n|w Fachhochschule Nordwestschweiz
Hochschule für Wirtschaft

Online-Ausflugsplanung für Kleinreise-Unternehmen

Web Engineering Project D

Access and logins:

We recommend using Google Chrome for testing.

URL: https://wereiseunternehmen.herokuapp.com

GitHub: https://github.com/Eagleman1997/WE_Reiseunternehmen

Admin account: admin@admin.ch
Password: Admin1

User account: user@user.ch
Password: User1
You can also register yourself as a new user.

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Date, Location: 10.12.2018, Olten

Table of contents

1 Objectives and requirements

There is a small travel company which organizes trips with minibuses in Europe for up to 7 days each. We would like to sell this company a tool which makes their work easier.

1.1 *Objectives*

Mandatory objectives:

- List of participants of a trip (12 - 20 persons)
- Travel information (price, incl. short description of the days)
- Invoices (hotels, travel insurances, bus costs, others)
- Financial overview of a trip (final invoice)
- Forms for data input

Optional objectives:

- Use Ajax for certain functionalities
- Security
- Download tables as CSV
- Nice user experience and design
- Send mails with attachments

1.2 Use Cases

UC	Description
1	**User Access**
1.1	Login
1.2	Logout
1.3	Registration
2	**User Management (only Admin)**
2.1	Overview of all users including download
2.2	Deletion of other users or admins
2.3	Role change from user to admin and vice versa
3	**Hotel Management (only Admin)**
3.1	Hotel registration
3.2	Overview of all hotels
3.3	Deletion of hotels
4	**Bus Management (only Admin)**
4.1	Bus registration
4.2	Overview of all buses
4.3	Deletion of buses

Figure 1: Use Cases part 1

5	**Insurance Management (only Admin)**
5.1	Insurance registration
5.2	Overview of all insurances
5.3	Deletion of insurances
6	**Trip Template Management (only Admin)**
6.1	Creation of trip templates
6.2	Overview of all trip templates including download
6.3	Deletion of trip templates
6.4	Overview of a selected trip template (trip template info and dayprograms)
6.5	Add dayprograms to a selected trip template
6.6	Make a trip ready (visible) for the users to book
7	**Trip Management (Admin)**
7.1	Overview of all availabe trips
7.2	Overview of all booked trips
7.3	Overview of the selected booked trip (trip info, dayprograms, user & company)
7.4	Cancellation of the selected booked trip
7.5	Upload & download of received invoices
7.6	Overview of all uploaded invoices
7.7	Display and download of the invoice of the customer
7.8	Display and download of the final invoice
8	**Trip Management (User)**
8.1	Overview of all bookable trips (for registered & unregistered users)
8.2	Overview of all the booked trips of the user
8.3	Overview of the selected unbooked trip (trip info and dayprograms) (for registered & unregistered users)
8.4	Booking of the selected trip with the selected participants (inclusive email with customer invoice)
8.5	Overview of the selected booked trip (trip info, dayprograms, user & company)
8.6	Display and download of the invoice of the customer
9	**Traveler Management (User)**
9.1	Add new travelers (participants) to the user's account
9.2	Overview of all travelers of the user's account
9.3	Deletion of travelers

Figure 2: Use Cases part 2

2   Technical Specifications

The project is implemented using the following technologies:

- Server-side programming with PHP

- SQL database (MySQLi)

