

TRAVLENDAR+

FEDERICO BETTI – TOMMASO BIANCHI

RASD



Product Functions

TRAVEL

- Meeting-meeting or default location-meeting
- Biking, Driving, Walking, Public Transportation
- Preference list
- Constraints
- Real-time indications

MEETING

- Title, date and location
- Administrators
- Accept, decline or reschedule the invitation
- Chat, upload files and notes
- Categories and subcategories

User Characteristics

USER

- Login
- Create Meeting
- Calendar
- Groups and Contacts

ADMINISTRATOR

- Manage Meeting
- Invite/Remove Users
- Recreate Meeting
- Monitor Participants Delays

GUEST

- Registration

SYSTEM MANAGER

- Travlendar+ employee

Goals

- G1 Allow someone to visit the homepage of the system and to register himself providing a valid email, a password and a unique nickname. As an alternative, an external login provider, such as Google+, can be used.
- G2 Users can log into the system.
- G3 Allow a user to visit its profile and to see a detailed schedule of any day containing all the meetings he is attending and all the travels the system has planned him.
- G4 Allow a user to edit all information in its profile (e.g. displayed name, phone number, company, website, social accounts).
- G5 Allow a user to create a meeting and to invite other users to attend it.
- G6 Allow a user to know when there are problems in scheduling its meetings, signaling them with warnings.
- G7 Allow a user to specify flexible breaks during the day.
- G8 Manage users' travels between subsequent meetings, suggesting the best mobility option according to their preference list.

Goals

- G5 Allow a user to create a meeting and to invite other users to attend it.
 - G5.4 Allow the administrator to send invitations and remove participants.
 - G5.5 Allow the team to communicate between them, to share files and to save personal notes about the meeting.
 - G5.6 Allow the invited users to accept or decline the meeting or to propose a rescheduling in a different time slot.
 - G5.7 Allow the administrator to change the date of the meeting after a rescheduling has been proposed.
 - G5.8 Allow the administrator to poll the team to reschedule the meeting; if everyone accepts the rescheduling, the date changes.
 - G5.9 Allow the administrator to create a copy of a meeting with the same team and settings on another date.
 - G5.10 Allow the administrator to see who's late at the meeting.

Goals

- G6 Allow a user to know when there are problems in scheduling its meetings, signaling them with warnings.
 - G6.1 Allow a user to decline or reschedule overlapping meetings in order to remove the warning.
- G7 Allow a user to specify flexible breaks during the day.
- G8 Manage users' travels between subsequent meetings, suggesting the best mobility option according to their preference list.
 - G8.1 Allow a user to create a preference list and constraints about the way he wants to travel.



Requirements

- **G5 Allow a user to create a meeting and to invite other users to attend it.**
 - [R5] A user must be logged into the system to perform any action except registering and logging in.
 - [R12] Each participant in a meeting can access shared files and the chat.
 - [R13] Users participate in a meeting if and only if they accept the invitation.
 - [R14] Users do not participate in a meeting if they decline the invitation.
 - [R15] Users can write in the chat of a meeting if and only if they have received and accepted an invitation to it.



Requirements

- G6 Allow a user to know when there are problems in scheduling its meetings, signaling them with warnings.
 - [R16] For each meeting there is a warning iff the meeting is inconsistent.
- G7 Allow a user to specify flexible breaks during the day.
 - [R17] The system suggests you a time, according to your settings, to have a break such that no meeting overlaps with it; if no time slot is valid, a warning is generated.
- G8 Manage users' travels between subsequent meetings, suggesting the best mobility option according to their preference list.
 - [R19] The travel mean suggested by the system is always the first in the weighted preference list that satisfied all the constraints; if no travel mean satisfied all the constraints than the system suggests the fastest one.



Mockup - Calendar

This image shows the 'Day' view of the Travlendar+ mobile application. At the top, there's a header with a menu icon, the app name 'Travlendar +', and a user profile picture. Below the header, the date 'Mon 30/10/2017' is displayed. The main content area shows several event cards with details like time, location, and travel information:

- 10 AM/12 AM**
Management Board Meeting
1600 Amphitheatre Parkway Mountain View, CA
- 18 Min**
Subway
4.7 Km
- Office**
700-750 Willowgate St, Mountain View, CA
- 10 min**
Car
8.2 Km
- 15 PM/18 PM**
Technical Partners Meeting
One AMD Place, Sunnyvale, CA

At the bottom, there are navigation tabs for 'Day', 'Week', and 'Month'.

This image shows the 'Week' view of the Travlendar+ mobile application. It features a header with the app name 'Travlendar +' and various settings icons. The date 'Mon 30/10/2017' is prominently displayed. Similar to the day view, it lists events and travel details. A large '+' button is located in the bottom right corner. The interface includes three tabs at the bottom: 'Create', 'Day', 'Week', and 'Month'.

October 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11

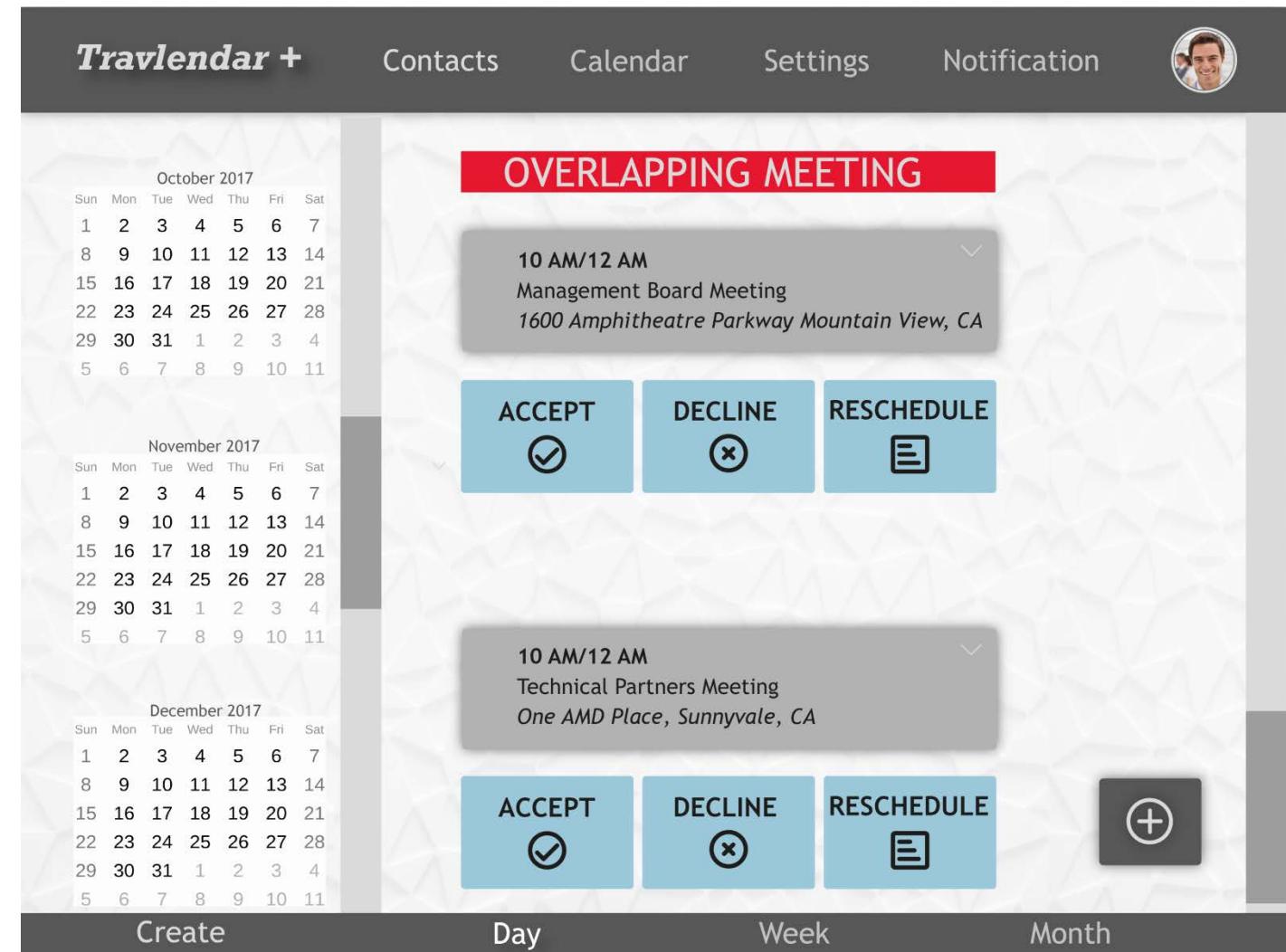
November 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11

