Bilkent University

Department of Computer Engineering

CS 353 Database Systems

Group 8

Project Proposal

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1. Introduction

This report is a project proposal for a travel agency project. It includes general information, in depth reasoning of the database usage, functionalities, requirements, limitations, and Entity Relationship Diagram of the project. Each section's content is as follows.

In the second section, the project is explained in general, the importance of the database is depicted and how it is going to be implemented is written.

In the third section, functional requirements and non-functional requirements are given. Functional requirements show what an actor is able to do in the system. Non-functional requirements include the concerns that should be considered in the implementation stages.

In the fourth section, the limitations to be followed in the implementation process were given.

In the fifth section, the conceptual design of our database is given as an Entity Relationship Diagram.

2. Project Description

Travel Agency is a web-based travel agency application. The application consists of three types of users: travel agency employees, guides of tours, and customers. Employees are the users who are able to do things for their customers. They are able to make reservations to hotels, book flight tickets, and organize tours for their customers. They are also able to assign guides to their organized tours. The guide is a user type in which guides of the agency can accept or decline the tours assigned to them by employees. In addition, they are able to send requests to be a guide for a specific tour. Types of tours may vary depending on their location and facilities in that location. For instance, if the city has museums, the type of tour may be "visiting the museum", if the city has beauties in nature, the type of tour may be "walking in the city". Guides are able to give feedback about a tour after they have guided the tour. The third type of user, customers, are able to book their flight tickets, make a reservation to a hotel and make a reservation to a tour on their

own. They are also able to comment and rate on their hotels, tours, and guides of their tours.

Travel Agency aims to provide their employee type of users to help their customers efficiently. Travel Agency also aims to make it easy for their guide type of users to find a tour that they want to guide. Finally, it aims to help its customer type of users to find suitable accommodation, flights, and interesting tours. Travel Agency has comments and rate attributes to facilitate the work of users and increase their satisfaction.

2.1. Why There Is A Need For Database

A travel agency platform should be able to hold large amounts of data for its users, tours, hotels, flights, and such. The information of customers, tours, employees, and their relations are some examples of the data. The size of the data grows as the new users and tours are enrolled in the system. Moreover, these entities interact very frequently. That is why generating vast amounts of data is a concern to the system. For such a complex problem, using a database structure will help the travel agency to manage this data. For these reasons, choosing a database for data management will be a good choice.

2.2. How Database Will Be Used

There are many use cases of the database. Users' credentials will be authorized. Customers will be able to list hotels, tours, and flights and see their information. Users also will be able to book them. Besides getting information, the database system will be used to add new data and edit existing ones. There will be many other functionalities provided by the database and information will be stored in it.

3. Requirements

3.1. Functional Requirements

3.1.1. Customer

- Customers should be able to make reservations for a tour.
- Customers should be able to make reservations for hotel rooms.
- Customers should be able to comment and rate the tour.

- Customers should be able to comment and rate the guide.
- Customers should be able to comment and rate the hotel.
- Customers should be able to make reservations for a plane seat.
- Customers should be able to see the evaluations made for tours, hotels, and guides.
- Customers should be able to see their hotel reservations and their receipts.
- Customers should be able to see their tour reservations and their receipts.
- Customers should be able to list activities by category.
- Customers should be able to order activities by date.
- Customers should be able to list hotels, hotel rooms and see their photos.
- Customers should be able to log in and register.
- Customers should be able to cancel their hotel reservations and tour reservations.

3.1.2. Employee

- Employees should be able to make reservations at hotels for customers.
- Employees should be able to create new tours.
- Employees should be able to assign a guide to the tour.
- Employees should be able to update the reservation details of a customer.
- Employees should be able to make reservations for a plane seat for customers.
- Employees should be able to create new activities.
- Employees can accept or decline guiding requests coming from guides.
- Employees should be able to see the details of tours.
- Employees should be able to see the details of reservations.
- Employees should be able to see the details of activities.

- Employees should be able to see the details of hotels and hotel rooms.
- Employees should be able to login and register.
- Employees should be able to cancel customers' hotel and tour reservations if customers want.

3.1.3. Guide

- Guides should be able to accept or decline the assigned tours.
- Guides should be able to give feedback about the tour that he/she guided.
- Guides should be able to send requests to be assigned to a tour.
- Guides should be able to list activities on a tour.
- Guides should be able to register and log in.

3.2. Non-Functional Requirements

3.2.1. Quality Requirements

3.2.1.1. Usability

- To make more usable navigation between pages, there will be a navigation bar. The toolbar will be placed at the top of the page.
- All labels, buttons, and navigation items should be understandable for all kinds of users. Also, screen readers should be well designed for people who have disabilities.
- Buttons and the menu navigation items should be self-explanatory, and if it is not possible, there should be an explanation for these items.
- The system should be explicitly indicated if action is needed or if there is an ongoing process.

3.2.1.2. Reliability

- The system should save the large inputs to the cache to prevent data loss in case of system crashes.
- If the system crashes during the payment, the customer's money should be saved.

3.2.1.3. Performance

- The system should support at least a thousand people concurrently.
- The response time should be less than three seconds to make the system usable, and the average should be less than 1 second.
- Pages should be loaded in under three seconds to make the system usable.
- The system should be able to store big data.

