors essential for preserving culture, including awareness of responsibilities, effective communication, honesty, hard work, and continuous self-improvement. It concludes that practicing and understanding cultural values is vital for personal growth, social harmony, and national development. For the proposed platform, this paper serves as a guide for how cultural content should be presented — not merely as facts or artefacts, but as living values that connect people to their identity.

F. Digital Preser tion Methods for Heritage Sites in India

The technical methodology for preserving physical monuments—such as temples and archaeological sites—is detailed by Jenifar, Sarathchandrar, and Bhatt[7]. They critique the "patchy" nature of current efforts and propose a sophisticated multi-layered framework involving 3D laser scanning, photogrammetry, and blockchain for data

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authentication. They also advocate for Virtual Reality (VR) as a solution for remote access. These insights have directly informed the "Monuments" section of our platform, where structured metadata and immersive media are used to make endangered sites accessible to a global audience.

G. -Powered Interactive Presentation of Intangible Cultural Heritage

Liuxun Zhang, Zhouluo Wang, Rulan Yang, and Qiang Yi [8], address the inherent difficulty of capturing "Intangible Cultural Heritage" (ICH), such as dance and ritual, which often lose their essence in static video format. They introduce *HoloCultura*, a neural-symbolic architecture that uses AI to recognize minute details like rhythmic flow and hand gestures. Their "Human-in-the-Loop" (HITL) mechanism—which allows for manual correction of AI interpretations—demonstrated a 40% increase in user engagement. This forward-looking research provides a roadmap for future iterations of our system, suggesting that AI-driven interactivity is essential for keeping heritage "alive" in the digital consciousness.

Table I.

Gaps in Reviewed Literature

Ref	Author	Year	Gap identified
[2]	T.K. Gireesh Kumar	2020	No interactive student-focused UI
[3[	V.M. Sethupathy	2022	Theoretical, no digital platform
[4]	Sudipta Shee	2023	Not designed for general users
[5]	Bhawani Singh & Ashok Kumar	2023	No platform solution proposed
[6]	Radhika Kapur	2022	No technical implementation
[7]	L. Jenifar, V. Sarathchandrar, Vaibhav Bhatt	2023	No student-friendly interface
[8]	Liuxun Zhang, Zhouluo Wang, Rulan Yang, and Qiang Yi	2025	Not accessible to general users

III. Proposed System

A. Existing System and their Limitations

Several digital platforms document Indian heritage, yet a review of these systems reveals significant gaps in terms of accessibility and student-focused engagement. The Know India Portal [9] provides comprehensive official data but relies on a static, text-heavy format that lacks interactivity and visual appeal. While Wikipedia is a common reference, it offers inconsistent content quality and lacks a standardized framework for state-wise cultural exploration. State Tourism Board websites (e.g., Rajasthan or Kerala Tourism) prioritize commercial hospitality and travel promotion over structured educational documentation. Furthermore, the Indian Culture Portal [10] serves primarily as an archival repository for manuscripts and records, catering to researchers rather than casual learners or students.

Collectively, these platforms fail to provide a unified experience that integrates geographical navigation, multi-category visual content, and interactive engagement in a single, user-friendly interface.

B. oposed System - Bharat Darpan

Bharat Darpan is a unified, web-based platform designed to address the documentation gaps in India's cultural heritage through a visually rich and student-friendly digital experience. The system provides a single gateway to the diverse heritage of 28 states and 8 union territories, organizing content geographically and thematically to avoid the fragmented, text-heavy nature of existing resources. The platform is structured into six primary modules: the Home Module serving as the central entry point; the State Explorer Module has an interactive clickable map of India for state-specific content; the Festivals and Monuments modules document intangible seasonal celebrations and tangible

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heritage sites; the Art Gallery showcases diverse cuisines, dance forms, textiles, and traditional attire; and the "Did You Know" section provides engaging trivia to enhance cultural retention for younger audiences. Architecturally, Bharat Darpan utilizes a two-tier system with a responsive frontend built on HTML5, CSS3, and JavaScript, while the application layer is powered by the Flask[11] framework. Developed on the AI-assisted Replit environment [12], the platform leveraged iterative prompt engineering to refine its interactive features and data retrieval efficiency. The complete system architecture is described in the following subsection.