December 2017

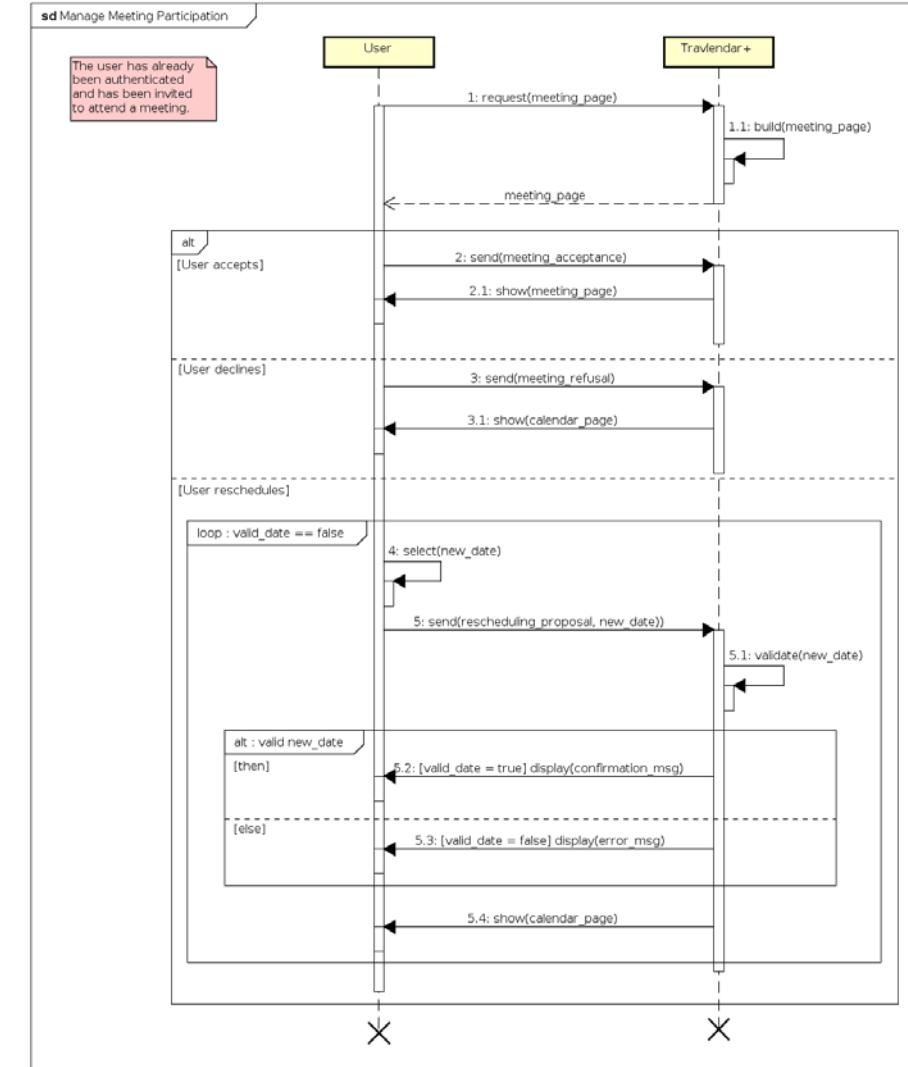
Sun	Mon	Tue	Wed	Thu	Fri	Sat
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15	16	17	18	19	20	21
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29	30	31	1	2	3	4
5	6	7	8	9	10	11