3.2.1.4. Security

- The system should encrypt sensitive information for the privacy of customers.
- While registering, the system should check whether the password is strong or not. Also, the system imposes the requirements for the password.
- The system should not keep credit card information.

3.2.1.5. Supportability

- The bugs should be maintained by the developers.

3.2.2. Pseudo-Requirements

3.2.2.1. Implementation

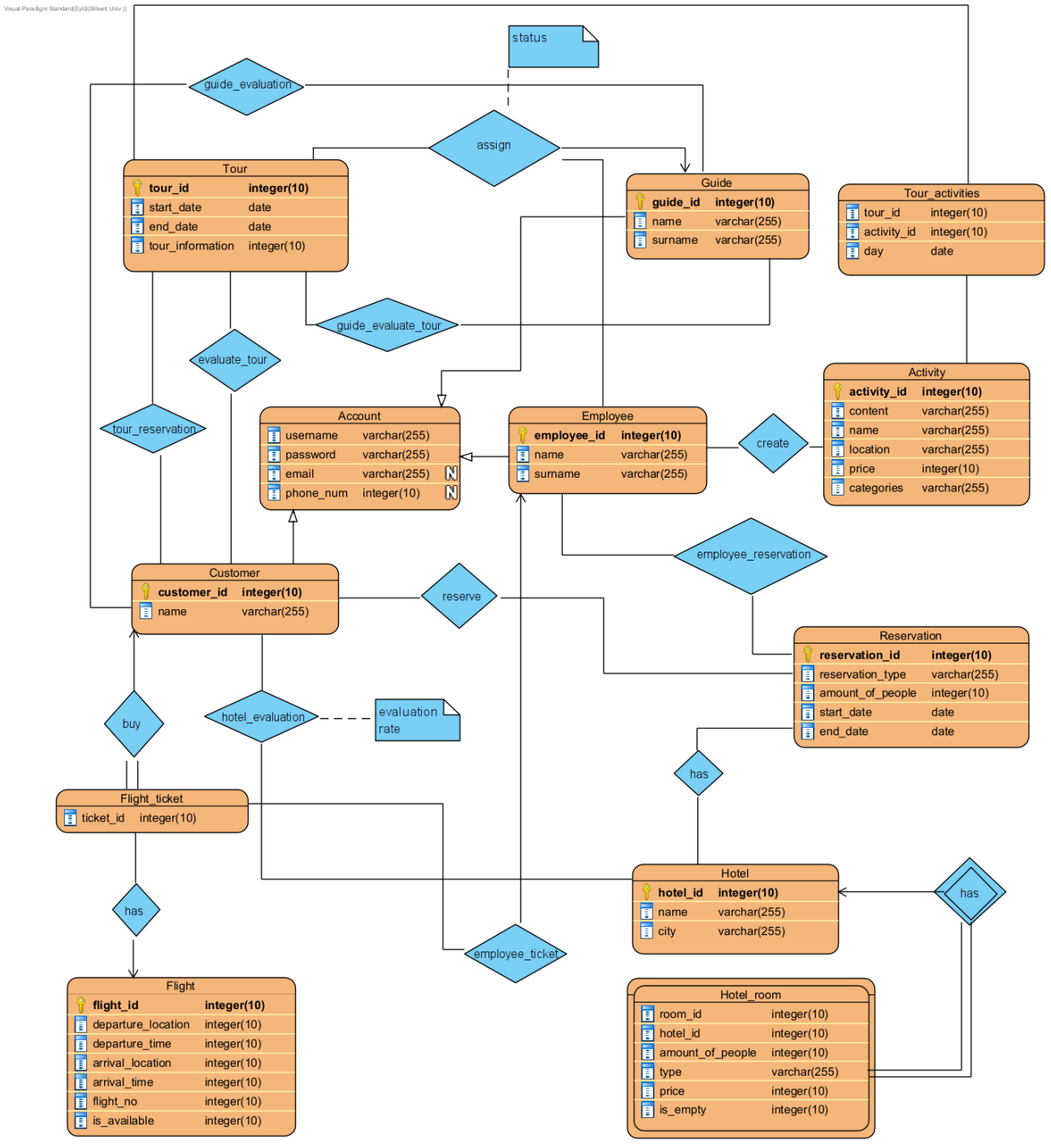
- MySQL will be used for the database management system.
- ASP.NET Core 5 MVC
- Javascript, CSS, HTML5 will be used to develop the front-end of the web application.

4. Limitations

- A user must have an account to use the system. Users must have a username and a password to register to the system.
- The username must contain at least 6 characters and 15 characters at most.
- The password must contain at least 8 characters and 30 characters at most.

- A username must be used by only one user.
- A guide can be associated with only one active tour.
- Only 30 customers can attend a tour.
- Only one guide can be associated with a tour.
- Customers or guides can rate and comment on a tour only once.

5. Entity Relationship Diagram



Note: All “IS A” relation concerning the Account entity is a disjoint specialization with total participation. We were not able to show it correctly with Visual Paradigm.

6. Website

Information and updates about the project can be found at the following link: https://keremalemdar.github.io/CS353Project/