- Client-side programming with HTML (Bootstrap), JavaScript (jQuery), CSS, Ajax

- Github, Heroku (Add-ons: JawsDB Maria, PHPMailer), Netbeans
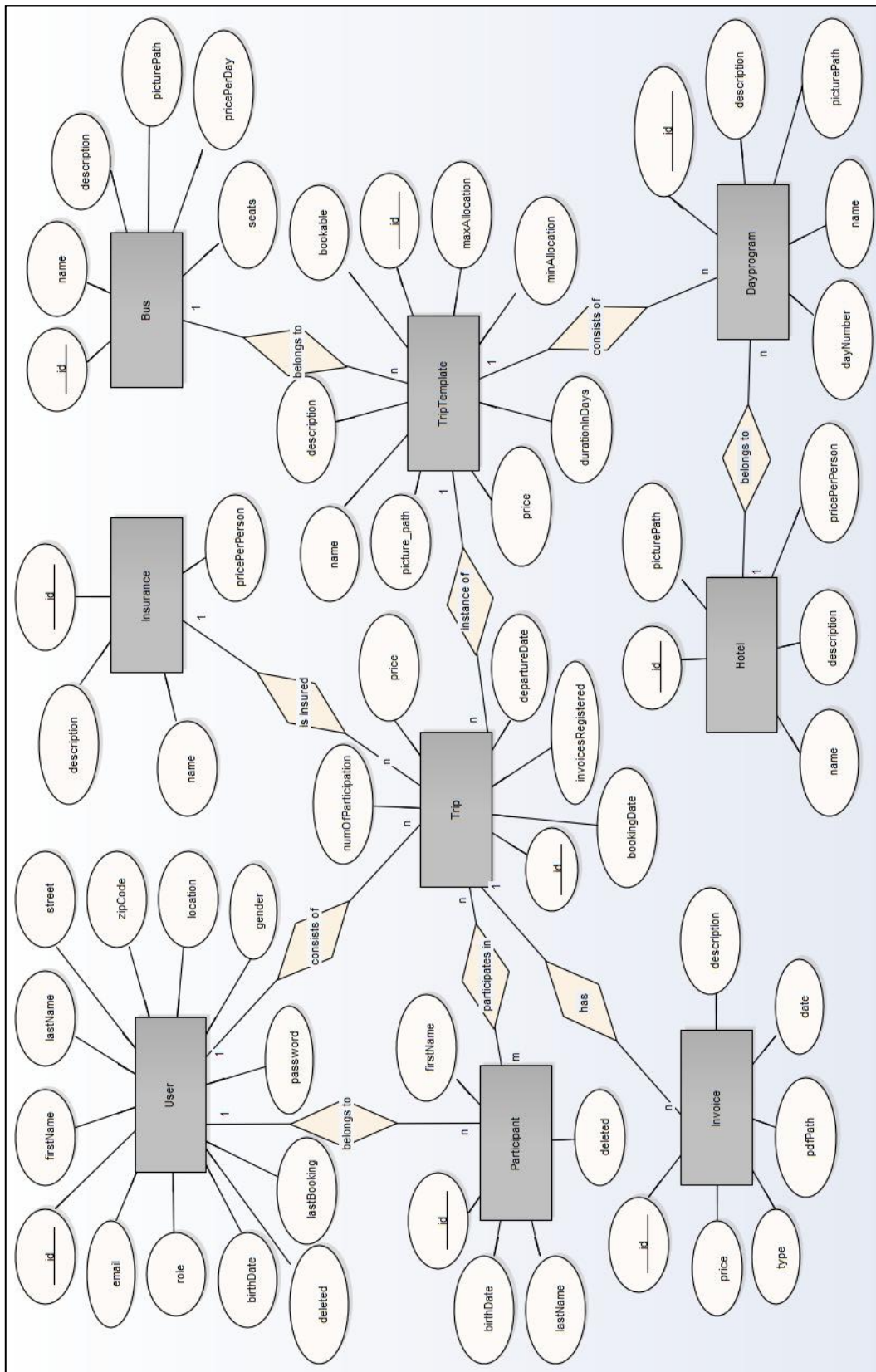
2.1 Entity Relationship Diagram

Figure 3: ERD

3   User Interface

Register and Login:

Visit our website on https://wereiseunternehmen.herokuapp.com. You can either login using the provided login data on the title page or register as a new customer by clicking "Sign up" in the navbar or "Register" in the footer.
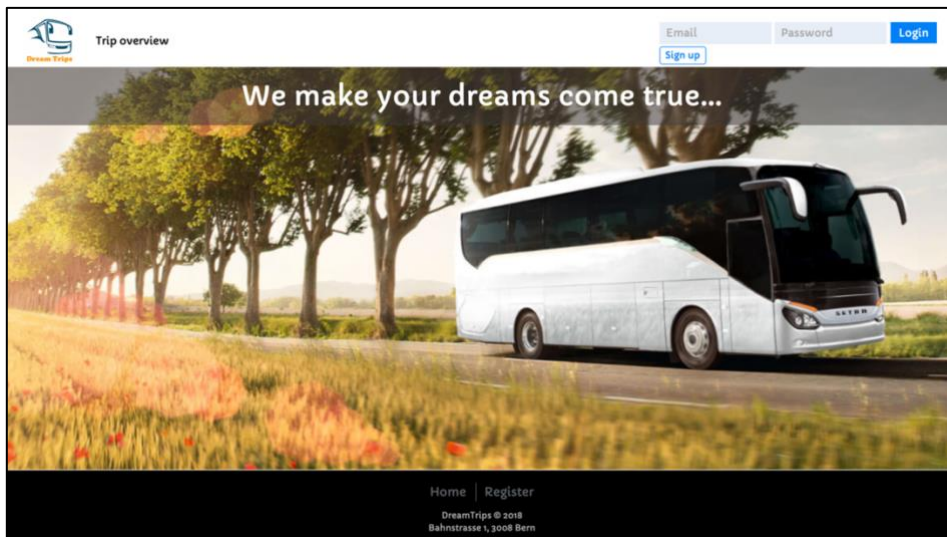

Figure 4: Homepage

Figure 5: Registration Form

3.1   Admin User Story

Please be sure to login to our provided "Admin Account" (see title page) for the following steps. We will guide you through a complete trip administration process.

You now see an overview of different administration tasks.
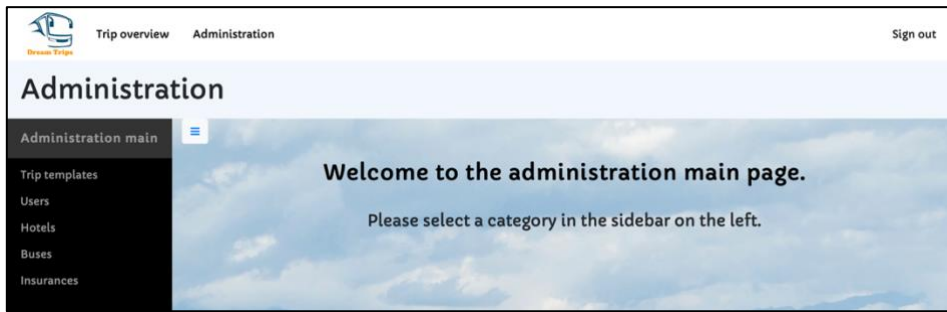
Figure 6: Administration Homepage

