

W1 PRACTICE

MOBILE UX – PROJECT – PART 1

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MOBILE UX – PROJECT – PART 1

In this project, you will work on a **bike rental mobile application** inspired by a real municipal service (Toulouse, France) **which does not work so well.**

The application allows users to:

- Locate bike stations
- Rent and return bikes
- Manage subscriptions
- Understand pricing and usage rules (*but should they really understand that...*)

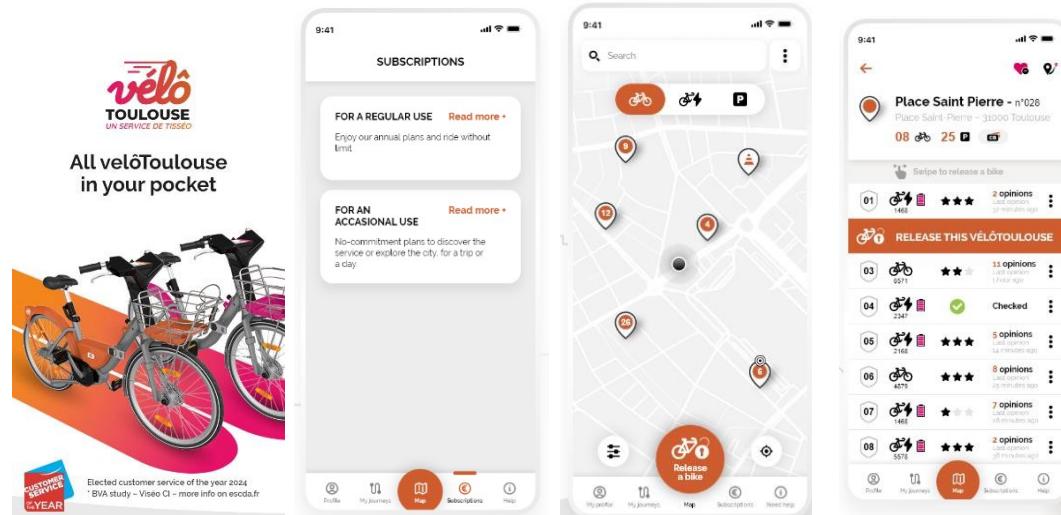
You will find the application specification on this document.

Your role is **not to correct the specification**, but to **analyze, structure, and transform it into a clear UX foundation.**

You will progressively move from **business understanding** to **user stories**, and jump to user flows and sitemap to specify the information architecture.

Next week you will continue with the Wireframe and widgets usages

<https://play.google.com/store/apps/details?id=com.jcdecaux.vls.toulouse>



Your goal is to improve an existing app by understanding the user flows and pains

