XPK Application

Final Year Project Proposal

BSCS

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Abstract

The application focuses on making tourism in Pakistan more accessible and user-friendly through an intelligent, user-centric mobile solution. Using Flutter technology for the front end, use Node. Js as a backend, MongoDB for storing data, and geek-dulce-APIs like Google Maps to bring you up-to-date, personalized travel suggestions. Users can search for historical or recreational sites and find the best travel route, along with basic information about nearby hotels, petrol pumps, and restaurants. The App will also let users plan trips according to time constraints, whether they have a few hours or several days, and provide nearby attractions to visit in that time frame. Prebuilt itineraries will appeal to those who want packaged travel. It is a complete tool to enhance the traveling experience of local and foreign tourists in Pakistan.

Introduction

Pakistan is an emerging tourism destination with various experiences, from historical sites to stunning natural beauty. But planning the trip could be difficult, especially for those unfamiliar with the area. Identifying travel routes and amenities and correcting itineraries within limited time frames is an everyday struggle for tourists. No Current Travel Applications Provide Local Solutions in Pakistan Geographically or Culturally.

This project addresses these challenges by creating a mobile application that serves as a virtual guide. By leveraging Google Maps APIs and a shrewd backend, the App will empower customers to make knowledgeable selections, maximize their time, and enjoy an unbroken tour experience. Whether or not the person has the most effective couple of hours or numerous days to discover, the App will generate a custom-designed journey plan, ensuring convenience and pride.

Problem statement

Tourists in Pakistan face hurdles in planning green and exciting trips due to a need for localized, era-driven solutions. Key challenges include finding comprehensive facts about historical and recreational sites across Pakistan, generating time-touchy itineraries, and Limited access to real-time information about essential services such as hotels, petrol pumps, and eating places.

This difficulty affects nearby tourists, worldwide travelers, and travel agencies striving to optimize their services. The tourism area in Pakistan is rapidly growing, with tens of millions of ability customers wanting a complete answer to raising their travel reviews. Tackling this mission will create new possibilities for the tourism industry, fostering a boom and improving customer pleasure.

Project scope

The mission intends to create a mobile utility that:

- Permits users to search for historical and leisure websites in Pakistan through Google Maps APIs.

- It gives you optimized journey routes and data about nearby centers, including accommodations, fuel stations, and eating options.

- Provides time-primarily based itinerary planning, accommodating the whole thing from quick outings (e.g., 2 hours, 4 hours, 6 hours).

- Recommends local sights based on the consumer's cutting-edge area and options.

- Features pre-designed travel plans for introduced comfort.

Value Proposition: This application precisely recognizes localized solutions for Pakistan, offering a seamless and user-friendly interface. The mixing of Google Maps APIs guarantees actual-time, accurate records, while the usage of Flutter generation gives an excessive-performance move-platform experience.

Final Output: The project will result in a fully functional mobile application with:

- User-friendly interfaces for ride-making plans.

- Incorporated Google Maps functions for region-primarily based services.

- Firebase backend for real-time data processing and secure user authentication.

- Cloud Firestore database to store user preferences, travel plans, and location information.

- GetStorage for efficient local data storage and quick access to frequently used data.

Project development methodology

The development of the Mobile Tourism Guide Application will use the Agile Methodology. This approach ensures the App is developed step-by-step in small parts (sprints), allowing continuous feedback-based improvements. Agile is flexible and ensures the project meets user needs while staying on track.

Tools and Technologies

1. **Frontend Development (User Interface)**
   - **Technology**: Flutter
   - Flutter lets us develop one App that works efficiently on Android and iOS, saving time and ensuring regular revels.
2. **Backend Development (Data Processing)**
   - **Technology**: Firebase
   - Firebase Authentication handles secure user login and registration.Cloud Firestore (Firebase's NoSQL database) stores data such as locations, user preferences, and travel plans in real-time.Firebase Storage is used to upload and store media files like images related to trips or profiles.
3. **Database (Data Storage)**
   - **Technology**: GetStorage
   - GetStorage is used for fast and lightweight local data storage on the device, ideal for caching user preferences, save post.
4. **Maps Integration**
   - **Technology**: Google Maps API
   - Google Maps API will provide real-time maps, optimized routes, and information about nearby locations like hotels and eating places.
5. **Project Management Tools**
   - Tools like Trello will help track progress, assign obligations, and control undertaking timelines.

Development Steps

1. **Understanding Requirements**
   - Talk to stakeholders (customers and supervisors) to understand what the app should do.
   - Create a list of capabilities and look for locations, experience planning, and nearby amenities.
2. **Designing**
   - Make easy designs (wireframes) to expose how the App will appear and work.
   - Plan how the app's backend and database will handle user requests.
3. **Development (Building the App)**
   - **Step 1**: Create basic app screens and join them to the backend.
   - **Step 2**: Add key features like location search, trip-making plans, and Google Maps integration.
   - **Step 3**: Enhance the app with prebuilt travel plans and time-based journey tips.
4. **Testing**
   - Check every feature to make sure the app works smoothly.
   - Use tools like **Postman** (to test APIs) and **Firebase Test Lab** (to test the mobile app).
5. **Deployment**
   - Launch the app on the **Google Play Store** and **Apple App Store** for customers to download.

6. **Maintenance and Updates**
    - To accumulate user feedback to fix troubles or upload new features.
    - We often update the App to enhance overall performance and user pride.

Why Agile is Suitable?

Agile is the best approach because it allows us to develop the App in stages, focusing on the most critical features first. By delivering updates regularly and collecting feedback, we can ensure the App meets user expectations and works well for Pakistan's tourism needs.

Project milestones and deliverables

- **Proposal Defense (20 Dec 2024):** Present the project concept, desires, and technical approach to stakeholders for approval.

- **Software Requirement Specification (25 Jan 2025):** Finalize user necessities and app functions.

- **UI/UX Design (23 Feb 2025):** Expand intuitive and visually attractive interfaces.

- **Backend Development (30 Mar 2025):** Firebase (Firebase Authentication, Cloud Firestore,Firebase Storage).

- **Frontend Development (10 May 2025):** Develop the Flutter application utility and combine backend services.

- **Google Maps Integration (5 Jun 2025):** Implement APIs for place-primarily based capabilities.

- **Testing and Debugging (25 Jun 2025):** Perform unit, integration, and user acceptance testing.

- **Deployment (25 Jun 2025):** Launch the application on app stores and ensure protection.

Here is a Gantt Chart for the project milestones and deliverables. It visually represents the timeline for each stage of the project.

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Development Gantt Chart

Task	
Testing , Debugging and Deployment	
Google Maps Integration	
Frontend Development	
Backend Development	
UI/UX Design	
Software Requirement Specification	
Proposal Defense	

| 20 DEC 2024 | 25 Jan 2025 | 23 Feb 2025 | 30 March 2025 | 10 May 2025 | 5 June 2025 | 25 June 2025 |