Mockup - Warning

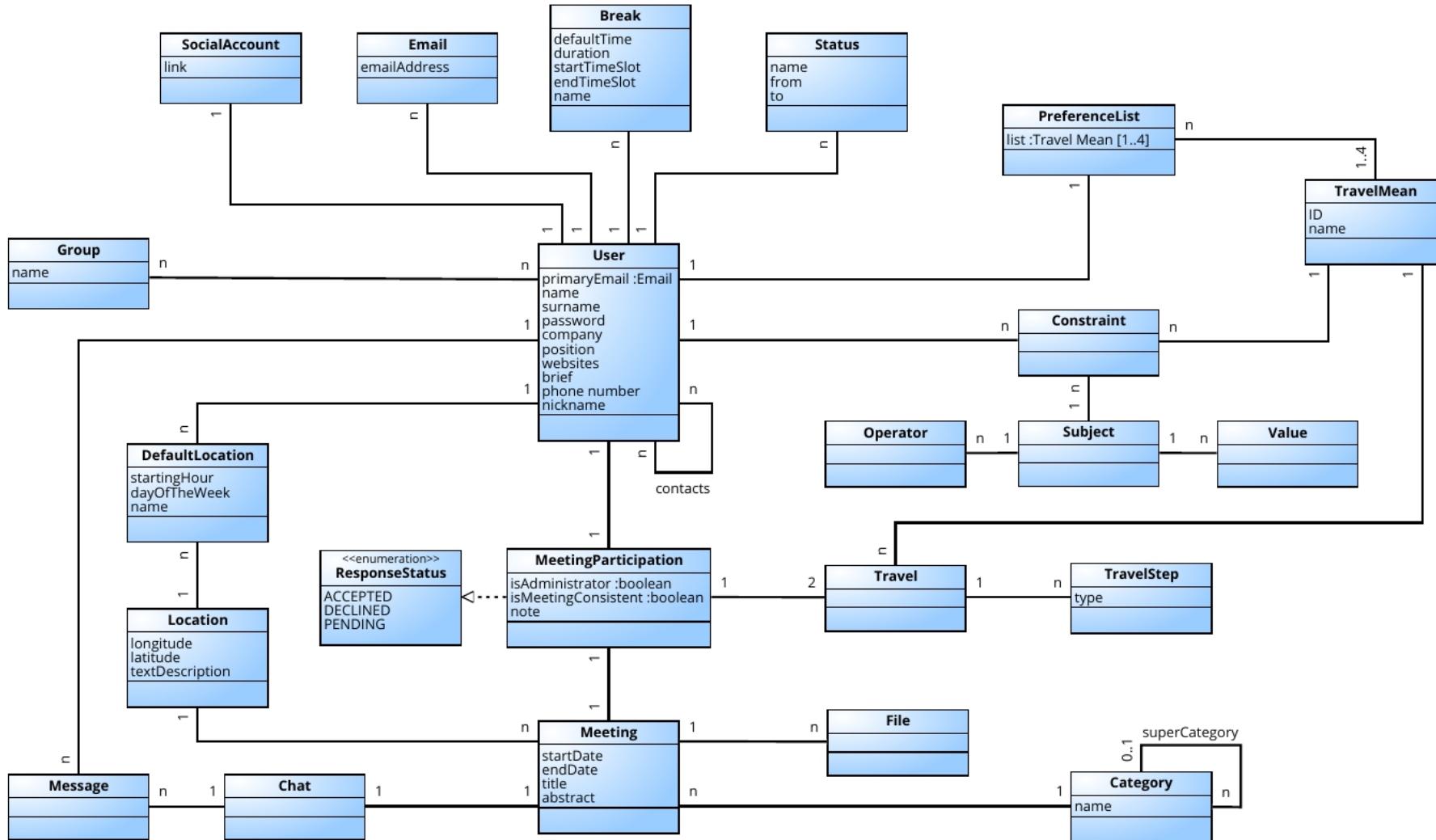


Manage Meeting Participation

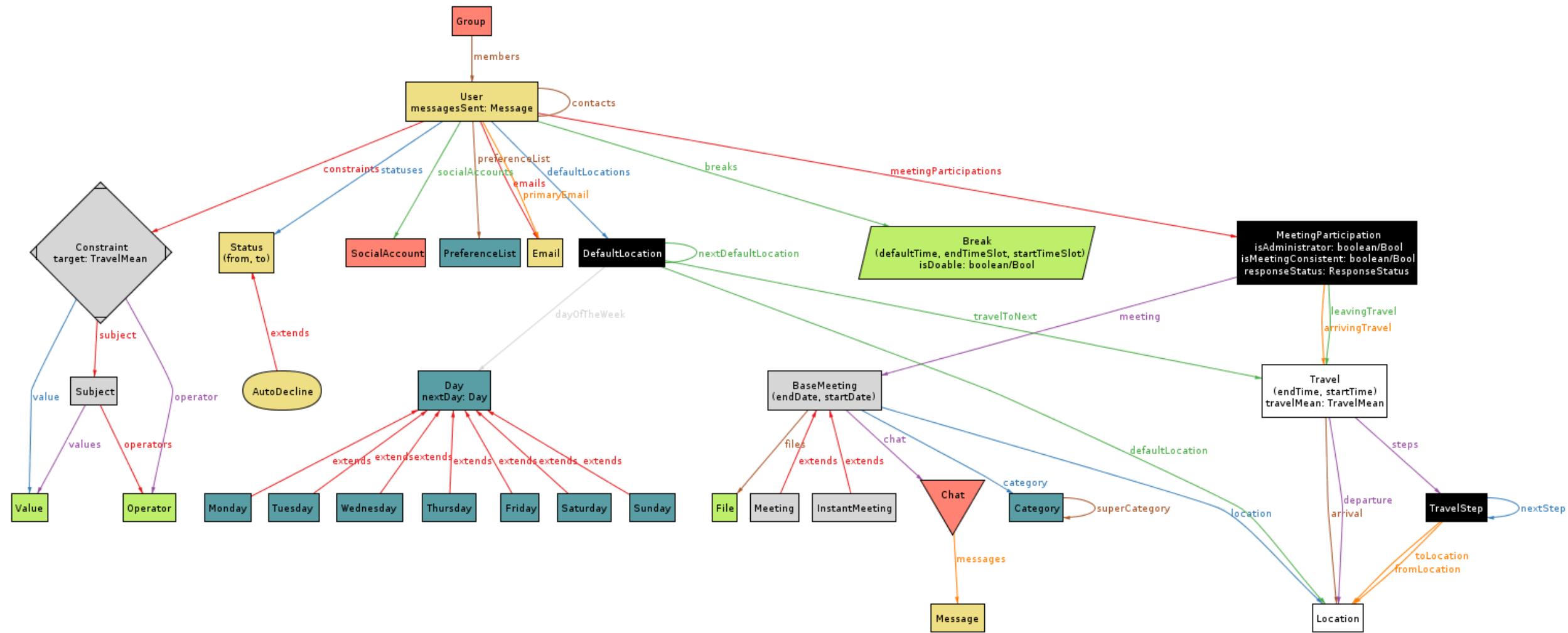
Actors	User
Goals	G5.6
Input Conditions	The user has already been authenticated by the system and has been invited to attend a meeting.
Events Flow	<ol style="list-style-type: none"> 1. The user selects a meeting it wants to manage by clicking on it in the "Calendar" page. 2. The system displays all the information about the selected meeting, such as the title, the date, the location and the other invited users. 3. The user clicks on the "Accept", "Decline" or "Reschedule" button. 4. In the latter case, the user selects a new proposed start date.
Output Conditions	The acceptance, refusal or rescheduling proposal of the meeting is recorded by the system. In the latter case, it is forwarded to the meeting administrator.
Exceptions	The user selects an invalid start date (e.g. a date which is in the past). The system shows the user a message reporting the errors and wait for a new date to be inserted.



