# TRAVLENDAR+

## Requirements analysis and specification document (RASD)

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# Goals - profile management

- Let the user register to the service and login via provided credentials;
- Let the user manage his/her own profile;
- Let the user delete his/her own profile;

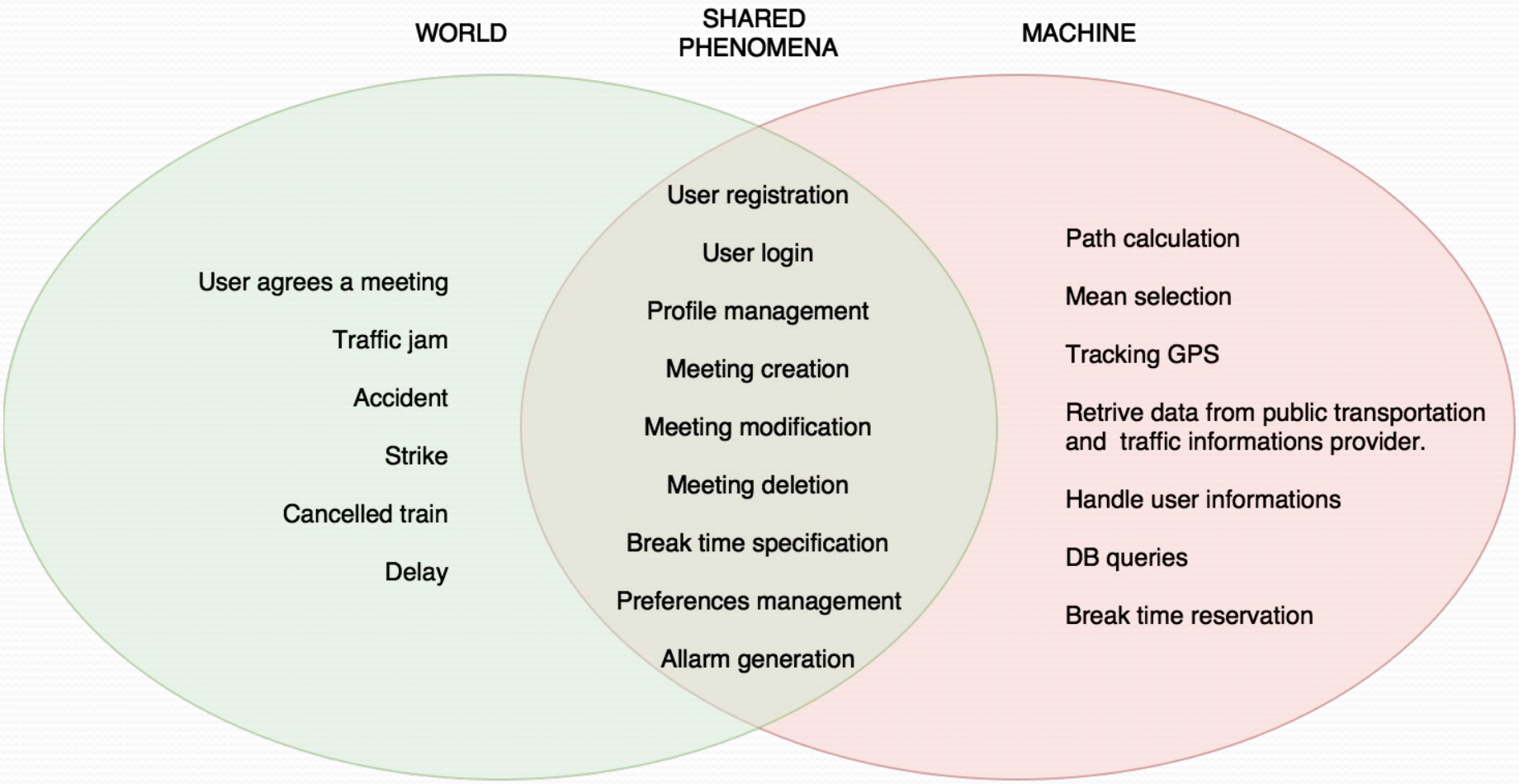
# Goals - meetings management

- Let the user insert his/her meeting in the schedule application;
- Let the user modify his/her meetings in the schedule application;
- Let the user delete his/her meetings in the schedule application;
- Let the user specify its intent to minimize his carbon footprint;
- Let the user specify a flexible break;
- Let the user specify an interval time for a break;

# System goals

- Let the system work efficiently by generating an alarm when a meeting is not possible within the specified time range;
- Let the system indicate which best travel means is to be used for a given meeting;
- Let the user indicate his/her preferences on the travel means;
- Automatically the system searches for the shortest path to reach the meeting site;
- Automatically the system searches the cheapest means of transport to reach the meeting site;
- Automatically the system must find the specify interval time to have break.