3.1.1 Overview of Users

We first click the "Users" category. All registered users are visible here. You can assign or remove admin rights from any user (except for the last remaining one) by clicking the checkbox. Deletion is possible by clicking the trash can. The table can also be downloaded and searched.
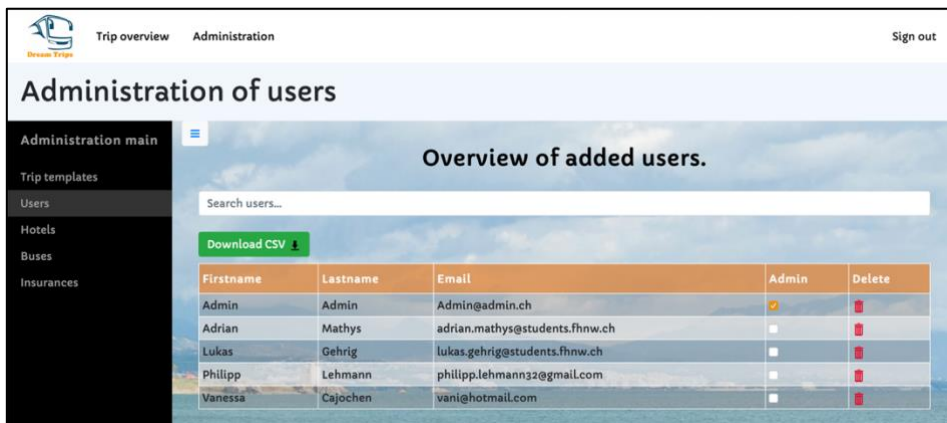
Figure 7: User Overview

3.1.2 Create Hotels, Buses, Insurances

Uploading of images is mandatory. Accepted formats are .jpg .jpeg and .png.

Hotels:

In the "Hotels" category, hotels can be entered using the provided form. Below you can see the hotels that have already been registered. They can be deleted and searched.

Figure 8: Hotel Registration Form

Figure 9: Hotel Overview

Buses:

The "Buses" category allows for entering new buses. The page also shows existing buses in a searchable table underneath. Buses can also be deleted.

Figure 10: Bus Registration Form
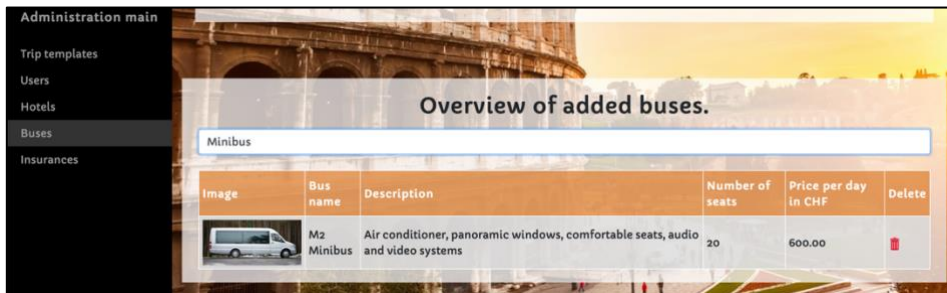
Figure 11: Bus Overview

Insurances:

Our "Insurances" category enables you to enter new insurances, search for existing ones and delete them.
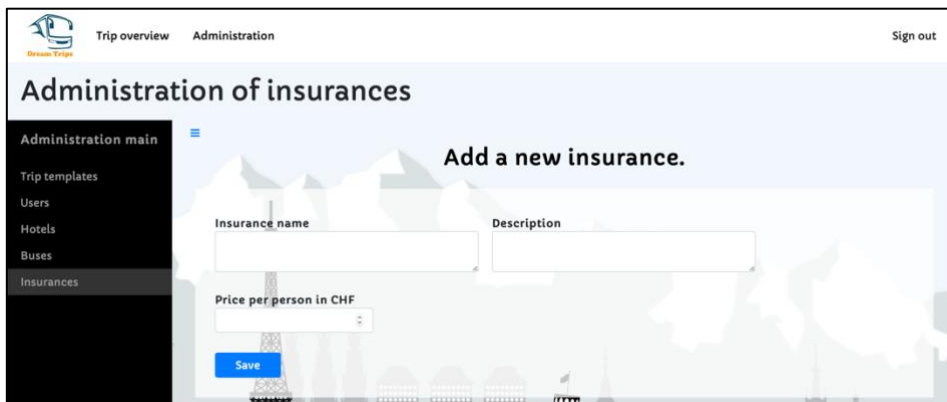
Figure 12: Insurance Registration Form
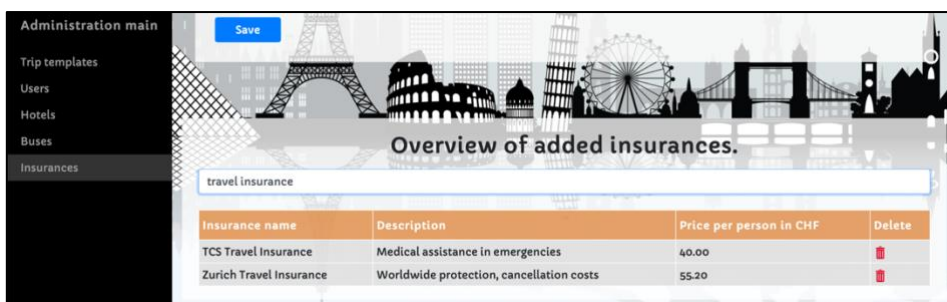
Figure 13: Insurance Overview

3.1.3   Create Trip Templates

In the "Trip Templates" category, trip templates can be created. A trip template contains general information about a trip and can be booked any number of times by customers. Here, uploading of images is mandatory. Allowed formats as described in 3.1.2.