Class Diagram



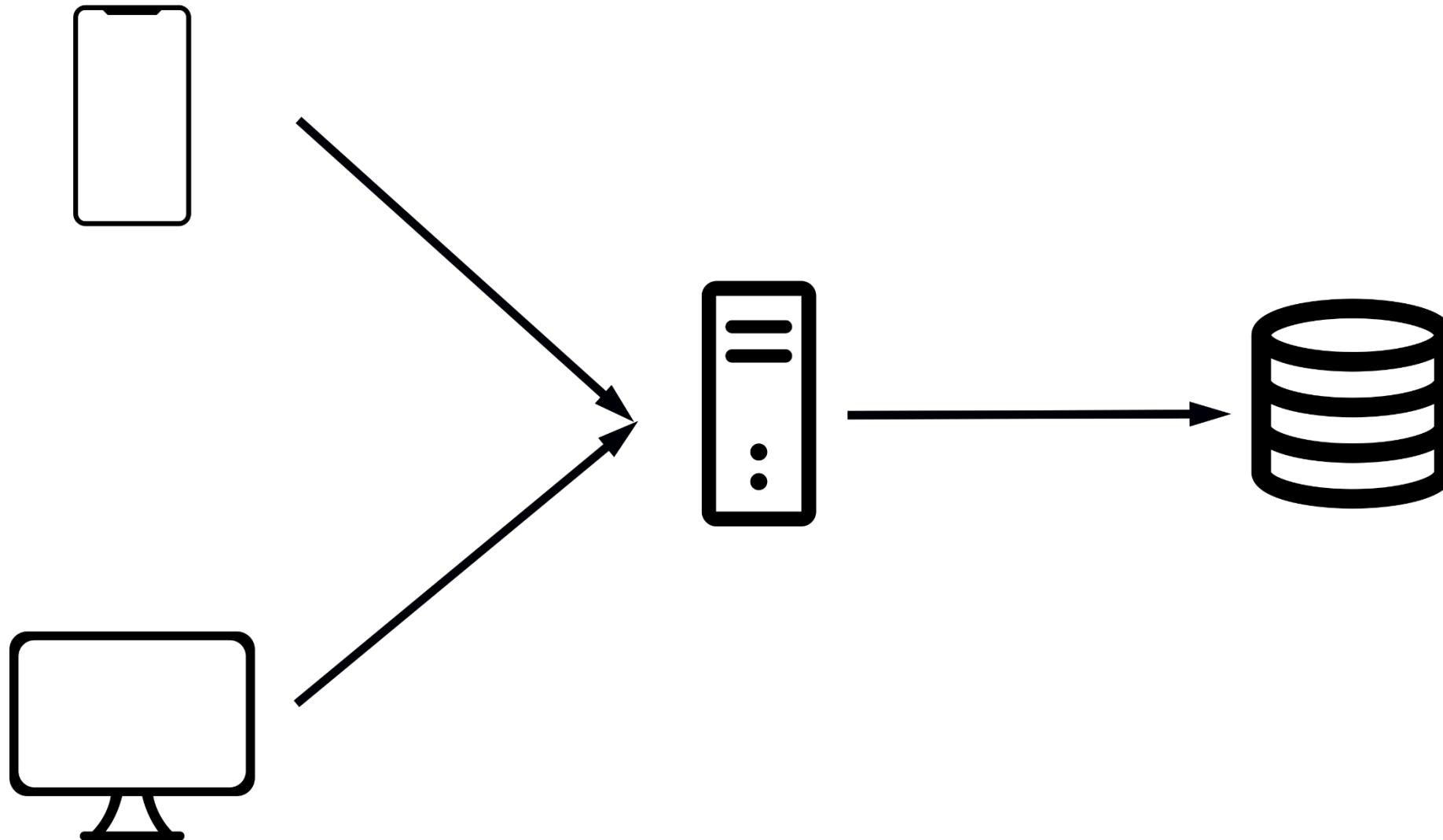
Alloy Metamodel



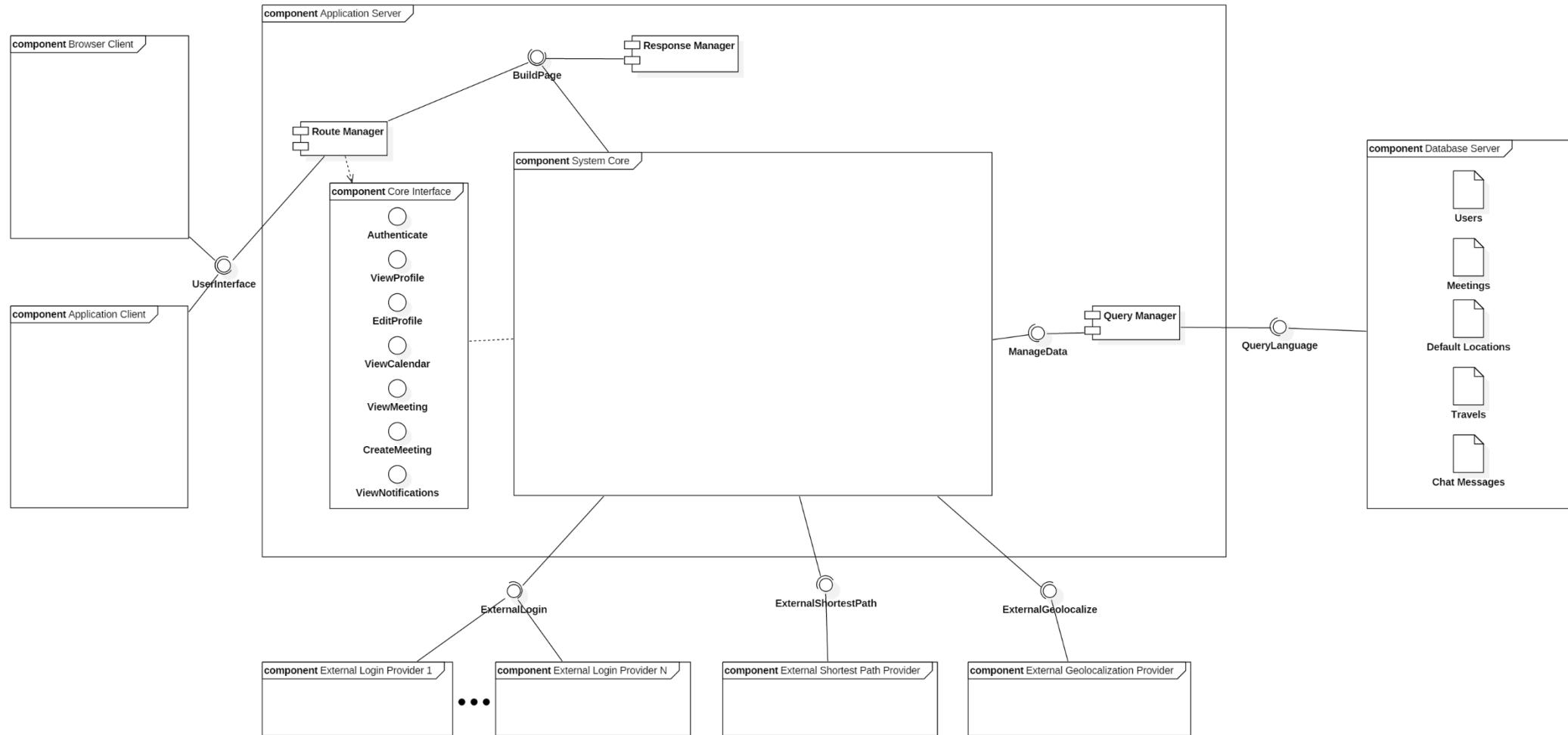
DD



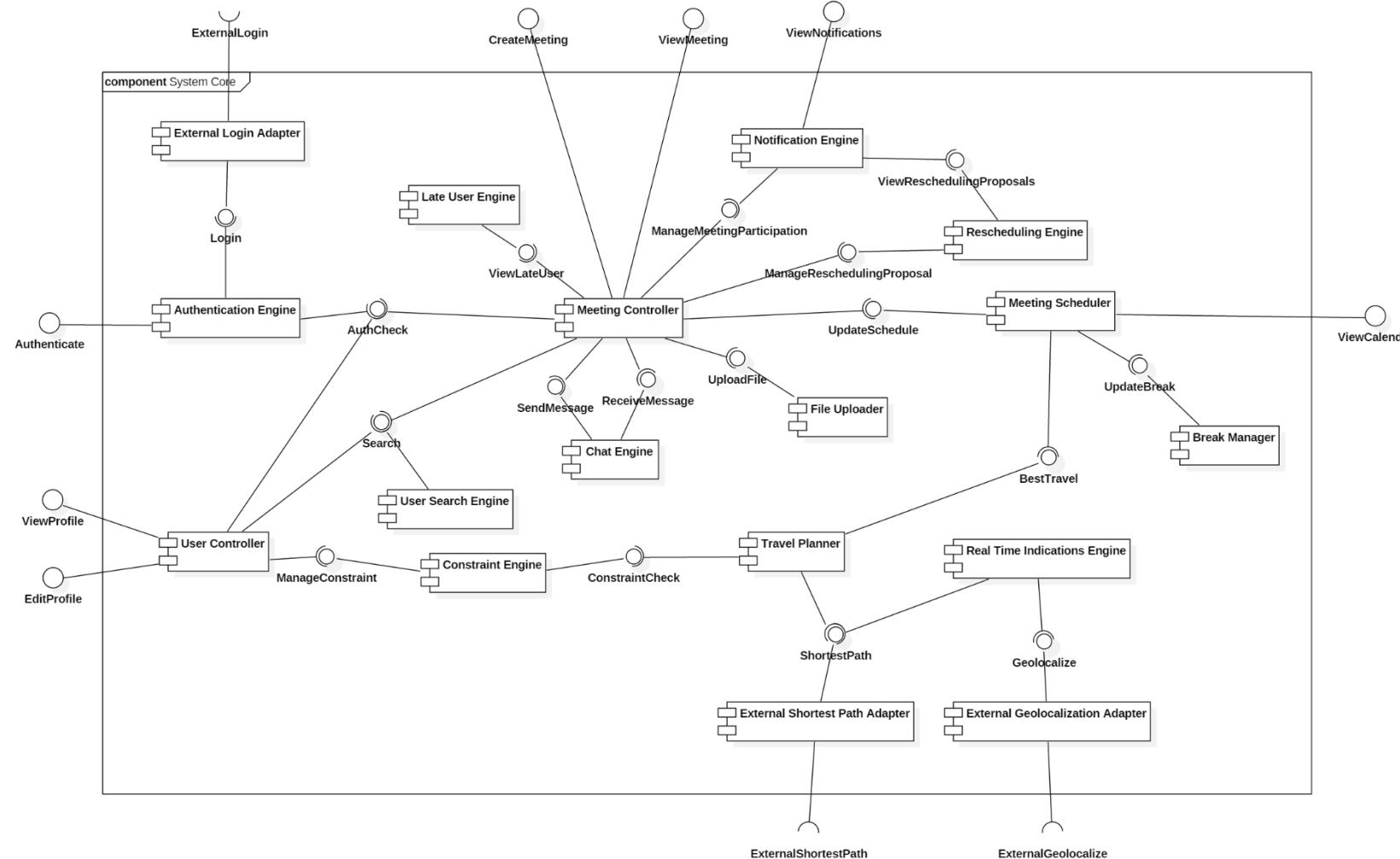
Architectural Style



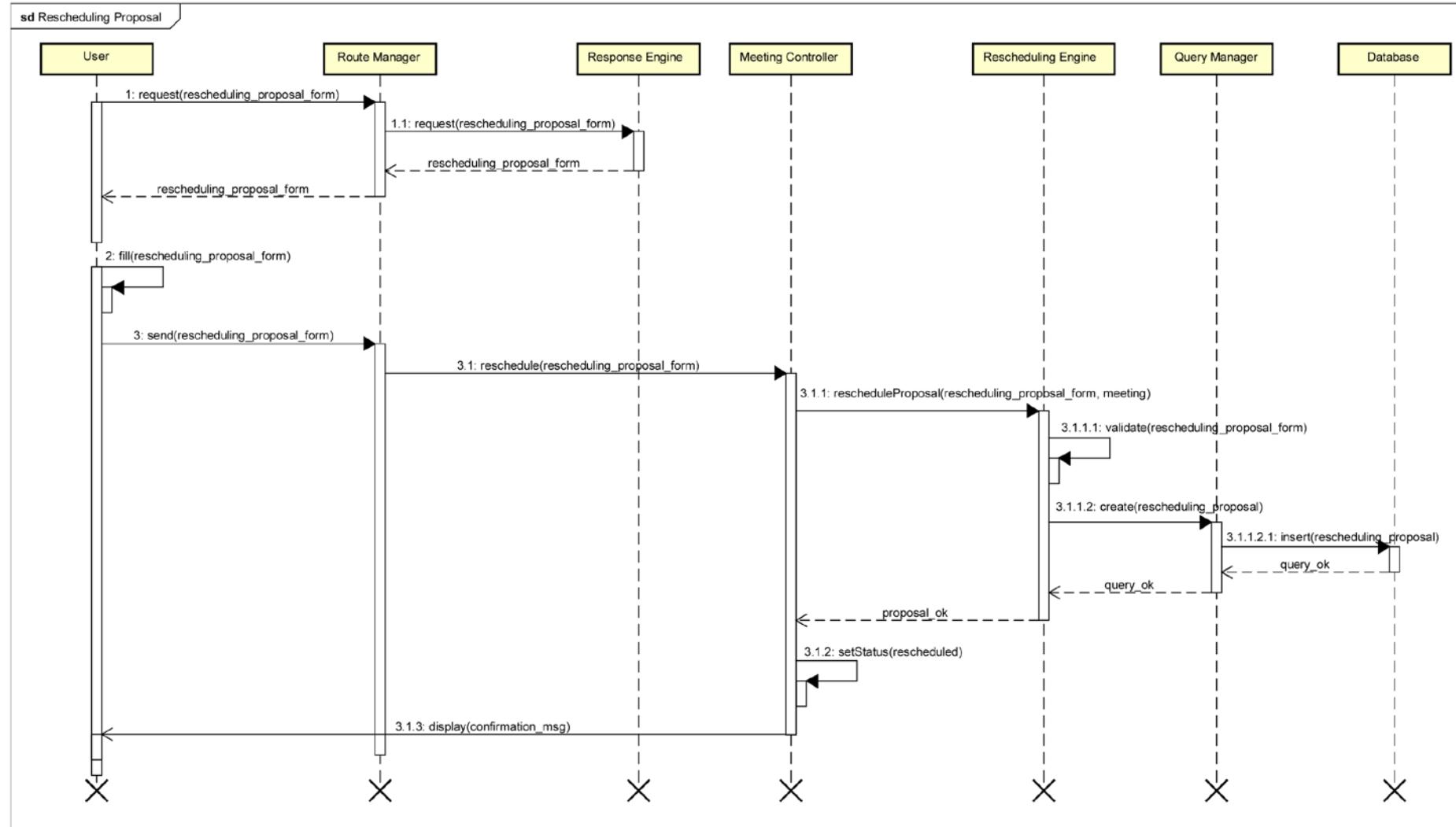
High Level Component Diagram



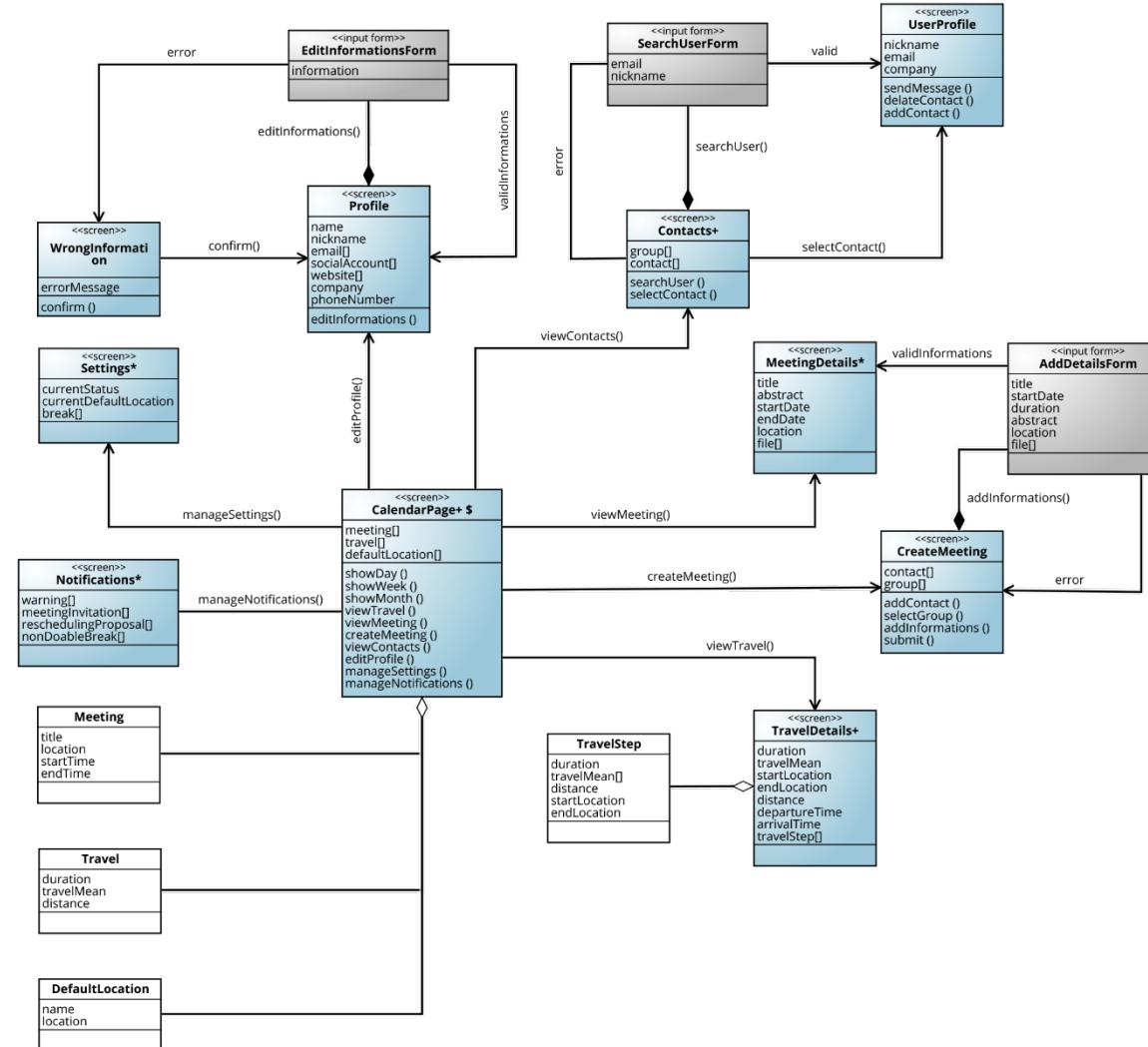
System Core Component Diagram