C. System Ar itecture

Bharat Darpan utilizes a streamlined two-tier static architecture designed for high-speed performance and accessibility. It uses a template-based framework rather than a typical database-driven backend. This way the system integrates cultural content directly into the HTML structure and eliminates the server-side processing overhead. The Presentation Layer utilizes HTML5, CSS3, and JavaScript to manage responsive styling and client-side interactivity, such as the interactive map. This is supported by an Application Layer hosted on Replit, which serves static assets via a public URL, ensuring a lightweight deployment that requires minimal infrastructure.

The platform's development followed a rigorous "master template" methodology to ensure structural consistency. Cultural data was synthesized from authoritative sources like the Archaeological Survey of India, Wikipedia and official state tourism portals. The Tamil Nadu state page served as the initial prototype, engineered through AI-assisted development to establish a standardized content hierarchy. This master template was manually edited for all other states and union territories, ensuring that unique regional information was integrated without compromising the platform's uniform design and navigation standards.

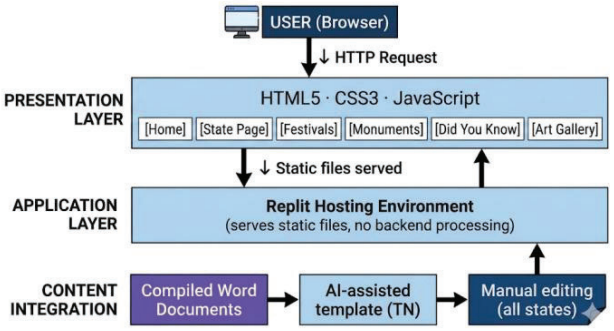

Fig. 1. System architecture of Bharat Darpan

D. M ule Description

The Bharat Darpan platform is organized into six functional modules, each serving a distinct purpose in delivering a comprehensive and engaging cultural heritage experience to users.

The Home Module establishes the user interface and platform orientation, leading into the State Explorer Module which is the system's core feature. This module utilizes an interactive map of India; each state-specific page follows a standardized template to ensure consistency in reporting festivals, arts, cuisine and more.

Detailed thematic data is housed in the Festivals and Monuments modules, which categorize India's celebratory traditions by season and document tangible heritage sites using data from the Archaeological Survey of India (ASI) [13]. Furthermore, the Art Gallery presents a curated visual repository of dance, textiles, attire and more. Finally, the Did You Know module serves as a pedagogical tool, delivering concise, high-interest cultural facts to enhance student engagement and curiosity.

E. Align nt with United Nations Sustainable Development Goals

Bharat Darpan is consciously designed to align with 4 of the United Nations Sustainable Development Goals (SDGs), reflecting its broader social and educational mission beyond technical implementation.

SDG 4 – Quality Education: It acts as a free and accessible learning platform about Indian culture and heritage. It supports inclusive education by making cultural knowledge available to anyone with a browser, regardless of location or economic background. It also directly supports NEP 2020's

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vision of value-based education rooted in Indian traditions.[14]

SDG 9 - Industry, Innovation & Infrastructure: The project demonstrates innovative use of technology like – TSX (React with TypeScript), HTML5, JSON, Python[15], all managed and deployed via Replit - to solve a real social problem — digitizing cultural heritage. It contributes to building digital infrastructure for cultural awareness in India.[16]

SDG 10 – Reduced Inequalities: Cultural knowledge of smaller states and Union Territories (like Nagaland, Lakshadweep, Ladakh) is often overlooked in mainstream media. This project gives equal representation to every state, ensuring marginalized regional cultures get the same digital visibility as popular ones.[17]

SDG 11 – Sustainable cities and communities: By digitally preserving and promoting India's tangible and intangible cultural heritage — including monuments, folk art forms, festivals, and regional traditions — Bharat Darpan contributes to the protection of cultural and natural heritage as outlined under SDG 11.4.[18]

IV. Methodology

The engineering of the Bharat Darpan platform followed a systematic six-phase methodology designed to ensure structural rigor and content integrity.