Figure 14: Trip Template Entry Form

The table below the form lists all entered trip templates in a searchable, downloadable table. The initial price is 0 CHF. Templates can be deleted or edited.

Figure 15: Trip Template Overview

3.1.4 Add Day Programs and Make Trip Bookable

To add contents to a trip template, click "Edit" in the table shown in section 3.1.3. You will then get the following overview (you can also access this page by clicking "Trip Overview" in the navbar and then selecting the trip):

Figure 16: Trip Template Detail Overview
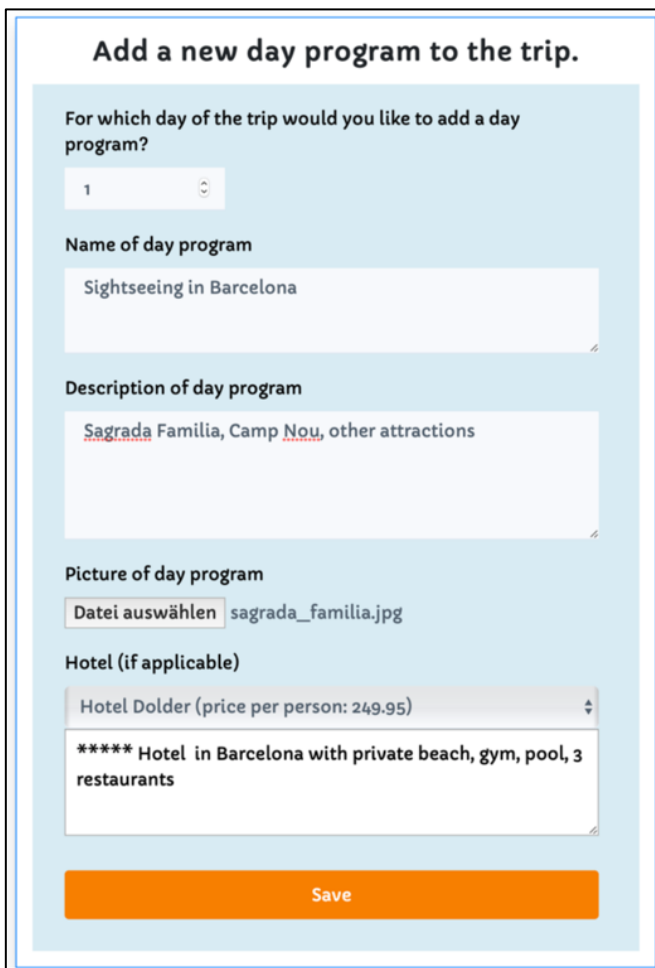
You can now add up to seven day programs to the trip by clicking "Administration of day programs". The last day program doesn't require a hotel. After saving, the day program is visible in the section above.

Figure 17: Day Program Entry Form
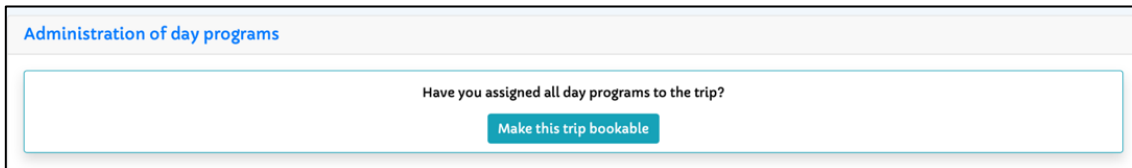
Figure 18: Overview of added Day Programs

When all day programs have been added, you can make the trip bookable for customers by clicking the corresponding button. The form to add additional day programs will then be removed.
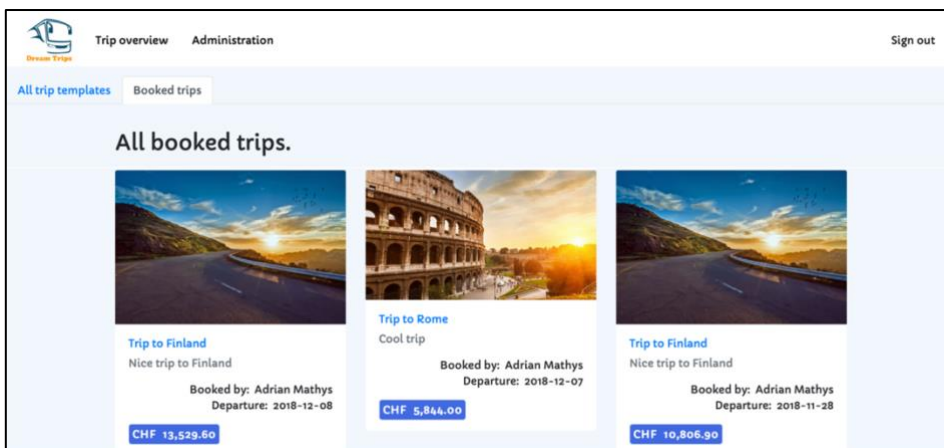

Figure 19: Button "Make Trip Bookable"

3.1.5   Overview of Booked Trip

You will now have to wait until the trip is booked. This can be done by following the "customer user story" in section 3.2.

After booking, the trip will be visible in the tab "Trip Overview", "Booked Trips":

Figure 20: Overview of all Booked Trips

A click on the trip leads you to the detailed overview of the booked trip.

