RIPHAH INTERNATIONAL UNIVERSITY

Faculty of Computing

FINAL YEAR PROJECT PROPOSAL & PLAN

WanderPlan - Personalized Food and Travel Recommendation Ecosystem

Project Team

Full Name of Student	SAP Id	Program	Contact Number	Email Address
Abdullah Ahtsham	45679	BSSE	0330-6767178	45679@students.riphah.edu.pk
Nabeel Awais	43944	BSSE	0334-9450614	43944@students.riphah.edu.pk
M. Bilal Butt	44712	BSSE	0318-0549053	44712@students.riphah.edu.pk

Mr. Shehzad Ahmed Khan
(Senior Lecturer)

WanderPlan - Personalized Food and Travel Recommendation Ecosystem

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
Team (Abdullah,Nabeel,Bilal)	1.0	27-08-25	Original Draft	
Supervisor	1.1	08-09-25	Suggested clearer scope (modules, current vs. future work).	
Faculty	1.2	18-09-25	Asked for explanation of distance & cost calculation; data fetching (APIs, scraping, UGC updates); menu updates handling; and real-life feasibility.	
Team	1.3	25-09-25	Added detailed Project Plan (WBS)	
Supervisor	1.4	29-09-25	Approved after refinement; emphasized exploring existing systems in depth for validation.	

Project Proposal

Project Title: WanderPlan - Personalized Food and Travel Recommendation Ecosystem

Opportunity & Stakeholders:

Tourists struggle with managing budgets, finding authentic food, and exploring attractions during trips. Current solutions are fragmented, requiring the use of multiple apps for budgeting, restaurants, maps, and travel. There is no unified platform offering budget management + personalized recommendations + food filters.

Stakeholders:

- Tourists.
- Local Contributors.
- Business Owners.

Existing System/ Description of the Current Situation:

- Travel Apps includes TripAdvisor, Airbnb Experience as well as Google Travel. All of them are strong in recommendations and booking, but lack budgeting.
- Food Apps includes Restaurant Finder, Yelp and Foodpanda which are strong in food discovery and reviews, but no budgeting.
- Budget Apps includes Splitwise, Trabee Pocket and Wallet. They are great at expense tracking but no travel or food recommendations.

Gap Identified:

i. No system integrates budget management.
ii. Lacks recommendations (food + travel), UGC, and cultural sensitivity (filters) into a single platform.

Problem Statement:

Tourists today face major challenges in managing their travel experiences effectively. While traveling, they must balance multiple factors such as budgeting, transportation, food, accommodation, and local attractions. Currently, existing applications provide solutions for these needs but in a fragmented manner. For example, TripAdvisor and Google Travel focus on attractions and bookings, RestaurantFinder and Foodpanda specialize in food discovery, while Splitwise and Wallet provide budget tracking. However, none of these applications integrate all features into one unified system. This fragmentation forces tourists to switch between multiple apps, which creates inconvenience and inefficiency.

A common difficulty for travelers is **budgeting**, where tourists often overspend due to lack of optimized allocation across accommodation, food, and transportation. Another concern is discovering hidden local food spots and authentic attractions, which are often missed in commercialized platforms.

There are also technical challenges such as how to calculate travel distance, food costs, and transportation expenses in real-time. Menu data of restaurants frequently changes, raising the question of how the system will keep information up to date. Additionally, most existing systems rely solely on either APIs or static data, limiting their accuracy. Without integration of live APIs, user-generated content, and scraping methods, tourists are left with incomplete recommendations.

This lack of integration creates inefficiency, reduces accessibility, and prevents tourists from fully optimizing their travel experiences.

Proposed Solution:

The system will include a **dynamic budget management module** that takes user inputs such as destination, trip duration, and total budget, and intelligently allocates expenses across accommodation, food, transportation, and shopping. This will help tourists plan affordable trips without the hassle of manual calculations.

The system will provide **personalized recommendations** for restaurants, local food spots (hidden and famous), attractions, and shopping centers. These recommendations will be powered through a combination of **API integrations** (e.g., Google Maps, RestaurantFinder, Foodpanda), **data scraping** from authentic sources, and **user-generated content (UGC)** contributed by locals and travelers. This hybrid approach ensures accurate, updated, and diverse information. To calculate distances and travel costs, the platform will use the APIs for fare estimations, while food costs will be derived from restaurant APIs and updated menus, with UGC contributors providing corrections when required.

The system will also integrate **maps for navigation and discovery**, allowing tourists to easily locate restaurants, attractions, and hidden gems near them. A basic **reward system for contributors** will encourage locals to share reviews, images, and updates, ensuring continuous data freshness and authenticity.By combining budget planning, cultural inclusivity, and authentic recommendations, WanderPlan will serve as a unified solution that enhances accessibility, affordability, and convenience for global travelers.