A. Rese ch and Requirement Analysis: Existing platforms were reviewed as outlined in Section III-A. This phase helped to establish functional requirements for state-centric modules and non-functional parameters prioritizing cross-device responsiveness and low latency.

B. Sys m Design: The static two-tier architecture as described in Section III-C was finalised during this phase.

C. Data Col ction: Cultural content was compiled through secondary research from the authoritative sources identified in Section III-C, covering all the cultural information required. All content was documented in structured Word documents prior to integration.

D. velopment: Development followed a modular, template-driven approach, as discussed in Section III-C. The team of 6 performed parallel development of all 36 states/union territories by distributing 6 states/union territories to each. The platform has been successfully scaled to encompass full integration across all 28 states and 8 union territories.

E. Testing and Validatio Cross-browser compatibility checks and mobile responsiveness were tested across all integrated pages. Content integrity was verified against primary research, and User Acceptance Testing (UAT) was conducted with student participants and faculty members, including the project guide to evaluate pedagogical effectiveness. Results of this evaluation are presented in Section VI.

F. ployment: The platform is fully deployed and publicly operational via Replit's cloud infrastructure, providing real-time access to the complete cultural database.

V. Implementation

The interactive India map was implemented using a clickable SVG map, where each state/union territory is defined as a clickable element which is linked to a sub-webpage. Clicking on any region lands the user in the webpage that contains all the curated data about that region. This feature provides an intuitive geographical context for cultural exploration to users.

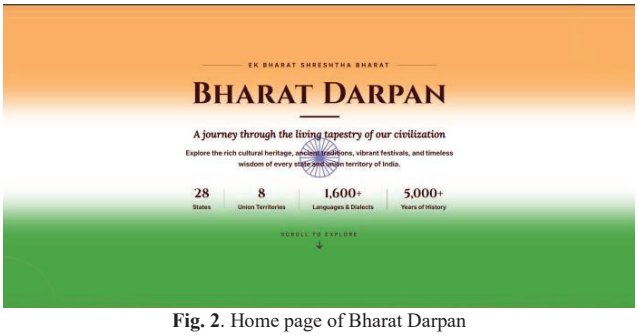

Fig. 2. Home page of Bharat Darpan

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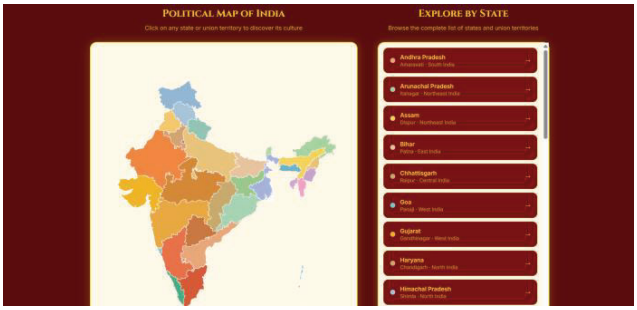