- The first section contains general information about the trip (departure date, insurance, bus, prices) along with the possibility to cancel the booking.
- The second section shows all trip participants ("travel group") and the user that booked the trip.
- In the third section, all day programs including hotels are listed.

Figure 21: Overview of a Booked Trip (sections 1-3)

The last section's content varies depending on the process step. There are buttons to generate the "Final invoice" (see Figure 24, p. 12), "Customer Invoice" and – potentially – to upload additional invoices to the trip. In addition, a table shows already uploaded invoices.

Figure 22: Overview of a Booked Trip (section 4)

The form below lets you enter invoices for hotels, insurances or buses:

Figure 23: Overview of a Booked Trip (section 4): Invoice Entry Form

When all invoices to a trip have been uploaded, the final invoice can be generated (button "prepare final invoice"):

Figure 24: Generated Final Invoice for the specific Trip

3.2 Customer User Story

Please register yourself or login to our provided "User Account" (see title page) for the following steps. We will guide you through a complete trip booking process.
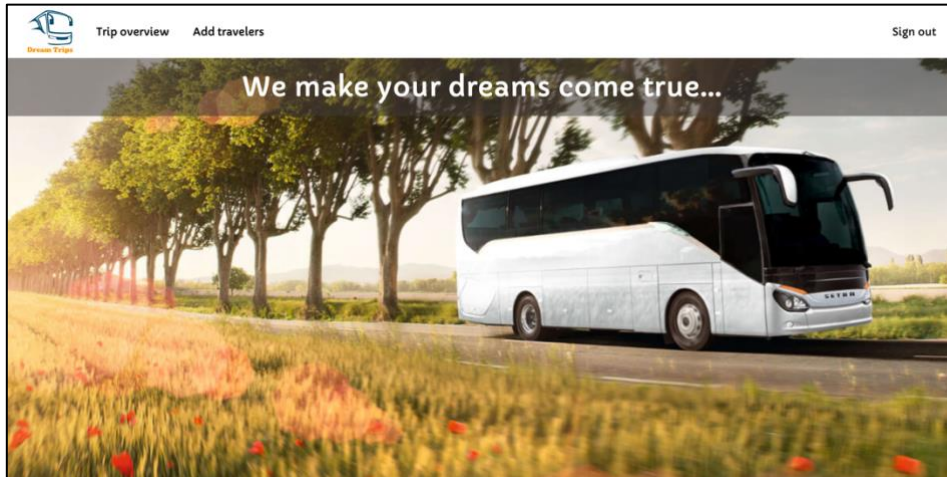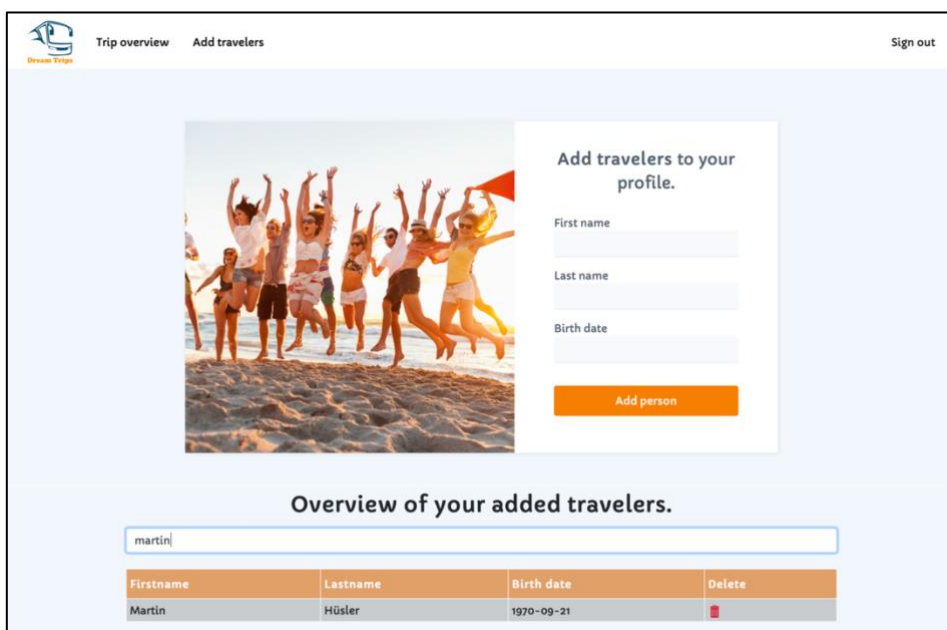
Figure 25: User (Customer) Homepage

3.2.1 Add Travelers

Travelers to accompany you on your trip can be added in the tab "Add Travelers". They are listed in the table below and can also be deleted there.

