Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	1 July 2025
Team ID	LTVIP2025TMID49753
Project Name	Heritage Treasures: An In-Depth Analysis of UNESCO World Heritage Sites
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration & Authentication	Registration through Form (Email/Password) User Account Creation User Login (Email/Password) Password Reset/Recovery
FR-2	User profile Management	View User Dashboard Add/Remove Sites to Favorites List Mark Sites as Visited/Unvisited
FR-3	Site Viewing & Exploration	Display List of All Heritage Sites Display Site Details (Description, History, Images, Location) Paginate Site List Filter Sites by Category/Country
FR-4	Search Functionality	Search Sites by Name Search Sites by Keywords
FR-5	Interactive Mapping	Display Sites on a Geographical Map Allow Zoom/Pan on Map Display Site Info on Map Marker Click

		Navigate to Site Details from Map
FR-6	Administrator Content Management	Add New Heritage Site Information Edit Existing Heritage Site Information Delete Heritage Site Information Upload/Manage Site Images
FR-7	Administrator User Management	View List of Registered Users Suspend/Activate User Accounts
FR-8	(Optional) Content Contribution	User Photo Submission for Sites User Review/Comment Submission for Sites Admin Review/Approval of User Contributions

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The user interface shall be intuitive and easy to navigate for all users. The design shall be responsive, ensuring a consistent experience across various devices (desktop, tablet, mobile). Error messages shall be clear, concise, and helpful for users.
NFR-2	**Security**	All user authentication (login, registration) shall use industry-standard encryption for passwords. All data transmitted between the client and server shall be encrypted using HTTPS/SSL. The system must be protected against common web vulnerabilities like SQL injection and cross-site scripting (XSS). Administrator access shall require robust authentication and adhere to role-based access control.
NFR-3	**Reliability**	The system shall maintain an uptime of at least **99.5%**. All critical data, including heritage site information and user accounts, shall be backed up daily. In the event of a system failure, the maximum data recovery time objective (RTO) shall not exceed 4 hours

NFR-4	**Performance**	The main list of heritage sites shall load within **3 seconds** for 90% of users. Search results shall be displayed within **2 seconds** for 95% of queries. Interactive map loading and user interactions (zoom, pan) shall be fluid and responsive, ensuring a smooth user experience.
NFR-5	**Availability**	The system will be available for users 24/7, excluding scheduled maintenance windows. Key functionalities such as viewing sites, searching, and accessing details will remain operational during peak usage times.
NFR-6	**Scalability**	The system shall be capable of handling up to **1,000 concurrent users** without significant degradation in performance. The underlying database and architecture must support future growth, accommodating an increasing number of heritage sites (e.g., up to 5,000 entries) and user accounts (e.g., up to 100,000).
NFR-7	**Maintainability**	The codebase shall be well-structured, thoroughly documented, and follow established coding standards to facilitate future updates and bug fixes. New features and deployments should be achievable with minimal downtime. Comprehensive logging and monitoring mechanisms shall be implemented to aid in troubleshooting and performance analysis.
NFR-8	**Portability (Optional)**	The system's backend and API should be designed in a modular way that allows for easy integration with potential future platforms, such as dedicated mobile applications (iOS/Android) or external third-party services.