Problem Statement Reservation System

1. The Problem

Restaurant visitors want to be able to reserve their table in a restaurant in advance so that they have a fixed place when they arrive.

2. Scenarios

Hans lives in Munich and knows that all the restaurants are really crowded over the weekend and getting a reservation spontaneously is almost impossible. He wants to visit an Italian restaurant on Saturday evening together with three friends and opens the Reservation system. He searches for Italian restaurants and sees different choices on the map. He also sees ratings as well as price categories. He chooses the Nero Pizza & Grill in Rumfordstraße 34 to see more details. He likes the pictures and reviews of the restaurant and clicks on the reservation button to see whether the restaurant has free tables on Saturday evening. The system shows a timetable for the upcoming seven days where unavailable times are greyed out. Hans chooses Saturday 17:00 and sees a layout of all the tables in the restaurant. Not yet reserved tables are selectable. Reserved tables are greyed out. Hans chooses the table next to the window for four people and confirms his choice. The system automatically creates a calendar event in Hans's calendar. On Friday, Hans receives a reminder about the reservation and sees that he must confirm the table again, so the reservation does not get canceled. On Saturday, Hans receives a notification at 16:00. He opens the map to navigate to the restaurant.

3. Requirements

The following functional requirements (FR) and nonfunctional requirements (NFR) must be addressed in the project.

FR1: Search for restaurants: The user can search for restaurants on a list and on a map that displays up to 50 restaurants.

FR2: See restaurants details: The user can see pictures, ratings and comments of the restaurant as well as opening times and a link to the website.

FR3: Filter search results: He can filter the results by the restaurant type, the prize category, by distance around a certain location, by the average rating and by free time slots for reservations for specified dates and number of visitors.

FR4: Reserve table: A user can see the times when he can reserve a table in the chosen restaurant. After clicking on the time, the user sees an overview of all tables in the restaurant. He can choose the exact table the free one in the overview and thus reserve the table for the specified number of visitors.

FR5: Save calendar event: When the user reserves a table, an event in the local calendar is created for the reservation.

FR6: Confirm reservation: A user is reminded about a reservation one day before the actual date of the reservation and must confirm it until latest 12 hours before the actual date. If the user does not confirm, his reservation is cancelled automatically.

FR7: Cancel reservation: A user can cancel his reservation at any time up to two twelve hours before the actual date of the reservation. After the confirmation (see FR5), the user cannot cancel the reservation anymore.

NFR1: Usability: The system should be intuitive to use, and the user interface should be easy to understand. Simple interactions should be completed in less than three clicks. Complex interactions should be completed in less than six clicks.

NFR2: Conformance to guidelines: The design of the system should conform to the typical usability guidelines such as Nielsen's usability heuristics.

NFR3: Server system: A server subsystem with a couple of services must be used in the system.

Additional constraints:

- The version control system must be git.
- Source Code Documentation must be in HTML format.
- The server system must use the Spring Boot framework.

4. Target Environment

The system should run on all desktop operation systems (Windows, macOS, Unix), either as Java or as browser-based application which communicates with the Spring Boot server application.

5. Deliverables

- Requirements Analysis Document (RAD)
- System Design Document (SDD)
- Source code under version control including source code documentation

6. Client Acceptance Criteria

The system must demonstrate at least the following functionality: It shows a list of restaurants where a visitor can reserve tables. The user can choose a restaurant and reserve a table on a specified timeslot for the specified number of persons. The application communicates with the server system and conforms to the usability requirements.