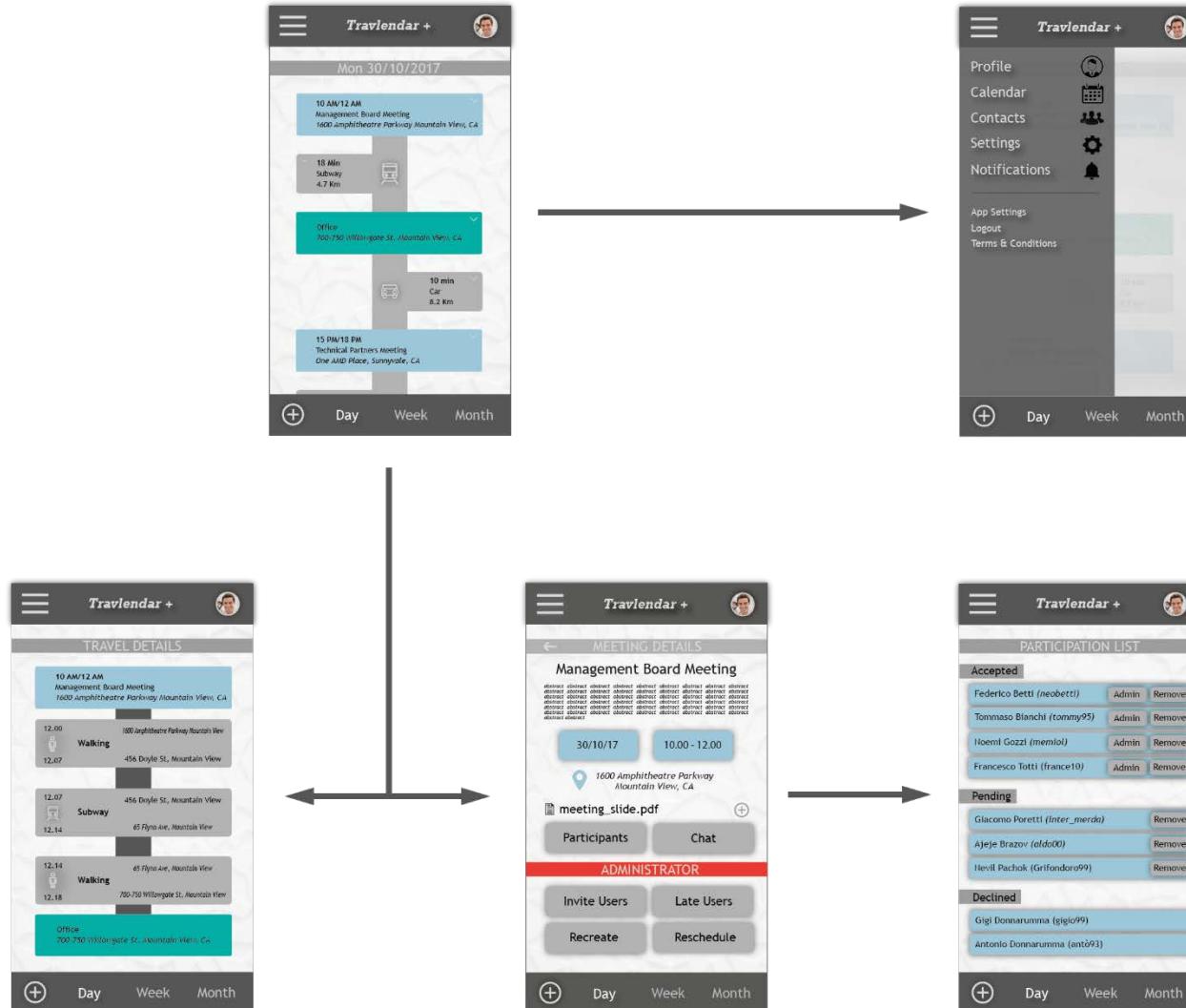
Rescheduling Proposal Runtime Diagram



Calendar Page UX Diagram



Calendar Page Mockups

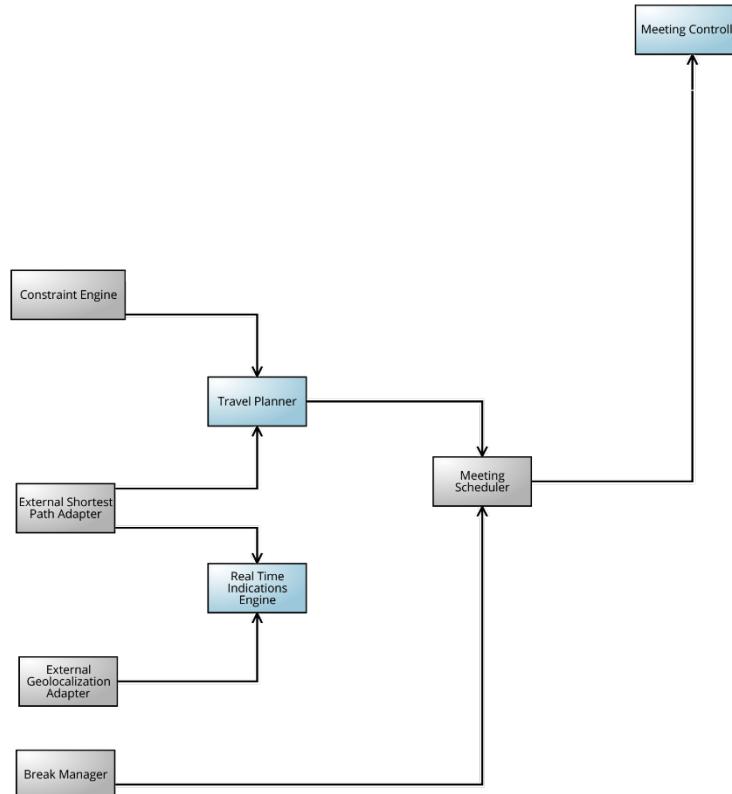


Algorithm Design

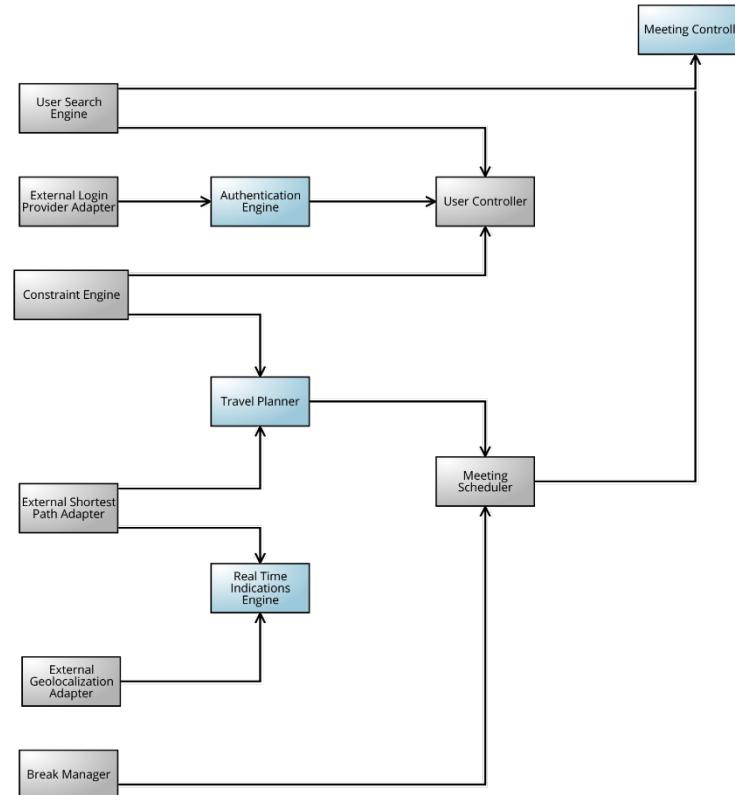
Insert_meeting function main steps:

1. Find all the meetings overlapping with the one that we are inserting and mark them as inconsistent; if at least a meeting is found, mark also the new one as inconsistent and terminate the function.
2. Try to compute a travel for arriving and for leaving the newly inserted meeting taking into account the previous meeting, the following one and the default locations; if this is not possible, terminate the function marking the new meeting and the conflicting one as inconsistent.
3. Adjust the effective time of all the flexible breaks overlapping with the new meeting; if this is not possible, mark the break as not doable.
4. Link the travels to the meeting and store everything, then terminate successfully.