EXPECTED OUTCOMES

1 – BUSINESS ANALYSIS

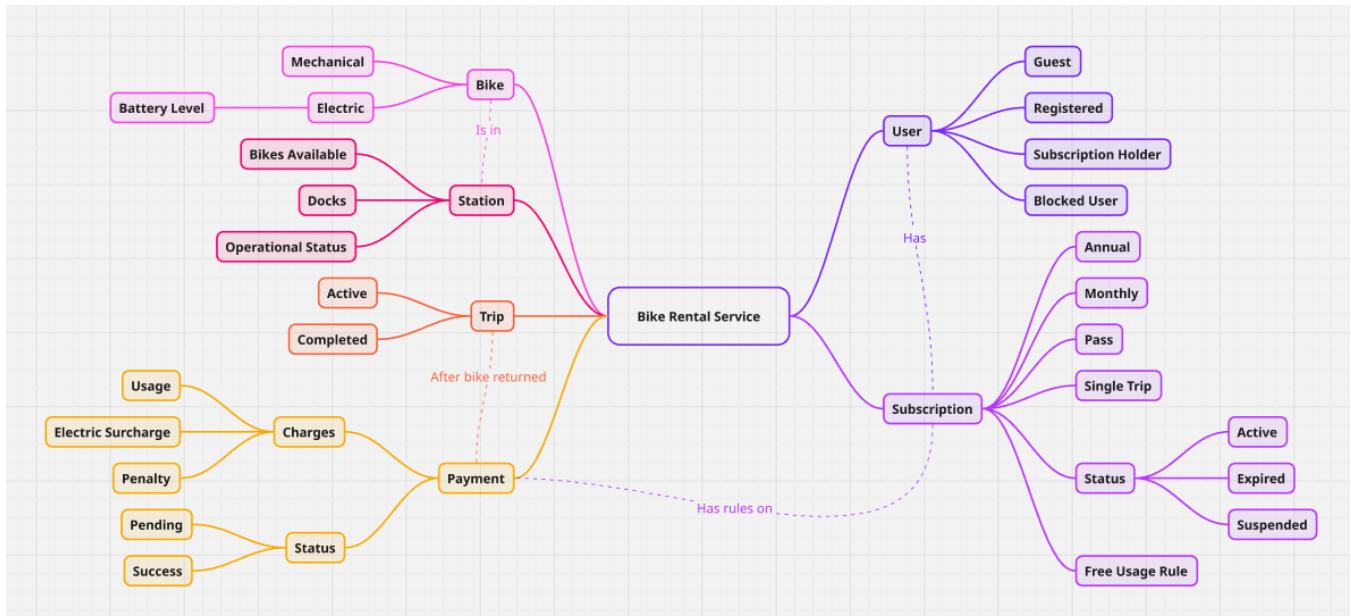
Read, understand the **specifications**, and **represent the business** concepts using mindmaps.

- Clarify the business taxonomy (definition.)
- Clarify the business concepts relationships (mind map)
- Clarify the business flow (flow diagrams)

⚠ Be able to identify what is really important, duplicated information etc.

