# Functional Requirement

1.1 Route Planning

Input: User enters origin and destination.

Output: Displays the optimal route options, including combinations of multiple transport modes.

Description: Analyzes all available transport combinations (bus, metro, walking, cycling, etc.) and calculates the route with the shortest time and/or distance.

1.2 Real-Time Traffic

Input: None required; system retrieves data automatically.

Output: Displays current traffic conditions, such as congestion, on the map.

Description: Connects to live traffic feeds to update and show city-wide traffic status so users can avoid congested roads.

1.3 Public Transport Timetable

Input: User selects a specific route or stop.

Output: Shows the real-time timetable for that route or stop.

Description: Lets users view the latest operating schedule—including estimated arrival and departure times—for chosen public-transport lines or stops.

1.4 Points-of-Interest Search

Input: User types keywords.

Output: Displays location and details of relevant POIs.

Description: Searches nearby restaurants, shops, attractions, etc., and presents results based on the user’s current location.

1.5 Multi-Modal Navigation

Input: User selects origin, destination, and transport-mode preferences.

Output: Provides an optimal route integrating multiple transport modes.

Description: Combines bus, metro, walking, cycling, etc., into one seamless navigation plan.

1.6 Real-Time Navigation Prompts

Input: User selects a route.

Output: Real-time voice and visual navigation prompts.

Description: Supplies step-by-step voice and on-screen instructions while the user follows the chosen route.

1.7 Personalized Preferences

Input: User sets individual preferences (e.g., avoid toll roads, avoid congested areas).

Output: Routes optimized according to those preferences.

Description: Allows users to tailor route planning to avoid tolls or traffic, improving the travel experience.

1.8 Location Sharing

Input: User chooses to share location with contacts.

Output: Sends current location to the designated contact.

Description: Lets users share their live location with family or friends for safety or coordination.

1.9 Travel Cost Estimate

Input: User selects origin, destination, and transport mode.

Output: Displays estimated travel cost.

Description: Calculates and shows the expected fare for the chosen route and transport mode.

1.10 Vehicle Location & Tracking

Input: User opts to track a vehicle.

Output: Shows vehicle’s current position and estimated arrival time.

Description: Provides live location and ETA of trackable vehicles such as buses.

1.11 Weather Integration

Input: None required; system fetches data automatically.

Output: Displays current weather and forecast.

Description: Integrates weather data so users can decide whether to carry umbrellas or adjust plans.

1.12 Night Mode

Input: User enables night mode.

Output: Interface switches to a dark theme.

Description: Reduces screen glare for comfortable nighttime usage.

1.13 Language Support

Input: User selects language.

Output: Interface and content switch to the chosen language.

Description: Supports multiple languages for global users.

1.14 Travel History

Input: User opens the history page.

Output: Displays past route plans and navigation records.

Description: Records and lists previous routes for easy review or reuse.

1.15 Notification Reminders

Input: User sets reminders.

Output: Sends push-notification reminders.

Description: Alerts users about departure or arrival times they have configured.

1.16 Community Interaction

Input: User posts or replies in the community.

Output: Displays posts and comments in the community feed.

Description: Allows users to share travel experiences and tips, fostering interaction.

1.17 Map Editing

Input: User submits map corrections.

Output: Updates map data after admin review.

Description: Enables users to report map errors or suggest improvements; changes are vetted and applied by administrators.

1.18 Ticket Purchase

Input: User selects service, trip, and seat.

Output: Completes purchase and shows order details.

Description: Integrates in-app purchase of bus, metro, or train tickets.

1.19 Parking Finder

Input: User chooses a location.

Output: Displays nearby parking lots and real-time availability.

Description: Helps users locate parking spaces and see current occupancy.

1.20 Energy Consumption Calculation

Input: User selects transport mode.

Output: Displays estimated energy consumption.

Description: Estimates and shows the energy footprint of the chosen travel mode to encourage eco-friendly choices.