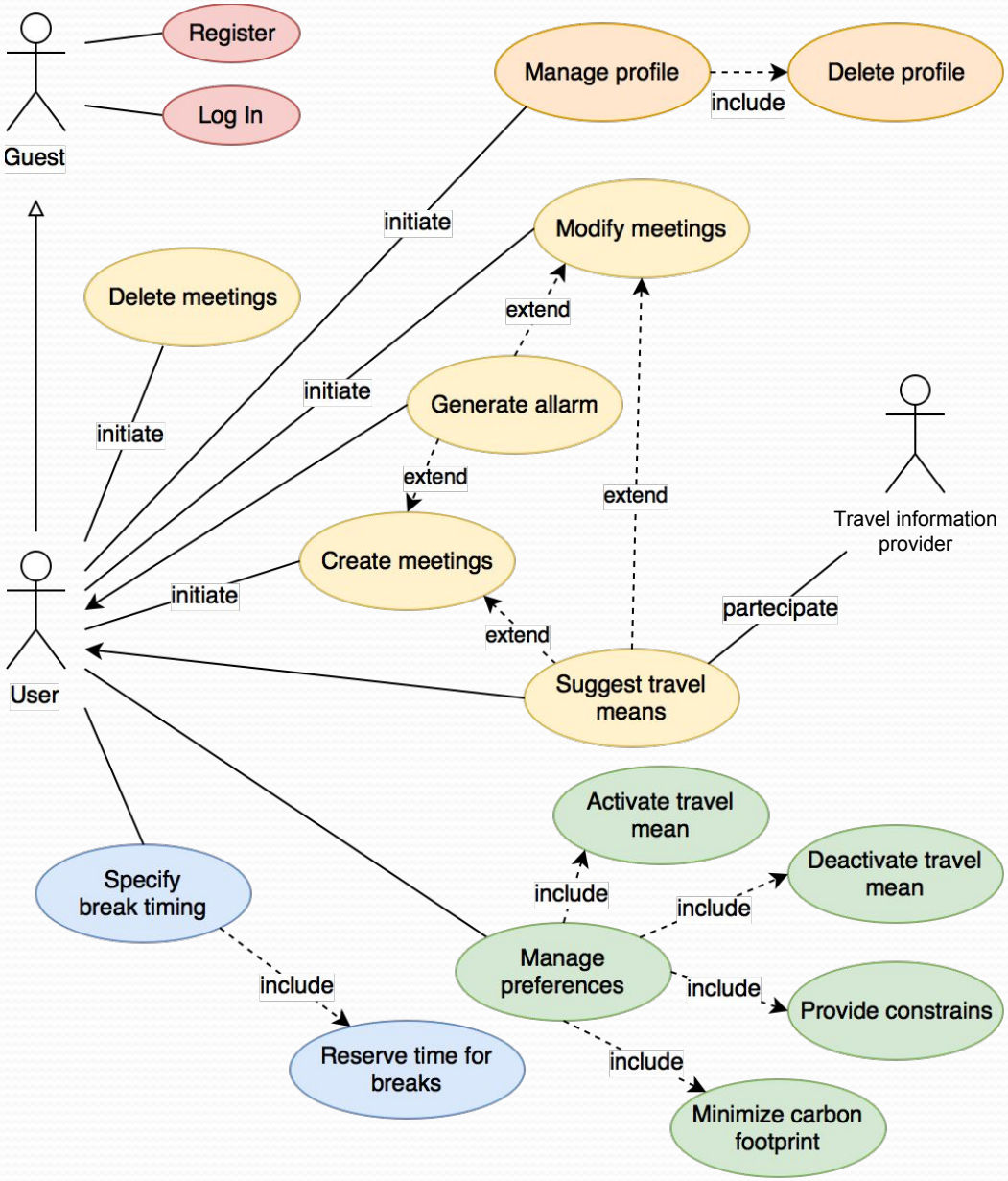
# WORLD AND MACHINE



# BOUNDARIES

- Our application relies on third part services such as Maps, Travel Search and Travel Checks Booking. Then the correctness of the information we provide to travel users is not under our control.