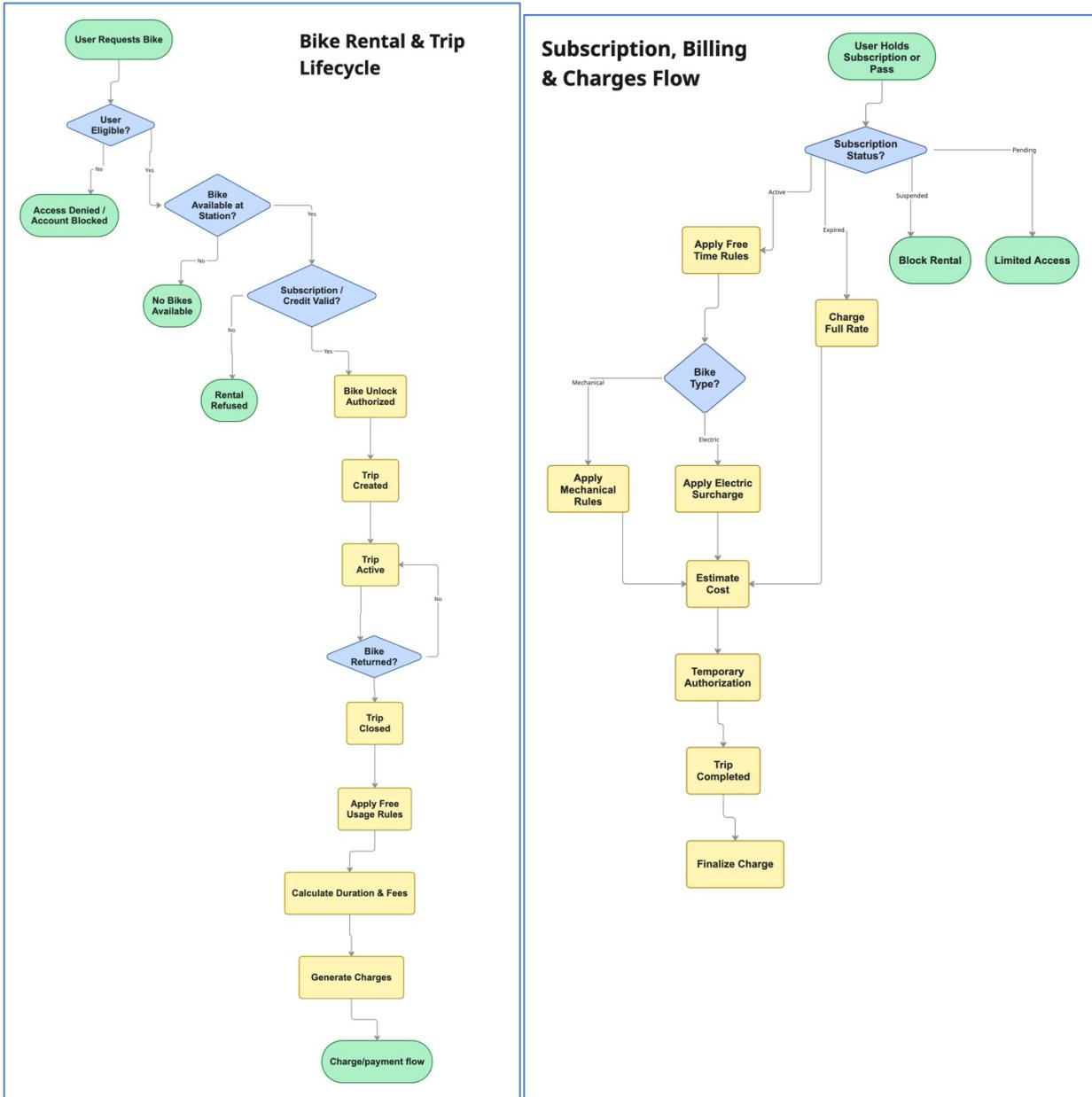
- Station: Physical docking points located throughout the city with a specific name and ID .
- Mechanical Bike: Standard city bike without electrical assistance .
- Electric Bike: Bike with battery assistance; availability depends on battery level and station.
- Dock (Block): A physical slot at a station used to secure a bike .
- Trip: The period starting from a successful unlock until the bike is locked at a station .
- Subscription: Long-term access (annual or monthly) .
- Pass: Short-term access (day pass or single trip) .
- Free Usage Duration: A set time (like 30 mins) where the trip cost is \$0, depending on the subscription type.
- Subscription status: the current state of a subscription (Active, Expired, Suspended, or Pending...).
- Operational status: whether a station is open or closed for maintenance.

Business/entities relationship



Modeled by the key taxonomies and how it relates to each other.

Business flow (system level)



Note: This is not UI (like tap or buttons) just core flow.

2 – PROFILES & USER STORIES

Based on the specification, identify and describe representative user profiles, reflecting:

- ◆ Different usage frequencies
- ◆ Subscription status
- ◆ Motivations and constraints

- Resident Commuter: Uses the service daily; likely holds an annual subscription and might have both personal and professional accounts.
- Occasional Local: Uses the service for specific errands; focuses on "Occasional Use" passes.
- Tourist: New to the city; needs immediate info on pricing, rules, and single-trip options without a long-term commitment.
- Electric-Only Rider: Specifically looks for assisted bikes and is willing to pay surcharges.

Translate business needs and user goals into **user stories**.

