STUDENT KIT

Objective -

The objective of this project is to design and implement **Nomads: AI Trip Planner and Destination Explorer**, a dynamic and intelligent travel platform that simplifies the process of exploring destinations, planning personalized itineraries, and managing travel experiences. This system leverages **Gemini AI** to provide smart recommendations based on user preferences, travel history, and destination data.

Nomads offers features such as intelligent destination search, AI-generated itineraries, detailed travel guides, and real-time insights to enhance decision-making for users. With a secure authentication system powered by **Firebase**, a highly responsive interface built with **ReactJS**, and cloud-based data handling using **Firestore (NoSQL)**, the platform ensures speed, scalability, and data reliability.

Designed with a user-first approach, the system aims to deliver an engaging and seamless experience for travelers seeking curated, interactive, and personalized trip planning — all powered by cutting-edge web and AI technologies.

Requirement Specifications (RS) -

S.No.	Requirement	Essential/Desirable	Description
1	User Authentication	Essential	Secure login and signup for users with encrypted credentials stored in the database
2	Destination Search	Essential	Enables users to search for destinations and view details.
3	Booking Management	Essential	Allows users to book travel services such as hotels, transportation, or tours.

4	Payment Module	Essential	A secure payment gateway for handling bookings.
5	Itinerary Planner	Desirable	Provides tools for users to create and manage custom travel itineraries.
6	Travel Recommendations	Desirable	Suggests destinations, attractions, or activities based on user preferences.
7	Notifications	Desirable	Sends alerts about booking confirmations, reminders, and travel updates.

Database Field Specification –

1. User Table

No.	Field Name	Range of Valid Values	Remarks
1	UserID	Auto-increment	Unique identifier for each user.
2	Name	Alphanumeric (max 50)	Full name of the user.
3	Email	Valid email format	Ensures unique email addresses.
4	Password	8-20 chars, must include symbols	Encrypted for secure storage.
5	Role	'Travel', 'Admin'	Specifies the user type.

2. Material Table

S.No.	Field Name	Range of Valid Values	Remarks
1	ResourceID	Auto-increment	Unique identifier for each travel resource.
2	Title	Alphanumeric (max 100)	Title or name of the travel resource.
3	FileType	'PDF', 'Video', etc.	Specifies the type of travel resource.
4	UploadDate	Date format	Date when the travel resource was uploaded.
5	UserID	Reference to UserID	Links the travel resource to the uploader.

3. Book Table

Field Name	Range of Valid Values	Remarks
BookID	Auto-increment	Unique identifier for each guide.
Title	Alphanumeric (max 100 characters)	Title of the travel guide.
Author	Alphanumeric (max 50 characters)	Author's or creator' name.
Price	Decimal (e.g., 0.00 - 9999.99)	Purchase price for travel guide.
Subscription Fee	Decimal (e.g., 0.00 - 999.99)	Fee for 24/7 subscription access to the guide.

4. Payment Table

Field Name	Range of Valid Values	Remarks
PaymentID	Auto-increment	Unique identifier for each payment.
UserID	Reference to UserID	Links the payment to the user.
Amount	Decimal format	Total amount paid.
PaymentDate	Date format	Date when the payment was made.
PaymentStatus	'Success', 'Failure'	Indicates the status of the payment.

High-Level Design (HLD) / Detailed Design (DD) -

System Overview
The **Travel Guide System** consists of the following layers:
1. **Frontend Layer:**
   - Developed using **ReactJS** for a dynamic and user-friendly interface.
   - Features include login, travel destination management, itinerary planning, subscription to guides, and payment gateway integration.
2. **Backend Layer:**
   - Built with **Spring Boot** to handle business logic and APIs for user authentication, destination/itinerary management, and payment processing.
3. **Database Layer:**
   - **SQL** is used for structured data like user details, payments, bookings, and subscriptions.
   - **NoSQL** is used to store unstructured data such as travel guides, images, and user reviews for efficient searching and retrieval.
4. **Payment Integration:**

- A secure payment gateway (e.g., Razorpay, Stripe) ensures online transactions for guide subscriptions, travel bookings, and purchases.

5. Cloud Services:
- **AWS S3** is used for hosting uploaded travel resources such as images, itineraries, and guides.
- **AWS EC2** is used for backend hosting, ensuring scalability and reliability under varying user loads.

Test Plan –

No.	Test Case Title	Description	Expected Outcome	RS Requirement Being Tested	Result
1	User Login test	Test user login with valid credentials.	Successful login and redirection.	User Authentication	Pass
2	Destination Upload Test	Upload a travel destination to the system.	File is uploaded and accessible.	Destination management	Pass
3	Subscription Payment Test	Make a payment for travel guide subscription.	Payment is processed successfully.	Payment Module	Pass
4	Travel guide Access Test	Access a subscribed travel book.	Guide content is available 24/7.	Guide subscription Functionality	Pass
5	Search Test	Search for destinations using a keyword.	Relevant results are displayed.	Search Functionality	Pass

Conclusion -

The **Student Kit for Nomads** serves as a comprehensive guide to streamline the development and deployment of an intelligent, AI-powered travel planning platform. By outlining the objectives, system requirements, and design strategies, this kit ensures a structured approach to building a dynamic and user-friendly system tailored to modern travelers.

Nomads emphasizes personalized travel experiences through features such as AI-generated itineraries, real-time destination insights, interactive search, and secure user management. The integration of **Gemini AI** for itinerary planning and **Firebase** for cloud-based authentication, data storage, and hosting ensures high scalability, fast performance, and data security.

With the adoption of **React.js** for the frontend and **Firestore (NoSQL)** for data management, the project delivers a responsive and seamless user experience. The inclusion of modular architecture, a high-level and detailed system design, and a robust test plan ensures clarity, efficiency, and quality throughout the development lifecycle.

This system not only simplifies trip planning but also encourages engagement through AI recommendations, destination discovery, and real-time data visualization. The Student Kit provides students with a strong foundation to implement key features, troubleshoot effectively, and ensure project success. It prepares them to build and deploy a next-generation travel platform that intelligently caters to user preferences and delivers a smooth, personalized planning journey.