Figure 26: Traveler Entry Form

3.2.2 Book Trips

You can book any trip in the tab "Trip Overview", "All trips". Just click on one.
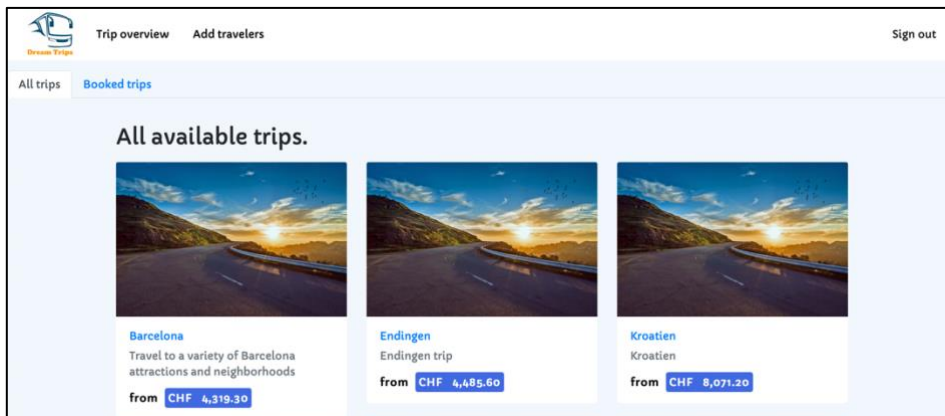
Figure 27: Overview of all Bookable Trips

The detailed overview will be displayed:
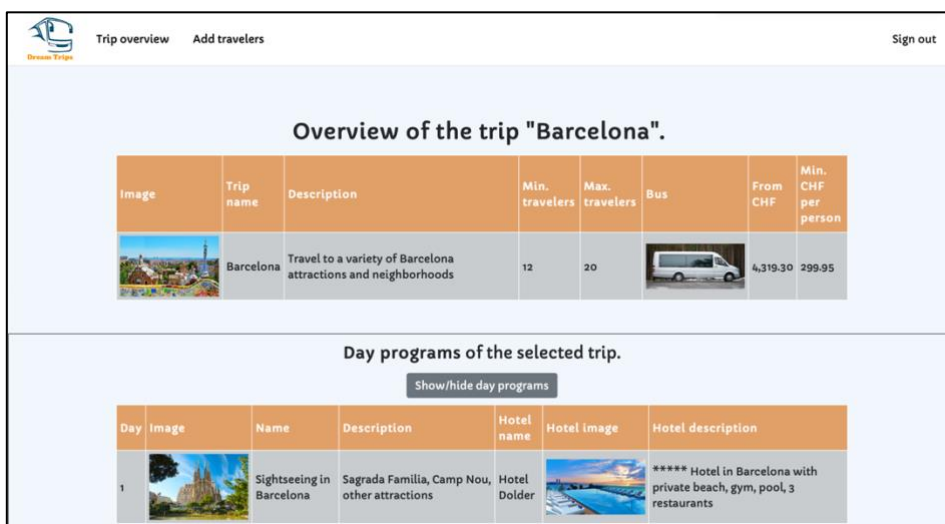
Figure 28: Detail Overview of a Bookable Trip

In order to book the trip, the following form has to be filled in. Multiple participants can be added by using the "CTRL" shift on your keyboard. Departure dates must be in the future. The trip can only be booked if a sufficient number of participants has been selected, which will be indicated with a green font color in the text field below. The price dynamically adjusts to your inputs (added insurance, number of participants).

Figure 29: Trip Booking Form

3.2.3 Overview of Booked Trips

Your booked trips are visible in the tab "Booked trips":
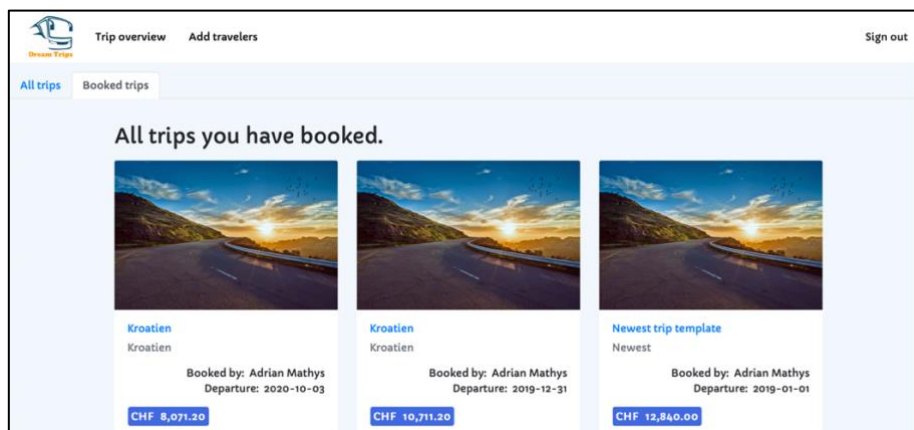
Figure 30: Overview of a user's Booked Trips