- If the third part services are down, we can’t guarantee the full functionality of the system.


Register
Log In
Guest
Manage profile
include
Delete profile
initiate
Modify meetings
Delete meetings
extend
initiate
Generate allarm
initiate
extend
extend
Travel information provider
Create meetings
initiate
extend
partecipate
User
Suggest travel means
Activate travel mean
Specify break timing
include
include
Deactivate travel mean
Manage preferences
include
Provide constrains
include
Reserve time for breaks
include
Minimize carbon footprint

# USE CASES

# Deactivate travel means

Mario, after breaking his leg, realizes that the only suitable means for his travels are taxi and Uber. Mario opens a browser window, reaches the Travelendar+ homepage and logs in. Then he clicks on his profile picture in the right of navigation bar, a dropdown menu appears and clicking "Edit Profile" he reaches a page showing his profile information and unchecks all the checkboxes near to the travel means excepted, either "Taxi" or "Uber". From now on the system could only rely on one other travel mean, either Taxi or Uber.

| | |
|---|---|
| Actor | User |
| Goal | Goal 9 |
| Input Condition | The user wants to deactivate a travel mean. |
| Event flow | 1. The user opens a web browser page or the mobile application and, if he/she has not already done, authenticates to the service;<br>2. The user reaches his/her profile settings page;<br>3. The user unchecks the checkbox corresponding to the travel mean he/she wants to deactivate. |
| Output Condition | The travel mean(s) is/are now deactivated as desired and the user is notified. |
| Exception | The travel mean(s) deactivation fails and the user is notified. |

# Functional requirements

- The user must log in;
- The system must display to the user the travel mean already selected;
- The system must allow the user to deselect a travel mean if it was previously selected;
- If a travel mean has been deselected, from now on it can not be taken in consideration when the system calculates the optimal travel between two locations;
- Either a modification succeeds or it fails, the user must be notified.

# Specify break time

Ubald is a university professor and on Wednesday he has two hours lesson in the morning (10 a.m. -12 a.m.) and two hours lesson in the afternoon (1 p.m. 3 p.m.). Ubald connects to the “Travlendar +” home page and selects the "BreakTime" entry.

The system shows you a form to be filled in with the date and time interval for the break. Ubald inserts the break from 12.30 to 15.30 and submits it by pressing on "Save".

The system verifies availability and saves it successfully in the database.

| | |
|---|---|
| Actor | User |
| Goal | Goal 13 and Goal 14 |
| Input Condition | The user specifies a time interval for break. |
| Event flow | 1. The user must login entering his/her email and password.;<br>2. The user selects "Break Time" button;<br>3. The system opens a form to be completed indicating date and duration of the interval;<br>4. The user inserts information regarding the date and the duration of break;<br>5. The user saves the information pressing on "Save" button;<br>6. The system processes the information, updates the database and notifies the user that the operation has been successfully concluded (specifying the start and end time for break). If not, it generates an error message. |
| Output Condition | The system selects within the time interval, time of specify duration for the break. |
| Exception | The system issues an error message if there is no duration time for the break during the specified time interval. |