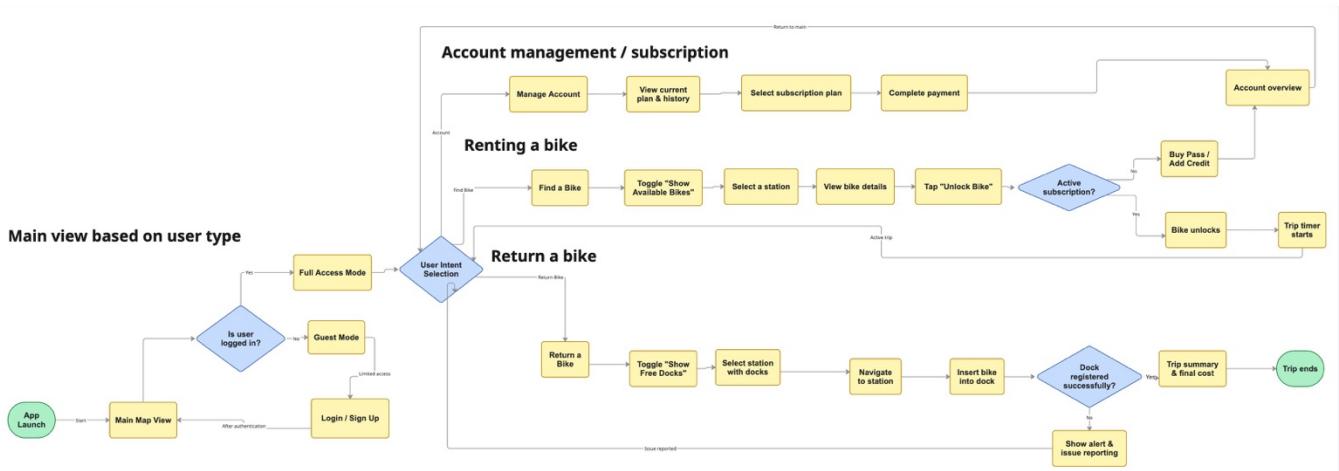
- As a user, I want to see the battery level of electric bikes so I don't pick one that will die mid-trip.
- As a user, I want to know before unlocking a bike whether my subscription or credit allows me to start a trip, so I don't encounter an unexpected error.
- As a user, I want to review my past trips and their final charges so I can understand and trust the billing.
- As a resident, I want to switch between my personal and professional subscriptions so I can bill my trips correctly.
- As a rider returning a bike, I want to see stations with free docks rather than available bikes so I can end my trip quickly.
- As a new user, I want to see the stations on a map without logging in so I can check if the service is useful to me.
- As a subscriber, I want to know exactly when my 30 free minutes end so I can avoid extra charges .
- As a subscriber, I want to know if extra charges apply when choosing an electric bike so I can make an informed decision.
- As a user with a failed return, I want an immediate alert if my trip is still active even though I docked the bike.
- As a user with a blocked account, I want to know if it is due to unpaid fees so I can resolve it immediately.

What are the **pain points of the existing app for the user?** (see user feedback below)

- Vague Errors: Users experience errors but are not given a clear reason for them.
- Disconnected Flow: Users try to book a bike, realize they lack credit, and are forced to leave the booking flow to find subscription management.
- Unclear Pricing: The relationship between bike booking and subscription types is confusing for users .
- Wrong Map Focus: When returning a bike, the app prioritizes showing available bikes instead of empty docks.
- Sync Issues: The bike may be physically returned, but the app keeps the trip active, leading to overcharging .
- Notification Overload: Messages may appear multiple times or in non-contextual sections.
- Multiple Charges: Users sometimes end up with several charges for a single trip.

