Travlendar+ Requirement Analysis and Specification Document

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1. INTRODUCTION

the RASD does not contain items that are unrelated to the definition of requirements (e.g. design or implementation decisions).

A. Purpose:

here we include the goals of the project
WHAT
This document addresses the requirement analysis of the application Travlendar+, which will be developed in order to automatize the process of scheduling meetings at various location all across a city. No previous version of this application have been developed. The intended audience is formed by the developers of the software, the financial stakeholders and the end users.

A.1 Goals:

[G1]: Allow users to have their personal calendar;

[G2]: Allow users to edit their personal calendar;

[G3]: Allow users to edit their preferences of travel;

[G4]: Allow users to choose among a few options of day-travel proposal computed by the application based on the user preferences, the user calendar, and the weather forecast of that day;

[G5]: Allow users to check any day scheduled appointments;

[G6]: Allow users to reserve flexible slot of time for custom breaks during the day.

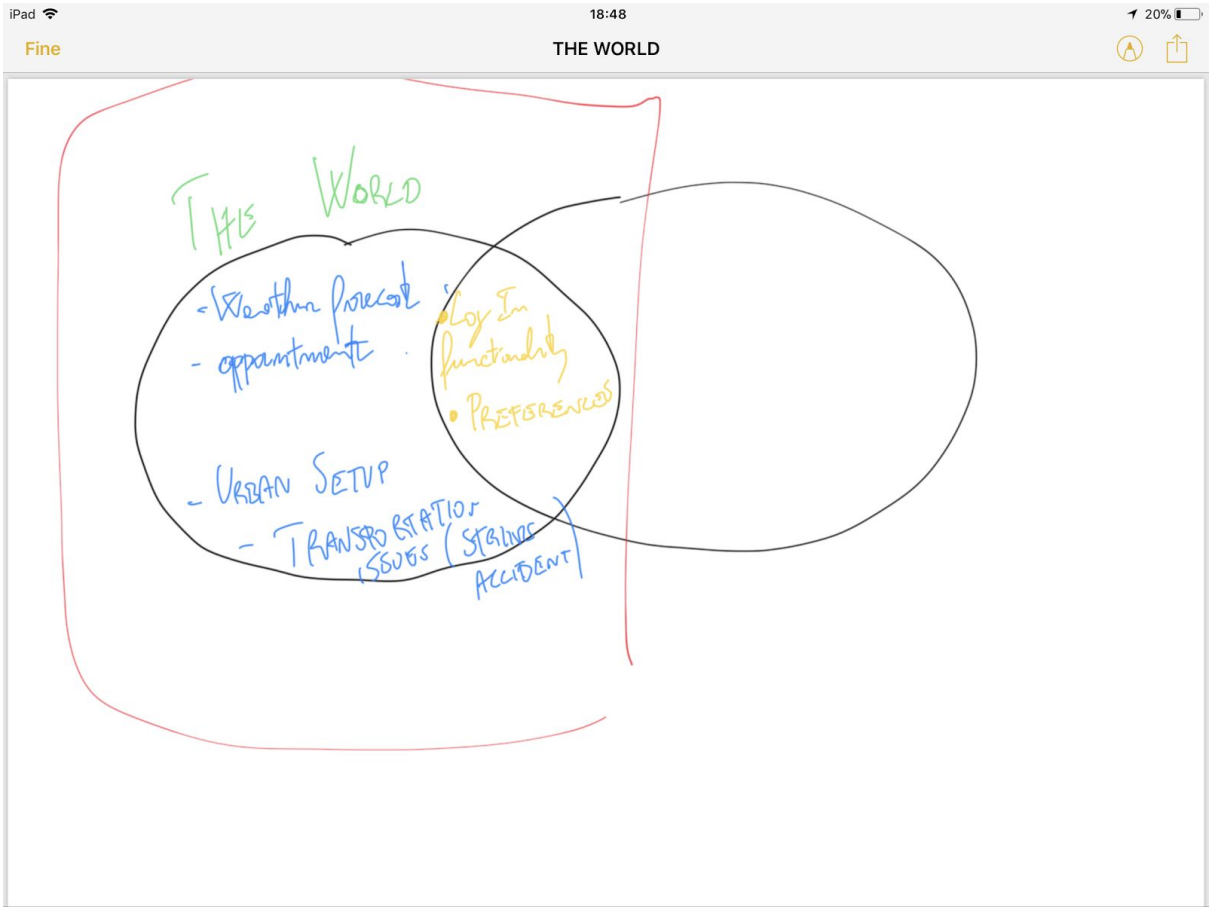
[G7]: Warning users when adding new appointment at a location which is not reachable on time.

[G8]: Allow the users to have a quick overview about travel proposal for the incoming appointment.