# Functional requirements

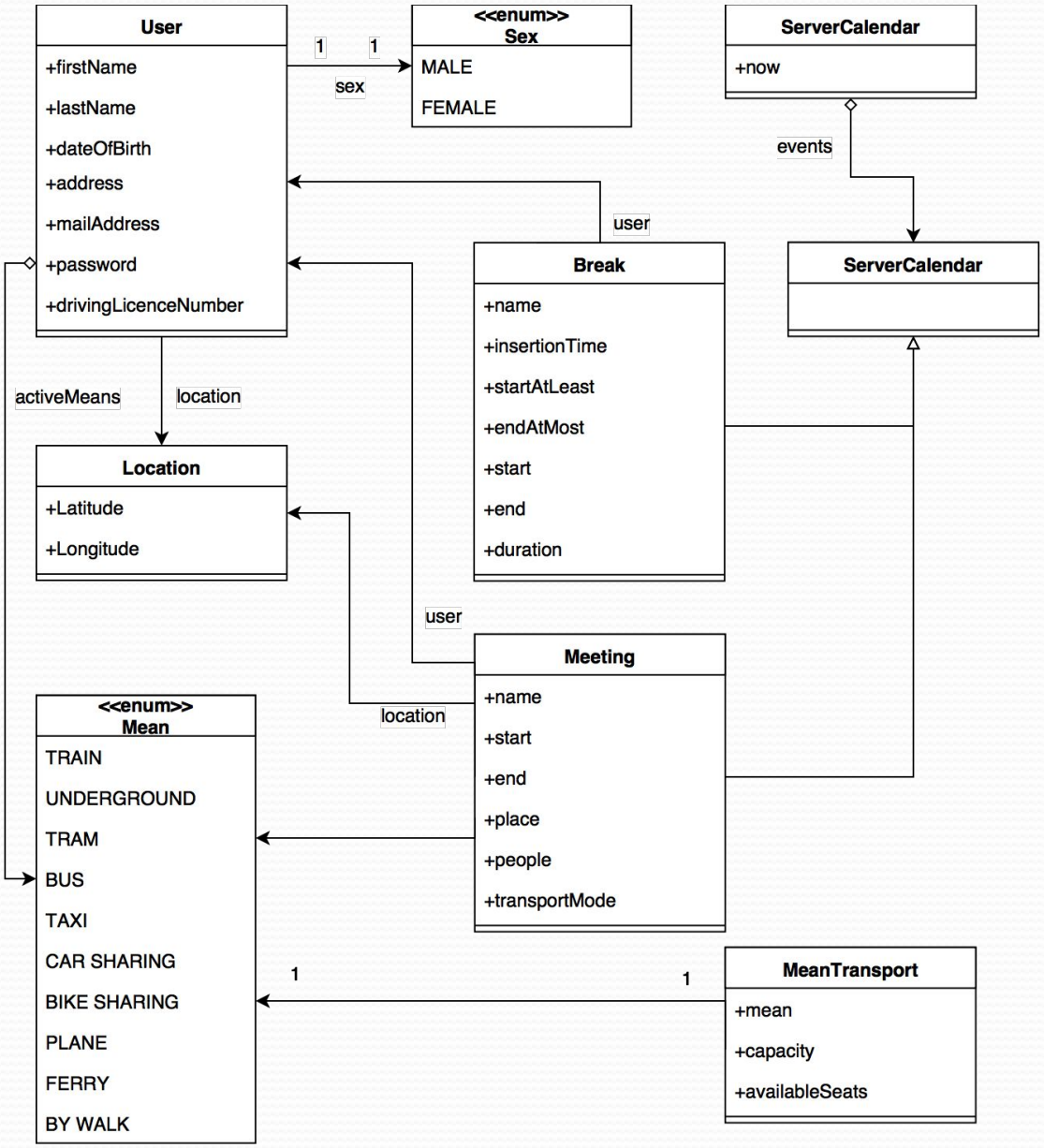
- The user must log in successfully.
- The user must enter information in the form:
  - Start time
  - End time
  - Duration
- The system must verify that the date is behind the insertion date.
- The system must check that the available time (duration time) is sufficient for the break.
- Once the information are verified, the system must update the database.
- The system must alert the user about the selected time interval.
- The system must send an error message if an incorrect date or time space is not available.

# ASSUMPTIONS

- Means of transport comply with users request.
- The device is always connected to the server.
- All users provide correct and valid data at time of registration.
- GPS shows the actual position of the owner.
- Provider Information shows correct and updated data.
- The event, when inserted, modified or deleted, must not be in the past.

# NON-FUNCTIONAL REQUIREMENTS

- Reliability 99.9%
- Availability 99%
- Security
  - Every communication between application server and client must comply the HTTPS protocol.
  - Communication between different servers must be SSL/TLS encrypted.
  - Sensitive informations (i.e. password) must be properly stored (i.e. key-hashed salted hash).
- Mantainability
- Portability




# CLASS DIAGRAM

# FORMAL ANALYSIS USING ALLOY

- The assertions that we check using Alloy are:
  - No overlap
  - Available seats imply higher capacity of the means transport
  - Duration of the break is equal to difference between end and start time