3 – USER FLOWS

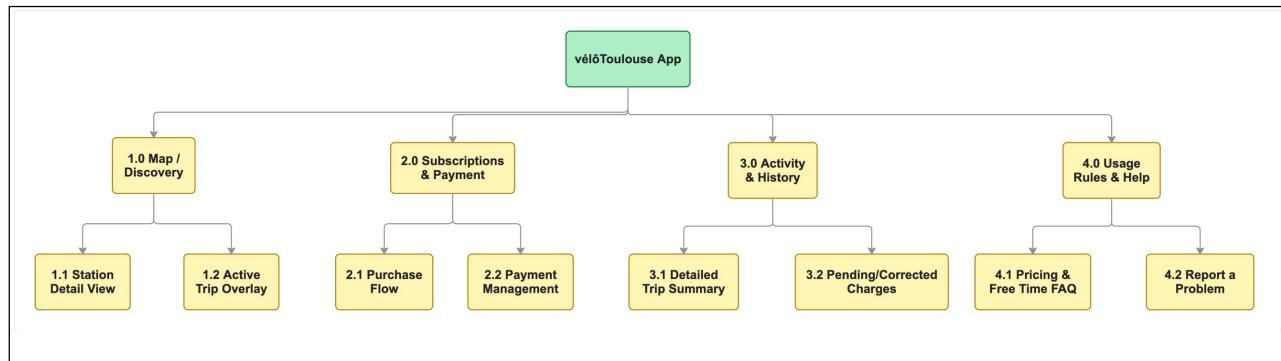
Design the user flow diagrams for **key scenarios** (e.g. renting, returning the bike, checking consumed credits)



4 – SITE MAP

Design the **sitemap of the application** (the graph of pages/views and their interactions)

- ✓ Include the **data** and **actions** related to each pages/view.
- ✓ Specify the **importance** of each element



Note: ★ = priority/importance

1.0 Map / Discovery (Main View) ★★★★

Purpose: Core service usage (rent & return) see all the bikes, the stations (core business)

Data

- Interactive city map with station pins
- Station name & ID
- Available bikes (Mechanical / Electric)
- Electric bike battery level (indicative)
- Free docks available
- Station status (Open / Maintenance)

Key Actions

- Search location or station
- Toggle **Find a Bike / Find a Dock**
- Filter by bike type
- Access user account

Sub-pages

1.1 Station Detail View

- Data: bike counts, dock availability, station status
- Actions: select bike / view issues

1.2 Active Trip Overlay

- Data: trip timer, estimated cost, battery warnings
- Actions: end trip guidance, error feedback

2.0 Subscriptions & Payment ★★

Purpose: Access rights & billing

Data

- Subscription type & status
- Free usage rules summary
- Account alerts (blocked / unpaid fees)

Key Actions

- Buy / renew subscription
- Manage payment method
- Switch subscription profile

Sub-pages

2.1 Purchase Flow

- Data: available plans, pricing rules
- Actions: confirm purchase

2.2 Payment Management

- Data: stored cards, pending authorizations
- Actions: add / remove payment method

3.0 Activity & History ★★

Purpose: for record saving

Data

- List of past trips
- Duration & cost per trip
- Estimated vs final charges

Key Actions

- Access trip details
- Review billing issues

Sub-pages

3.1 Trip Detail

- Data: timeline, bike type, cost breakdown
- Actions: report issue

3.2 Pending / Corrected Charges

- Data: adjustments, penalties
- Actions: review explanations

4.0 Usage Rules & Help ★

Purpose: Reduce confusion & handle errors

Data

- Free time rules (per trip / per day)
- Over-usage fees
- Return & locking instructions

Key Actions

- Access help articles

- Report problems

Sub-pages

4.1 Pricing & Free Time FAQ

- Data: simplified rule explanations
- Actions: navigate to related topics

4.2 Report a Problem

- Data: issue categories
- Actions: submit report

APPLICATION SPECIFICATION

1 – Context & Purpose

The city operates a **station-based bike rental service** allowing users to rent **electric or mechanical bikes** from docking stations distributed across the city.

The service is accessible through a **mobile application**, which enables users to:

- Access information about bikes and stations
- Rent and return bikes
- Manage subscriptions and payments
- Consult ride history and charges

The application is intended for:

- Residents
- Occasional users
- Tourists
- Users with or without subscriptions

HOW DOES IT WORK?

vélôToulouse is Tisséo Collectivités's bike-sharing offer.
Enjoy a fleet of more than 3,600 bikes distributed across more than 400 stations to get around the city with complete freedom!



For more information, read the official website.