A click on a booked trip reveals the detailed overview. It contains general information, participants, day programs and the invoice (see Figure 32).
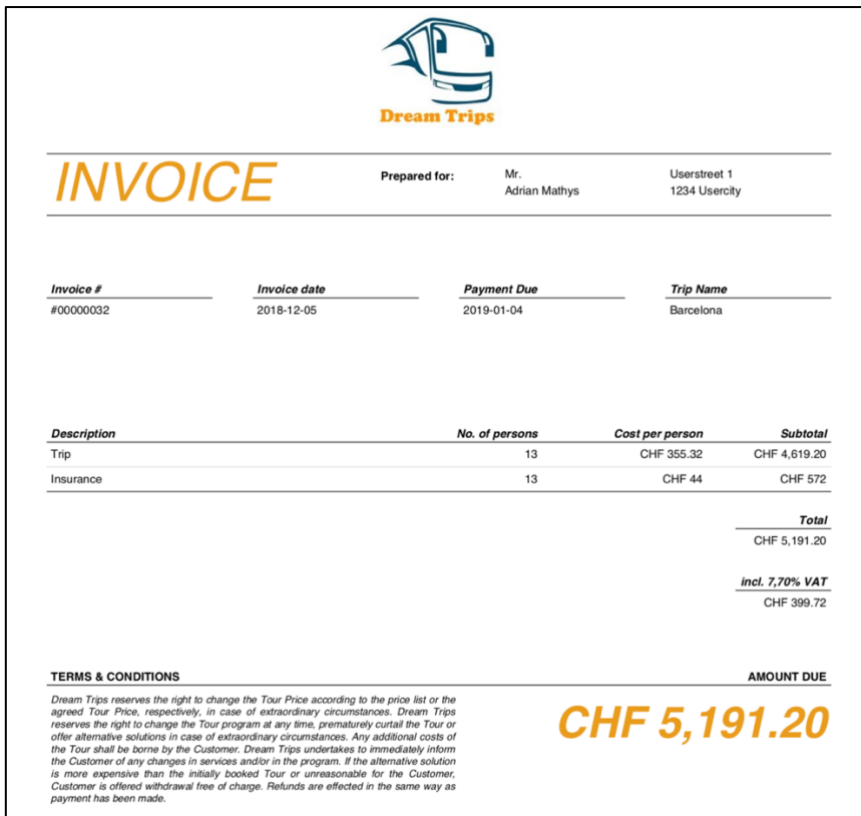
Figure 31: Detail Overview of a Booked Trip

Generated Customer Invoice:

Figure 32: Generated Customer Invoice for the Trip

4 Individual Contributions

4.1 Vanessa Cajochen

- AJAX
  - Notification (button) upon registration that the e-mail is already being used
  - Notification (alert) upon login that the e-mail or password is wrong
- Verification at registration whether the user is at least 16 years old. If not, a notification will be displayed.
- Creation of the customer invoice pdf
  - Creation of a beautiful design.
  - Detailed listing of all trip costs including subtotal and taxes.
  - 6-digit invoice ID is calculated and beautifully displayed.
  - Payment due is calculated based on the booking date
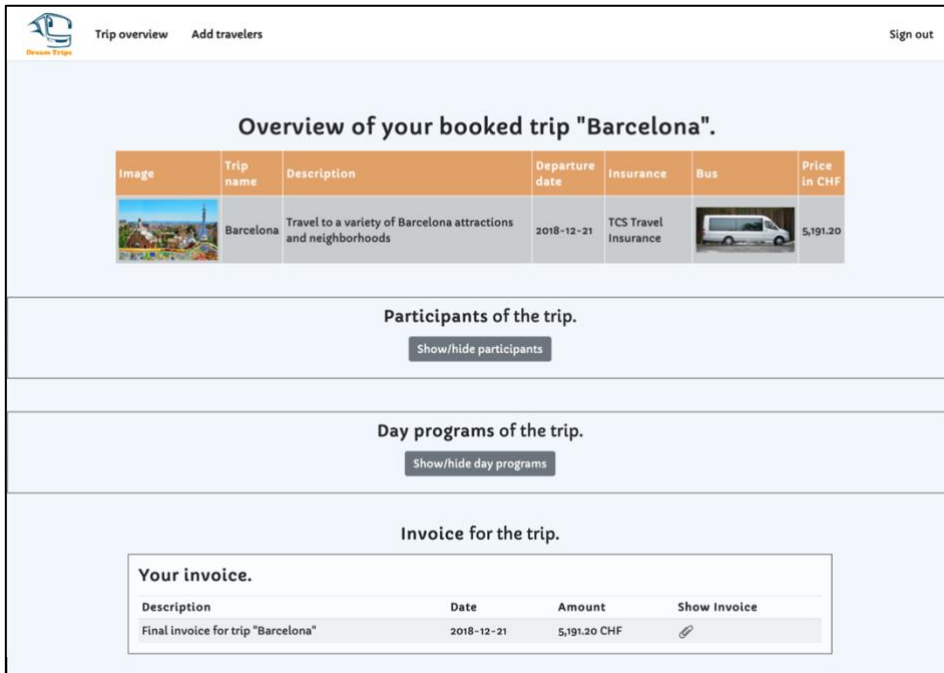- Creation of the final settlement pdf
  - Creation of a beautiful design.
  - 6-digit trip ID is calculated and beautifully displayed.
  - Detailed listing of all trip costs: calculated costs (assumed costs), actual costs (real costs by capturing invoices) and delta (difference between calculated and actual costs).
  - The delta is highlighted in color depending on the value (green if the value is positive, red if the value is negative).
  - Detailed listing of all revenues
  - Subtotals and gross profit are displayed.
- Sending an email with the invoice attached when a trip is booked.
  - Heroku does not allow PHPMailer. For this reason, it only works on localhost.
- Entering all sample values for the website.

4.2 Lukas Gehrig

- Setup of the server's structure, index.php (routing), most Controllers, Entities, Helpers and the Database (queries, DB-connection and data modelling)
- Setup of the connection of the views from Bootstrap with the dynamic data (PHP tags).
- Website routing incl. PUT and DELETE with a hidden _method in POST
- Secure input validation in the controllers (positive numbers, sanitized strings, browser independent date formatting, email) to prevent abuse and XSS of the website
- Secure (file size, file ending, random name, .htaccess) upload and storage of images and pdfs. Uploading of multiple img or pdfs with the same name is no problem.