B. Scope:

here we include an analysis of the world and of the shared phenomena
Travlendar+ is an application which will automatize the process of scheduling the user's meeting during the day. Every day we spent a lot of time thinking and planning how to reach a location at a certain time, Travlendar+ allow users to save all this time. Users will be able to manage their own calendar by adding, updating or deleting personal appointment at various location and time during the day; they will be able to edit their preference of travel (use their own car, avoid the public transportation, use bike sharing…). Then the application

will compute a personal schedule taking into account the users calendar, preferences and the weather forecast. This will turn out into a concrete amount of saved times.
So the input that the application receive from the external world are: weather forecast, personal users appointment, transportation issues (like strike, accident or constructions), and also urban setup (streets, indications…). While what does the applications expect to been correctly specified by the users are the preferences of travel.



C. Definitions, Acronyms, Abbreviations

D. Revision history

E. Reference Documents

F. Document Structure

2. OVERALL DESCRIPTION

A. Product perspective:

here we include further details on the shared phenomena and a domain model (class diagrams and statecharts)

B. Product functions:

here we include the most important requirements
HOW

Requirements are expressed with respect to certain goals:

[G1] Allow users to have their personal calendar;

- [R1.1] A log in functionality must be provided in order to authenticate the user.
- [R1.2] User's data (calendar appointments, preferences, personal data) must be kept secret to the user himself and to anybody else.
- [R1.3] A password recovery functionality must be available in order for the user not to permanently lose access to the service.
- [R1.4] Users must be able to edit their personal data.

[G2] Allow users to edit their personal calendar;

- [R1.1] Users must be able to add an event to their personal calendar giving a title, a day, a time at which the event should be scheduled in the calendar.
- [R1.2] Users must be able to edit an existing event changing the title.
- [R1.3] Users must be able to delete an already existing event in their personal calendar.

[G3] Allow users to edit their preferences of travel;

- [R1.1] Users must be able to change their preference about car usage.
- [R1.2] Users must be able to change their preference about bike usage.
- [R1.3] Users must be able to change their preference about carbon footprint.
- [R1.4] Users must be able to change their preference about public transports.

[G4] Allow users to choose among a few options of day-travel proposal computed by the application based on the user preferences, the user calendar, and the weather forecast of that day;

- [R1.1] Computation of optimal route must take into account user preferences.
- [R1.2] Computation of optimal route should be made more times and each with different weight on preferences in order to give different day-travel proposals.
- [R1.3] If no feasible proposal can be computed then the user must be warned.
- [R1.4] There must be a way to let the user switch among different proposal.

[G5] Allow users to check any day scheduled appointments;

- [R1.1] There must be a comprehensive view over any given day.
- [R1.2] Travlendar+ application must be aware of the whole user's calendar even though a piece of it it's being showed to the user.
- [R1.3] Each appointment should have an estimated time of arrival (computed based on public transports) attached.

[G6] Allow users to reserve flexible slot of time for custom breaks during the day.

- [R1.1] Users must be able to edit preferences on break times choosing a lower and upper bound for lunch and dinner times and a minimum break time.

- [R1.2] No appointment can be successfully scheduled after another if it would not respect flexible break times.
- [R1.3] Change in break times preferences are not taken into account for previously scheduled appointments.

[G7]: Warning users when adding new appointment at a location which is not reachable on time.

- [R1.1] No overlapping appointments are allowed. A warning would show up and the user may not be able to schedule the event.
- [R1.2] Transport time estimation between appointment location being added and previous location on schedule must be done based on public transports only.
- [R1.3] The application must always be aware of the previous user location with respect to the newly added event.

[G8]: Allow the users to have a quick overview about travel proposal for the incoming appointment.

- [R1.1] The application must be aware of the current time of the day.
- [R1.2] The application must be aware of the next scheduled appointment.
- [R1.3] The application must compute a travel proposal to next event location to show to the user.

C. User characteristics:

here we include anything that is relevant to clarify their needs

D. Assumptions, dependencies and constraints:

here we include domain assumptions

3. SPECIFIC REQUIREMENTS:

Here we include more details on all aspects in Section 2 if they can be useful for the development team.

A. External Interface Requirements

A.1 User Interfaces

A.2 Hardware Interfaces

A.3 Software Interfaces

A.4 Communication Interfaces

B. Functional Requirements:

Definition of use case diagrams, use cases and associated sequence/activity diagrams, and mapping on requirements

C. Performance Requirements

D. Design Constraints

D.1 Standards compliance

D.2 Hardware limitations

D.3 Any other constraint

E. Software System Attributes

E.1 Reliability

E.2 Availability

E.3 Security

E.4 Maintainability

E.5 Portability

4. FORMAL ANALYSIS USING ALLOY:

in this section you will include your Alloy model. We require you to comment on the model by discussing the purpose of the model, what you can prove with it and why what you prove is important given the problem at hand. You are also required to show one or more worlds obtained by running your model.

5. EFFORT SPENT:

In this section you will include information about the number of hours each group member has worked for this document.

6. REFERENCES