# Functional Requirement

1.1 Route Planning

Input: User enters origin and destination.

Output: Displays multiple route options including public transport, walking, and cycling.

Description: Calculates and presents the best travel routes based on real-time traffic, public transport timetables, and user preferences such as shortest time or fewest transfers.

1.2 Real-Time Traffic Update

Input: No direct user input; relies on live data feeds.

Output: Shows current traffic status such as congestion and incident reports.

Description: The app automatically fetches and displays real-time traffic information to help users adjust their trips.

1.3 Public Transport Timetable Query

Input: User selects a bus stop, metro station, or other public transport stop.

Output: Displays timetable information for the selected stop.

Description: Enables users to look up the schedule of a specific stop to plan departure times.

1.4 Points-of-Interest Query

Input: User enters search keywords or a place name.

Output: Shows location and basic information of relevant POIs.

Description: Helps users locate nearby restaurants, shops, parks, and other points of interest.

1.5 Navigation Guidance

Input: User selects a route.

Output: Displays detailed guidance including walking directions and transfer details.

Description: Provides turn-by-turn navigation with voice prompts and visual cues to ensure users reach their destination smoothly.

1.6 Real-Time Location Tracking

Input: User enables location services.

Output: Shows the user’s current position and its relation to the chosen route.

Description: Uses GPS or Wi-Fi to track the user’s location on the map, confirming position and remaining journey.

1.7 Multi-Language Support

Input: User selects a language preference.

Output: Interface and content switch to the chosen language.

Description: Offers multiple language interfaces to accommodate users worldwide.

1.8 Personalization Settings

Input: User sets preferences such as route type or notification settings.

Output: App behavior adjusts according to these settings.

Description: Allows users to customize route preferences, notification alerts, and more to enhance the experience.

1.9 Offline Map Support

Input: User downloads offline maps.

Output: Provides offline map browsing and route planning.

Description: Enables route planning and navigation using downloaded maps when network coverage is poor.

1.10 Save Favorite Routes

Input: User marks routes as favorites.

Output: Saves the routes for quick access.

Description: Lets users store frequent origin-destination pairs to simplify daily trip planning.

1.11 Travel Cost Estimation

Input: User selects a route.

Output: Displays estimated transportation cost.

Description: Calculates and shows the expected fare for the chosen route to aid budget decisions.

1.12 Transit Card Top-Up

Input: User selects transit card recharge.

Output: Completes the top-up and displays the new balance.

Description: Offers on-the-go online recharge for transit cards so users can always maintain sufficient balance.

1.13 Smart Recommendations

Input: User’s historical travel records.

Output: Recommends routes or activities the user may find interesting.

Description: Suggests relevant routes or nearby activities based on past travel behavior.

1.14 Community Sharing

Input: User shares a route or review.

Output: Other users can view the shared content.

Description: Enables sharing of route experiences and reviews to foster community interaction.

1.15 Accessibility Navigation

Input: User selects an accessible route.

Output: Displays routes suitable for wheelchair users.

Description: Provides barrier-free route planning to ensure all users can travel safely and conveniently.