

Solution Practice 2

Scenario: Intermodal mobility app

The software company **FutureMobilitySolutions (FuMoSo)** is collaborating with the **municipal transport authority** and several **regional mobility providers** (stakeholders) to develop a next-generation mobility platform named **PlanMyJourneyApp**.

Task 1_Solution — Identify Core User Needs and Use Contexts

Objective: Understand what the system must achieve from a user perspective.

Instructions:

- Brainstorm and list at least five different user groups.
- For each group, describe their main goals and pain points the app should address.
- Identify the core use situations.
- What problems does the system actually solve for each type of user?

Core Users are the main types of people who will use the system

Pain points: specific problems or frustrations a user experiences while trying to reach their goal

Core use situations describe **when and how people use the app:**

- Planning the next trip at home/office before leaving.
- Checking live updates or delays while traveling.
- Comparing travel modes (car, train, bus).
- Paying once for the full trip.
- Saving favorite or frequent routes for future use.

Core Users	Goals	Pain points	Solved by app
Daily commuters / workers	reliable, fastest door-to-door trips; minimal transfers; predictable costs.	delays, missed connections, crowded vehicles, ticketing across providers.	shows the fastest route door to door (including walking parts), includes all transport types, saves favorite routes, supports multiple languages, and allows one-step payment with live re-routing.
Occasional travelers / tourists	simple, guided planning in unfamiliar cities; transparent pricing.	fragmented apps/tickets; uncertainty about exact start point to the station or from the station to their final destination.	combines all modes in one place, guides walking parts to and from stations, saves routes for later, supports multiple languages, and allows one payment for the full trip.
Students / on a budget user	cheapest acceptable route; student discounts where applicable with a decent duration of the trip.	cost trade-offs vs time; confusing tariff zones.	lets users choose between faster or cheaper routes, shows cost breakdowns, applies discounts, supports multiple languages, and saves preferred routes.
Elderly or mobility-impaired users	choose routes that are easy to walk and have elevators or low-floor buses.	some stations are not accessible, too many transfers, confusing payments.	filters only accessible routes, adds more time for transfers, allows simple one-step payment, accessibility options depending on the impairment (visual, auditive, mobility).
Business travelers	arrive on time, travel quietly and get receipts easily.	missed connections, different tickets, travel interruptions or other passengers can be noisy, making it hard to work.	suggests quieter or first-class compartments, picks routes with few connections, balances cost and time, gives live updates, and stores all receipts together.

Task 2_Solution — Define 5 Stakeholders and Perspectives

Stakeholders: all people or organizations that have an interest or influence in the system, even if they don't use the app directly.

Stakeholders	Interest	Contribution	Conflicts	How to manage
Public transport companies	Positive they want more passengers and easier ways for people to buy and use tickets	give real data about how people use their transport (like average capacity or routes used most), so the app can suggest alternatives when there are too many passengers.	they might not want to share company information with competitors or keep ticket prices low.	use data-sharing agreements, clear privacy rules, and fair, competitive pricing.
City or regional government	Positive they want less traffic, cleaner air, and better public transport for everyone.	they create the transport rules, give permissions, and sometimes help pay for the system.	they need to balance environmental goals with the money available.	they can support the system by giving funds or discounts to make it easier for people to use public transport.
App developers / system providers	Positive they want to build a good app that people like and that works well.	they design, code, and keep the app running safely and smoothly	they may face limits if there isn't enough money or if some companies don't want to share their data.	focus first on the most important features and work with companies and governments to agree on what data can be shared.
Users / passengers	Positive they want the app to be easy, cheap, and reliable for their daily trips.	they use the app, give feedback, and share travel data that helps improve the system.	users want low prices and privacy, but companies want to earn money and collect data.	be transparent about how data is used and let users choose privacy or data-sharing options, find a balance between affordable prices and benefits.
Payment service providers	Positive they want people to use the app to pay for their trips, which means more transactions for them.	they make it possible for users to pay safely and easily for all parts of the trip in one step.	they may disagree about the fees they charge or who controls the payment system.	set fair fees and make clear agreements about how the payment system works for everyone.

Task 3_Solution — Formulate Functional and Non-Functional Requirements

things the system must do or must be

Functional Requirements (FRs)	Non-Functional Requirements (NFRs)
1. The system shall plan a door-to-door route across modes when the user enters start, destination, and time, so that the whole trip is covered in one plan.	1. The system shall load route results within 3 seconds when a search is made, so that users don't get frustrated waiting. (Performance)
2. The system shall apply user preferences (fastest/cheapest/fewest changes/accessible/quiet or first-class) when computing routes, so that results match what the user values.	2. The system shall work correctly on phones, tablets, and computers when opened on any device, so that everyone can use it easily. (Compatibility)
3. The system shall show total price with a clear breakdown and available discounts when listing route options, so that users understand costs before paying.	3. The system shall keep running even if one transport data source is temporarily down, so that users still get useful route options. (Reliability)
4. The system shall offer one unified payment for the full trip when a route is selected, so that users don't need multiple tickets.	4. The system shall use clear buttons, icons, and text when showing information, so that the app is simple for all ages to use. (Usability)
5. The system shall show the walking part or other short connections (walking or bike/scooters mobility) when a trip includes them, so that users can reach the station and final address.	5. The system shall update live information (like delays or changes) every minute, so that routes stay accurate during travel. (Accuracy)
6. The system shall send live disruption alerts and propose re-routes when an active trip is affected, so that users can still arrive on time or inform the delay.	
7. The system shall save and recall favorite routes/trips when the user taps "Save," so that frequent journeys are one tap away.	
8. The system shall support multiple languages when the user chooses a language, so that tourists and locals can use the app comfortably.	
9. The system shall provide accessibility filters and add enough transfer time when accessibility mode is on, so that trips are easier for users with mobility needs.	
10. The system shall generate and store trip receipts when payment succeeds, so that users (e.g., business travelers) can download them later.	

Task 4_Solution — Prioritize Requirements: using the MoSCoW method.

Prioritize Requirements			
MUST have (essential for the app to work)	SHOULD have (important, but can come after core features)	COULD have (nice to have if time allows)	WON'T have (for now)
FR1: Plan a full door-to-door route across transport modes.	FR5: Show walking or micromobility (bikes, scooters) parts of the trip.	FR8: Support multiple languages.	Feature: Voice assistant for planning and navigation
FR2: Apply user preferences (fastest, cheapest, fewest changes, accessible)	FR7: Save and recall favorite routes.	FR10: Generate and store trip receipts.	
FR3: Show total price with clear cost details.	FR9: Provide accessibility filters and extra transfer time.	NFR2: Work on phones, tablets, and computers.	
FR4: Offer one unified payment for the full trip.	NFR4: Use clear buttons, icons, and text.	NFR3: Keep running even if one data source is down.	
FR6: Send live disruption alerts and propose new routes.			
NFR1: Load route results within 3 seconds.			
NFR5: Update live information every minute.			