Scope of the Project:

The project will cover the development of a **personalized food and travel recommendation system** that integrates multiple modules into one platform. The core module is the **Dynamic Budget Engine**, which allocates a user's budget across food, travel, and accommodation. The **Recommendation and Discovery Module** will suggest restaurants, hidden food spots, and attractions using APIs, scraping, and user-generated content (UGC).

The **UGC Integration Module** will allow locals and tourists to share reviews and updates, supported by a reward system to keep data fresh. A **Maps and Navigation Module** will handle route planning, location discovery, and travel cost estimation. The system will also rely on a Database and API Integration Layer for storing and fetching real-time data.

Future extensions include direct bookings, halal/haram food filters, and AI-driven personalization, making the system scalable and inclusive.

List of Faculty Proposed Changes

WanderPlan

Supervisor's Signature: _____

Proposed Change	**Proposed By**	**Supervisor's Decision**
Clarify how distance, travel cost, and food cost will be calculated	Mr. Usman Karim	Will be implemented using Google Distance Matrix API for travel costs, restaurant APIs and UGC for food costs.
Ensure feasibility – combining multiple apps should not create complexity	Mr. Sadaqat Ali	System will focus on unique modules (dynamic budget engine, halal filters, UGC integration) to ensure feasibility and reduce complexity.
Explore existing systems in more depth and highlight uniqueness clearly	Mr. Muhammad Akmal	Market survey expanded with detailed comparison of travel, food, and budget apps to clearly identify project gaps and uniqueness.

Project Plan

Work Breakdown Structure:

Project: WanderPlan – Personalized Food and Travel Recommendation Ecosystem

Below is a deliverable-based WBS tailored for implementation. Each major module contains a 5–6 line description followed by sub-deliverables/tasks.

1. Project Management

1.1 Project Charter & Scope Definition
1.2 Work Breakdown Structure
1.3 Roles & Responsibility Matrix
1.4 Project Schedule & Milestones (30-week timeline)
1.5 Change Control & Risk Management
1.6 Weekly Progress & Status Reporting

2. Reports / Documentation

2.1 Literature & Market Survey / Gap Analysis
  2.1.1 Comparative Study of Travel Apps (TripAdvisor, Google Travel, Airbnb Exp.)
  2.1.2 Comparative Study of Food Apps (Yelp, Foodpanda, Restaurant Finder)
  2.1.3 Comparative Study of Budget Apps (Splitwise, Trabee Pocket, Wallet)
2.2 Software Requirements Specification
  2.2.1 Functional Requirements (Budget Engine, Recommendations, UGC, Maps)
  2.2.2 Non-Functional Requirements (Performance, Security, Usability)
2.3 System Design Documents

2.3.1 UI/UX Wireframes & Prototypes
2.3.2 System Architecture & Data Flow Diagrams
2.3.3 Use Cases, Activity & Sequence Diagrams
2.4 Implementation Log & Coding Standards
2.5 Testing & Performance Evaluation Report
2.6 Final Project Report / Thesis
2.7 End-User Manual (Tourist App Guide)
2.8 Contributor & Admin Manual (UGC & Reward System)
2.9 System Administrator Manual (APIs, Database, Deployment)

3. System Development

3.1 Development Environment
3.1.1 IDE & Tools Setup (Android Studio, Xcode, VS Code)
3.1.2 Version Control (GitHub Repository & Branching Strategy)
3.1.3 Server Setup (Node.js/Express backend, REST APIs)
3.1.4 Database Setup (MongoDB / Firebase)

3.2 Trips & Budget Module
3.2.1 Budget Input Interface
3.2.2 Dynamic Budget Engine
3.2.3 Manual Trip Planner
3.2.4 Generated Plan Visualization
3.2.5 Trip History & Saved Plans

3.3 Recommendation & Discovery Module
3.3.1 Restaurant & Food Recommendations
3.3.2 Hotel & Accommodation Recommendations
3.3.3 Attractions & Hidden Gems
3.3.4 Deals & Sponsored Ads Integration
3.3.5 Place Detail Pages

3.4 Maps & Navigation Module
3.4.1 Location Search & Filters
3.4.2 Route Mapping & Directions
3.4.3 Distance & Travel Cost Calculation
3.4.4 Nearby Recommendations
3.4.5 Location Detail Overlay

3.5 Reviews & UGC Module
3.5.1 Review Feed & Display (like X/Twitter layout)
3.5.2 Filters & Sorting
3.5.3 Create Review (Text, Media, Ratings)
3.5.4 Replies & Comment Threads
3.5.5 Reactions & Interactions (Likes, Usefuls)
3.5.6 Gamification & Rewards
3.5.7 Review Management
3.5.8 Moderation & Authenticity Checks