Fig. 3. Clickable map of India & State explorer module

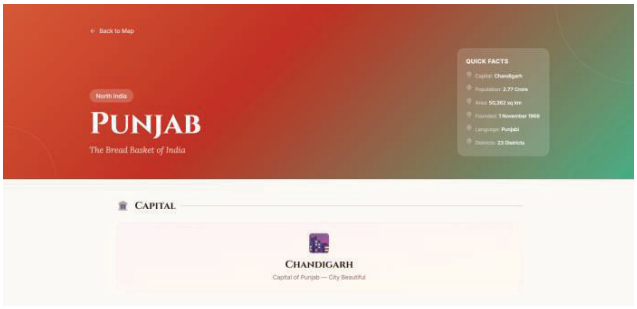

Fig. 4. Punjab state page

Fig. 5. Festivals module

Fig. 6. Monuments module

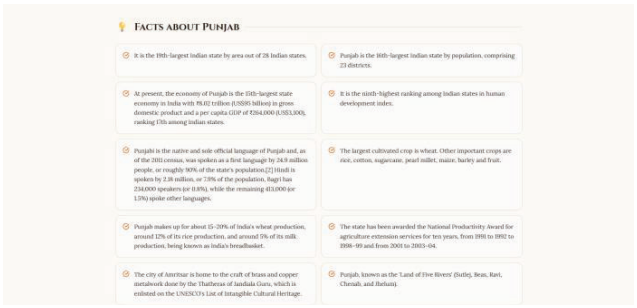

Fig. 7. Did you know module

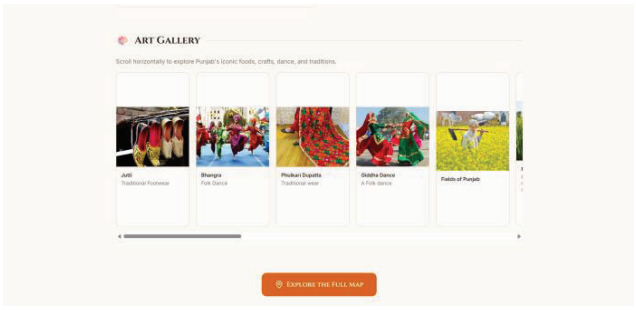

Fig. 8. Art Gallery module

VI. Result And Discussion

User evaluation of Bharat Darpan was conducted with 9 participants comprising undergraduate students and faculty members. Participants explored the live platform and submitted responses through a structured feedback form covering five evaluation parameters, rated on a scale of 1 (Very Poor) to 5 (Excellent). Table II summarizes the evaluation results. [1-Very Poor, 2-Poor, 3-Average, 4-Good, 5-Excellent]

Parameter	5	4	3	2	1
Visual Design	55.6 %	33.3 %	0.0%	11.1 %	0.0%
Interactive India Map	66.7 %	33.3 %	0.0%	0.0%	0.0%
Educational Value	44.4 %	55.6 %	0.0%	0.0%	0.0%
Ease of Navigation	66.7 %	33.3 %	0.0%	0.0%	0.0%
Overall Experience	55.6 %	44.4 %	0.0%	0.0%	0.0%

As evident from Table II, Bharat Darpan received positive reception across all evaluated parameters. The Visual design and Educational value came out to be the strongest performing parameters, with 66.7% of respondents rating both as Excellent and the remaining 33.3% rating them as Good — indicating 100% positive reception with no neutral or negative responses. Overall experience was rated as Excellent by 55.6% and Good by 44.4% of respondents, confirming complete satisfaction across all participants for this parameter.

The interactive India map received particularly noteworthy results, with 100% of respondents rating

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it as either Good or Excellent, validating its effectiveness as an intuitive geographical navigation mechanism for cultural exploration. Ease of navigation received a slight variation, with one respondent (11.1%) rating it as Poor, suggesting minor usability improvements are required in the platform's navigational structure — an aspect identified as a priority for future development.

Prior to using the platform, only 66.7% of participants reported being somewhat aware of India's cultural heritage, while 11.1% reported being not aware at all. This baseline data highlights the relevance of Bharat Darpan as an educational tool, especially for users having limited prior exposure to India's cultural diversity.

VII. Conclusions

Bharat Darpan successfully demonstrates the synergy between modern web technologies and cultural preservation. By utilizing web development technologies without back-end assistance the platform aims to provide a high-performance, scalable solution for digitizing India's diverse heritage. The project effectively addresses the systemic gaps in existing digital portals by offering an intuitive, interactive interface that gives equal visibility to all 36 states and union territories, regardless of their mainstream prominence.

Beyond its technical execution, the platform serves as a vital pedagogical tool aligned with the National Education Policy (NEP) 2020 and multiple United Nations Sustainable Development Goals. By providing access to both tangible and intangible cultural knowledge, Bharat Darpan creates a sense of national identity and promotes inclusive, quality education.

Future iterations of the platform will focus on transitioning to a dynamic backend (such as Firebase or MongoDB) to support user authentication and personalized learning paths. Technical expansions could include the integration of AR/VR support for immersive virtual tours of historical monuments and multilingual options to bridge regional linguistic gaps. Additionally, the roadmap includes gamified learning modules and a community portal for local artisans, evolving the platform into a multi-dimensional digital ecosystem for India's cultural legacy.

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