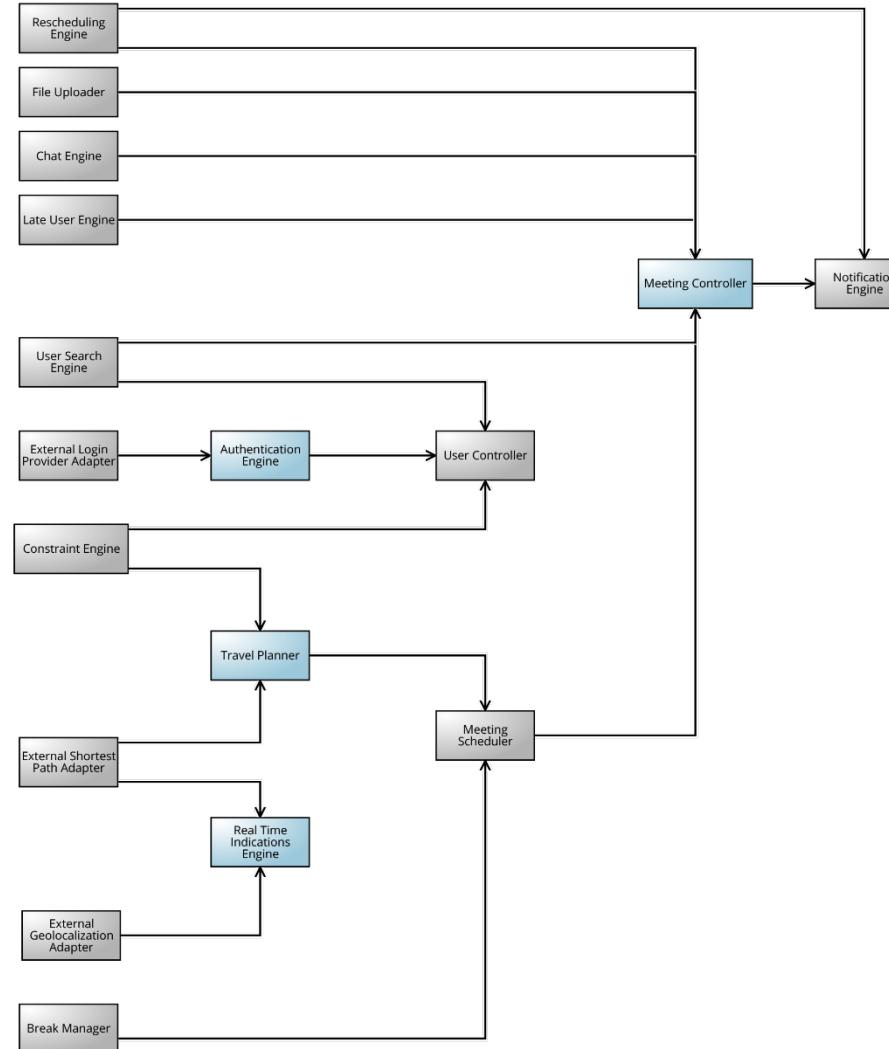
Implementation & Integration



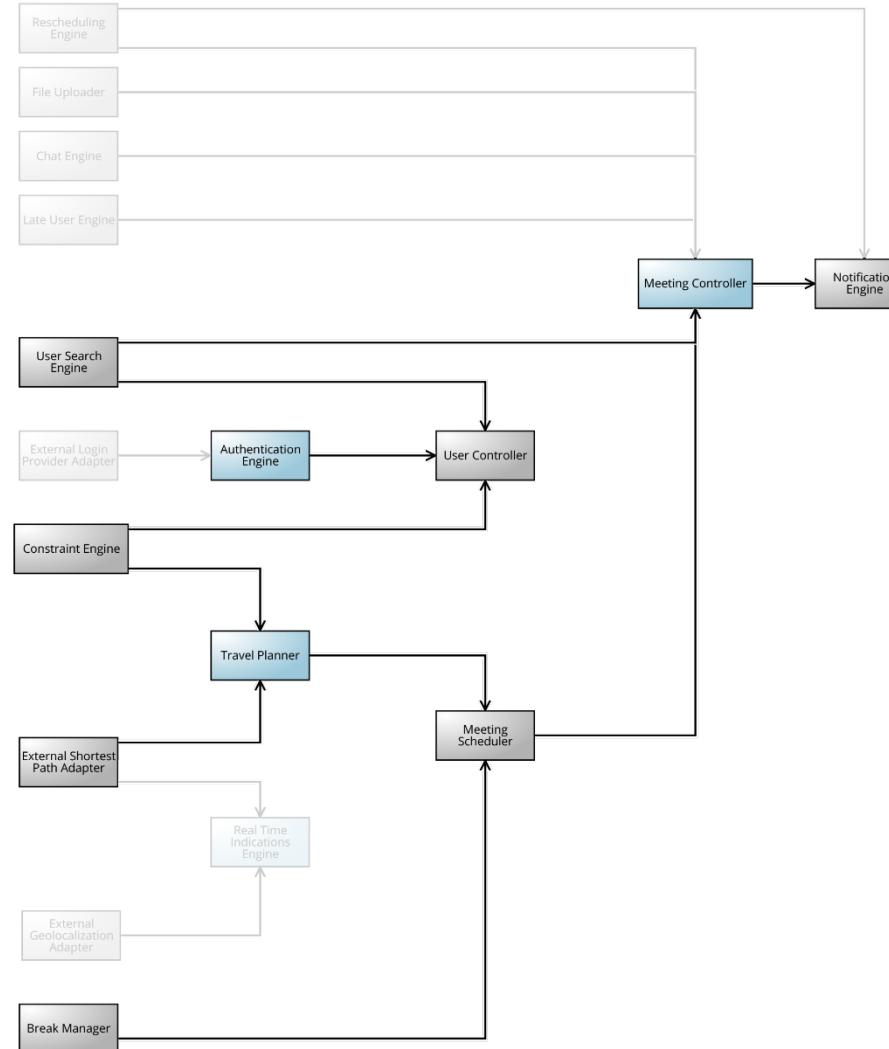
Implementation & Integration



Implementation & Integration



Implementation & Integration



ITD

Ruby on Rails

- Server-side web application framework.
 - Ruby language
 - Model View Controller, Convention over Configuration, Don't Repeat Yourself, Active Record
-
- Very fast development cycles
 - Active Community
 - Heroku



Ruby on Rails

ADVANTAGES

- Ruby on Rails is an opinionated framework
- Speed of Development
- Rails is an open-source web framework supported by an active community

DISADVANTAGES

- Runtime Speed and Performance
- A lot of hard dependencies and modules included out of the box
- High cost of wrong decisions in development
- Lacks tools for very large projects

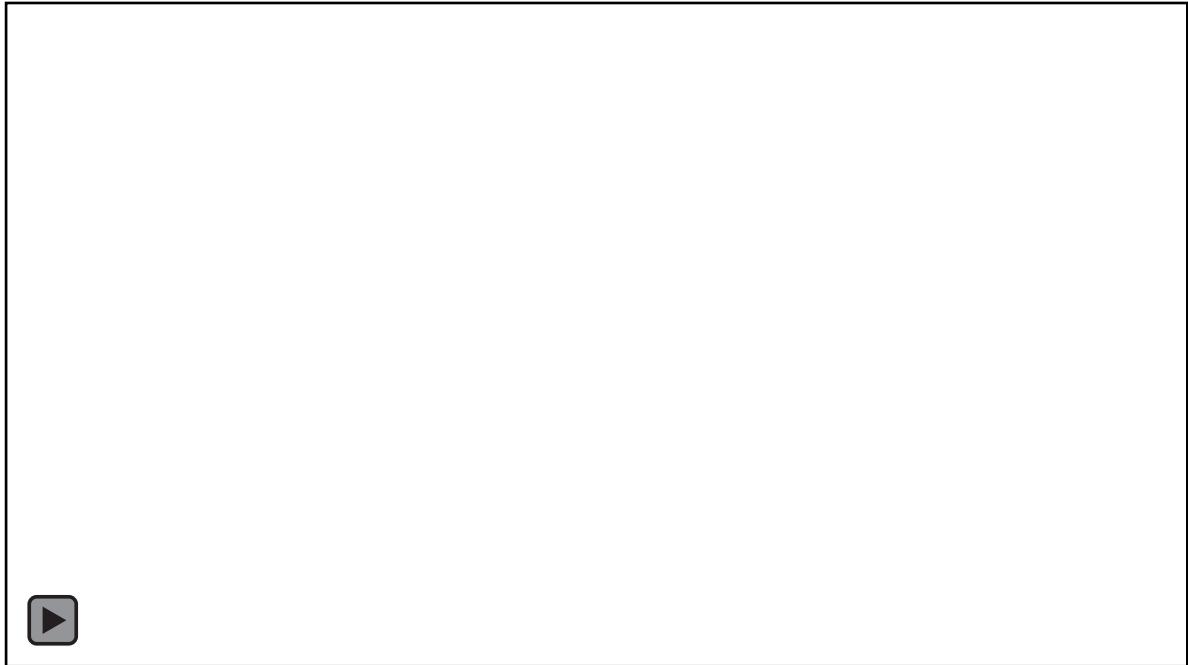


Testing

- Model Tests

- System Tests

- Login and Signup
- Section Navigation
- Meeting Creation
- Default Location Creation
- Break Creation





Implemented Requirements

IMPLEMENTED

- [R3] Users have to be registered into the system before logging in
- [R16] For each meeting there is a warning iff the meeting is inconsistent
- [R17] The system suggests you a time, according to your settings, to have a break such that no meeting overlaps with it; if no time slot is valid, a warning is generated
- [R19] The travel mean suggested by the system is always the first in the weighted preference list that satisfied all the constraints; if no travel mean satisfied all the constraints than the system suggests the fastest one

NON IMPLEMENTED

- [R6] Users cannot have meetings while their status is set to auto-decline
- [R8] Time travel between subsequent default locations should be less than the difference between their start time
- [R12] Each participant in a meeting can access shared files and the chat
- [R4] Users can use a supported external login system in order to log in

DEMO