<https://velotoulouse.tisseo.fr/en/home>

<https://velotoulouse.tisseo.fr/en/mapping>

2. Bike Types

The service provides two types of bikes:

Mechanical Bikes

- Standard city bikes
- No electrical assistance
- Available at most stations
- Subject to free usage duration depending on subscription

Electric Bikes

- Electrically assisted bikes
- Limited availability depending on station
- Additional charges may apply depending on subscription and usage duration
- Battery level varies and may affect availability

Some stations may:

- Contain only mechanical bikes
- Contain only electric bikes
- Contain a mix of both
- Temporarily contain no bikes

3. Stations

Stations are **physical docking points** located throughout the city.



Each station:

- Has a name and identifier
- Has a fixed number of docks
- May have available bikes and/or free docks
- Can be temporarily unavailable due to maintenance or technical issues

Station information includes:

- Number of available mechanical bikes
- Number of available electric bikes
- Number of free docks
- Station operational status

4. Users

Users may:

- Use the service occasionally
- Hold multiple subscriptions at the same time (e.g. personal + professional)
- Switch phones or reinstall the app
- Have unpaid fees or blocked accounts

Some features may be accessible without logging in. Such as viewing the stations on the map and their status.

5. Subscriptions & Passes

The service offers several types of subscriptions and passes.

Subscription Types

- **Annual subscription**
- **Monthly subscription**
- **Day pass**
- **Single trip (no subscription)**

Subscriptions may:

- Be active, expired, suspended, or pending
- Apply differently to mechanical and electric bikes
- Include free usage time (e.g. first 30 minutes free)

 The notion of “**first 30 minutes free**” may apply:

- Per trip
- Per day

Free Usage Rules (Indicative)

- Some subscriptions include **30 minutes free per trip**
- Some include **30 minutes free only on mechanical bikes**
- Some include **no free time on electric bikes**
- Free time resets after bike return
- Free time does not carry over

6. Rental & Trip Rules

A trip starts when:

- A bike is successfully unlocked from a station

A trip ends when:

- The bike is properly returned and locked at a station

Trips:

- Are billed based on duration
- May include additional fees for electric bikes
- May incur penalties if not returned correctly

Users can:

- Rent only one bike at a time per account
- Return a bike to any compatible station
- Be charged extra if the bike is not returned within a maximum duration

Some errors may occur:

- Bike appears returned but trip remains active
- Dock does not register return immediately
- User ends up with multiple charges for the same trip

7. Payments & Charges

Payments are required for:

- Subscription purchases
- Usage beyond free time
- Electric bike surcharges
- Penalties or extra fees

Payment methods may include:

- Credit/debit card
- Stored payment method
- Temporary payment authorization

Charges may:

- Appear immediately
- Appear after trip completion
- Be grouped at the end of the day
- Be corrected later

Users may see:

- Estimated cost
- Final cost
- Pending charges

8. Notifications & Messages

The application may display:

- Informational messages
- Alerts
- Warnings
- Error messages

Examples:

- “30 minutes free included”
- “Electric bike surcharge may apply”
- “No bikes available at this station”
- “Trip still active”

Messages may:

- Appear multiple times
- Appear in different sections
- Not always be contextual

10. Edge Cases & Constraints

The system must handle:

- Users with **no subscription**
- Users with **multiple active subscriptions**
- Stations with bikes but no free blocks
- Stations with free blocks but no bikes
- Battery depletion during trip
- App closed during active trip
- Network loss during unlock or return
- Account blocked due to unpaid fees

11. User Feedback on existing application

- Many errors occur **without understanding their reasons**
 - Most of the time it's due to lack of credit, as the link btw bike booking and subscription is unclear
- The subscriptions are unclear to understand
- The flow is not clear as when we book a bike without enough credit, we need to come back to the subscription management etc.
- When we return a bike, **what we want to see is the free blocks to return it**, not the available bikes...