- Deletion of the images in the folders after a successful transaction of a deletion of e.g. a trip template or other instances.
- JS-function of the dynamic price calculation client-site during the booking process
- Automatically calculation of the price with the specified margin. Allowing of shallow queries to avoid deep and expensive DB-requests to get a better performance.
- Avoidance of incorrect display in the user interface caused by missing data or corrupted inputs.
- Prevention of complete deletion of users and fellow travellers (prevention of loss of important data).
- Preventing the deletion or removal of the last admin's rights.
- Prevention of SQL-injections by using prepared statements.
- Prevention of inadvertent multiple booking of a trip, e.g. by multiple clicks (e.g. website delay) due to a 30-second timer.
- Centralized handling of most magic-numbers or strings like Numbers, Margin, Paths.
- Ensure correct access to any functions depending on the role (admin, user, unregistered).

4.3 Adrian Mathys

- Complete GUI creation with Bootstrap and custom HTML, JavaScript (jQuery), CSS.
- Design of the user interface and user experience:
  - o Style element "Collapse": Button that reveals and hides a container with any kind of content to make the layout clearer and to shorten the page (see the grey buttons in Figure 31).
  - o Style element "Tabs": Contains different tabs that structure the page into different panes (see tabs "All trip templates" and "Booked trips" in Figure 20).
  - o Style element "Accordion": Displays contents in horizonal groups. Can be expanded and collapsed according to the user need (see "Administration of trip invoices" in Figure 22).
  - o Multiple select to add several participants to a trip (Figure 29).
- Responsive, consistent and beautiful website design:
  - o Ultra-responsive contents for any kind of device (just reduce the width of any page).
  - o Foldable sidebar-menu on administrator pages (see sidebar on the left in Figure 8).
  - o Horizontally scrollable tables (on narrow screens) with hover effects and different colors for even and uneven rows (reduce the width of any page containing a table and scroll horizontally).
  - o Navbar with included login fields that changes content arrangement on narrow screens.
  - o Good-looking forms (e. g. Figure 5, Figure 17)
  - o No script tag.
- JavaScript (jQuery) implementations:

- o Function to search any cell of a table and only display rows matching the search term (e. g. Figure 15).
- o Function to export a table in CSV format after button click (see green button in Figure 7).
- o Event listeners and handlers for dynamic trip price calculation and for displaying additional information to a selected option of a dropdown (Figure 29).
- o Function to allow user role assignment with a checkbox (Figure 7).
- o Client-side form validation (input verification, repeated password checking in registration form).
- Favicons of any size and format for different devices.
- Setup of the cloud platform Heroku, connection with Github and the add-on JawsDB Maria.

5 Project Management

Weekly meetings to discuss the progress of the work and to solve identified problems were held. In case of urgent problems, we communicated either at school or through WhatsApp to address them best. Furthermore, each of us was a project manager during one phase of the project and coordinated the team towards success.

5.1 Time Planning

Distribution of tasks:

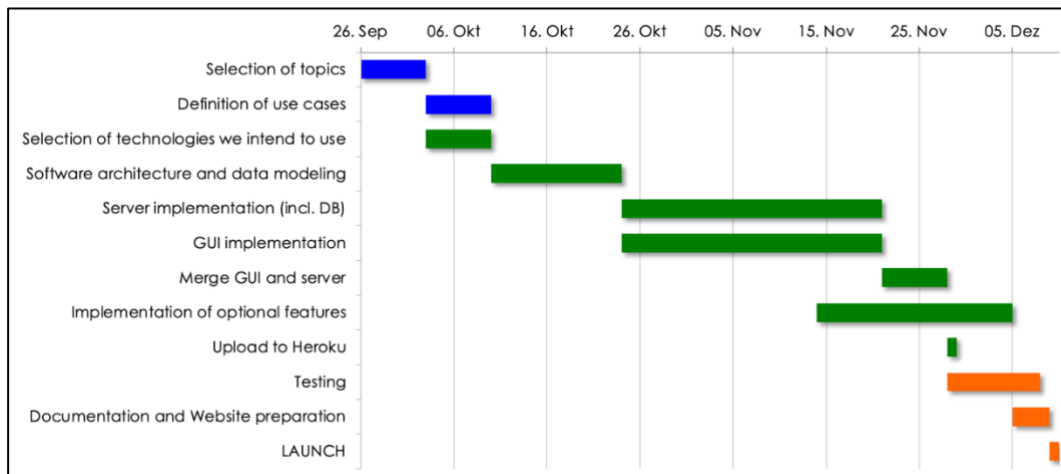| TASKS	RESPONSIBLE	START	END	DAYS	STATUS
Selection of topics	All	26. Sep	03. Okt	7	Complete
Definition of use cases	All	03. Okt	10. Okt	7	Complete
Selection of technologies we intend to use	All	03. Okt	10. Okt	7	Complete
Software architecture and data modeling	Lukas G.	10. Okt	24. Okt	14	Complete
Server implementation (incl. DB)	Lukas G. & Vanessa C.	24. Okt	21. Nov	28	Complete
GUI implementation	Adrian M.	24. Okt	21. Nov	28	Complete
Merge GUI and server	Lukas G.	21. Nov	28. Nov	7	Complete
Implementation of optional features	All	14. Nov	05. Dez	21	Complete
Upload to Heroku	Adrian M.	28. Nov	29. Nov	1	Complete
Testing	All	28. Nov	08. Dez	10	Complete
Documentation and Website preparation	All	05. Dez	09. Dez	4	Complete
LAUNCH		09. Dez	10. Dez	1	

Table 1: Distribution and overview of tasks

Project task schedule:

Table 2: Project schedule