3.6 Profile Module
3.6.1 Personal Information & Preferences
3.6.2 Saved Trips & Budgets
3.6.3 Review History / Notifications
3.6.4 Contributor Dashboard (merged within profile)
3.6.5 Rewards & Coupons Wallet
3.6.6 App Settings

3.7 Data Management & Integrations Module
3.7.1 Database Schema Design (Users, Reviews, Businesses, Trips, Ads)
3.7.2 API Integrations (Google Maps, Foodpanda, etc.)
3.7.3 Web Scraping Services (menu, pricing, events)

3.7.4 Data Synchronization & Updates
3.7.5 Media Storage & CDN Setup
3.7.6 Backup & Recovery Procedures

3.8 Security & Compliance Module
3.8.1 Authentication & Role-Based Access Control
3.8.2 Data Privacy & Consent Management
3.8.3 API Security (JWT / AES Encryption)
3.8.4 Moderation & Abuse Controls
3.8.5 Vulnerability & Penetration Testing

3.9 Business & Ads Module
3.9.1 Business Onboarding
3.9.2 Ad & Deal Management
3.9.3 Ad Targeting (by Local UGC Trends)
3.9.4 Owner Replies to Reviews
3.9.5 Business Analytics Dashboard
3.9.6 Plugin Integration (POS Systems, if applicable)

4. Testing & Quality Assurance

4.1 Unit Testing (Frontend & Backend)
4.2 Integration Testing (APIs, Database, Maps, UGC)
4.3 End-to-End User Flow Testing (Trip → Budget → Map → Review)
4.4 Performance & Load Testing (App responsiveness, concurrency)
4.5 UAT (User Acceptance Testing with pilot tourists & contributors)

5. Deployment & Handover

5.1 Android Deployment (Play Store Beta)
5.2 iOS Deployment (TestFlight Beta)
5.3 Backend Hosting (AWS/Firebase Cloud Functions)
5.4 Monitoring & Alerting Setup
5.5 Final Data Backup & Disaster Recovery Plan
5.6 Source Code & Documentation Handover

Roles & Responsibility Matrix:

This below given Roles & Responsibility Matrix identify who will do what.

WBS #	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Days	Responsible Team Member(s) & Role(s)
1.1	Work Breakdown Structure	1.1.1	Create detailed WBS	7	Abdullah
1.2	Roles & Responsibility Matrix	1.2.1	Define team responsibilities	5	Abdullah
1.3	Change Control System	1.3.1	Setup feedback/change tracking	5	Abdullah
2.1	Market Survey	2.1.1	Analyze travel, food & budget apps	14	Abdullah , Nabeel, Bilal
2.2	Requirement Analysis	2.2.1	Define functional & non-functional requirements	14	Abdullah , Nabeel, Bilal
2.3	System Design	2.3.1	Create UI/UX wireframes & prototypes	12	Abdullah, Nabeel
2.3	System Design	2.3.2	Architecture diagrams	12	Bilal, Abdullah

			(ERD, UML, Sequence)		
3.2	Frontend (Presentation Layer)	3.2.1	Develop budget input & recommendation screens	20	Nabeel, Abdullah
3.2	Frontend (Presentation Layer)	3.2.2	Develop UGC & maps integration screens	20	Nabeel, Abdullah
3.3	Backend (Business Logic Layer)	3.3.1	Build dynamic budget engine	18	Bilal
3.3	Backend (Business Logic Layer)	3.3.2	Develop recommendation engine (APIs + scraping)	20	Bilal
3.3	Backend (Business Logic Layer)	3.3.3	UGC management (reviews + rewards)	15	Bilal , Nabeel
3.3	Backend (Business Logic Layer)	3.3.4	Maps & navigation integration	12	Bilal, Nabeel
3.4	Data Management Layer	3.4.1	Design database schema	10	Bilal
3.4	Data Management Layer	3.4.2	Integrate APIs (Maps, Zomato, Foodpanda)	15	Bilal , Abdullah
3.4	Data Management Layer	3.4.3	Web scraping services	12	Bilal
3.4	Data Management Layer	3.4.4	Data synchronization & updates	10	Bilal
3.5	Security & Compliance	3.5.1	Authentication & role-based access	8	Bilal
3.5	Security & Compliance	3.5.2	Data privacy & encryption	8	Bilal
4.1	Testing & QA	4.1.1	Unit, integration, system, and UAT	20	All Members
5.1	Deployment & Handover	5.1.1	Deploy Android & iOS builds	14	Nabeel, Bilal , Abdullah
5.1	Deployment &	5.1.2	Backend hosting &	10	Bilal

	Handover		monitoring setup		
5.1	Deployment & Handover	5.1.3	Final handover (code + documentation)	7	Abdullah

Approval

Project Supervisor

Comments_____

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Name:_____

Date:_____ **Signature:**_____

Project Coordinator

Comments_____

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Name:_____

Date:_____ **Signature:**_____