Simon Fraser University
CMPT 354
Summer 2022

Group Project - Implementation of a Relational Database

Project Title:	Database for Apartment Management System
Project Milestone:	Milestone 4

#	Student Name	Student Number	Email Address
1	Xiaoxiong Yan	301428053	xiaoxiong_yan@sfu.ca
2	Yin Cheng	301354381	yca320@sfu.ca
3	Howard Yin	301187102	hya37@sfu.ca

By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above.

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by Simon Fraser University.

Description Of Final Project & its difference from original schema

In this project, we accomplished a hotel system database. This hotel management system was built as a real-life project, so if needed, it can be updated as the industry changes. In this system, customers or clients book a room for a specific period. There will be a variety of payment options available to customers. Hotel guests can expect a variety of services, along with a variety of rooms. Additionally, this system will be able to track the information of children as well as their guardians. Aside from many amenities for customers, there will also be many activities for kids. As a final point, this hotel system includes the data of different hotel employees, like housekeepers, supervisors, etc.

From milestone 0 to milestone 4, we completed the final project step by step. The first step was to select the database and then design the ERD diagram and schema for the hotel theme.
As part of milestone 3, we made changes to existing schemas based on actual needs and to enhance the original database. As a result, we completed the FD part and laid the groundwork for milestone 4's completion.

Based on our query requirements, we created a very useful graphical user interface in milestone4. The hotel system has a total of 20 tables, and upon entering the home page, the user can view some tables, insert data, delete data, and update data. Aside from supporting queries such as selection, projection, joining, and aggregation, this system will also support other functions as well.

In our final project, to achieve complete functional dependencies we added more attributes to the Amenities table and the housekeeper table and added the 'building' attributes to the front desk table. Also, we refined the description of attributes for the deluxe hotel room to make it more reasonable. To prevent anomalies in the database, we normalized TABLE FrontDesk to Building_FrontDesk & FrontDesk, TABLE amenities to KidsAllowance & Amenities, and TABLE housekeeper normalized to Salary & House_Keeper. In the process of creating our database, we modified the datatype of some attributes including houseKeeper and Supervisor to avoid data duplication problems better. Finally, we modified the original insert data; for example, we replaced the data in the customerCheckin/out table. The new replacement data is abundant, more representative and more reasonable, while some attributes as the foreign key can also correspond to other tables.

In the final project, we focused more on the development for the front desk section of the hotel. We designed a complete GUI interface for the front desk of the hotel, through which users can view, modify and delete the information of checked-in guests, as well as add some new guests. In the special interface, users can check the information of cash-paying travelers, find the customer checking in number and their name, the building and floor each front desk belongs to, check the most

expensive and cheapest rooms in the hotel, find the most popular buildings and find the customer who visited all the amenities.

Below is our ERD diagram as reference: