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Date: 2/4/2024  
Week: 4 - Create a Design Model for a Small Bed & Breakfast Reservation System

1)  
Rubric Criteria:  
Create software system architecture diagram 10%  
Your Response:

A diagram of a model

Description automatically generated

2)  
Rubric Criteria:  
Explain approach, steps, and rationale of the software architecture diagram 20%  
Your Response:

In order to create the architecture diagram for the reservation system, I looked over in the textbook the different types of architecture design patterns. I was torn between using a database system, a modern model-view-controller system without the controller, and a client-server system. I decided to use both a modern model-view-controller system (which basically does away with the controller due to the help of modern GUI according to the class textbook) and a database that stores all the information of customers and the rooms of the bed and breakfast. Here is my logic surrounding the model-view system.

The model handles the data and business logic by handling the operations for making and dropping reservations, user authentication (i.e. sign in), payment calculation, and customer information. In order to store and access the customer and room information, the model must interact with the database and manages room booking and availability. The model also does the payment calculations that will need to be processed when entered by John or Jane.

The view is exactly as it sounds; it is what the user, in this case John and Jane, sees on the console when they request or put in information. It represents the user interface of the software. The view presents reservation details, room availability, and information on customers and payment to John and Jane. The interface ideally would be user-friendly for ease of interaction with the reservation system, especially since John and Jane wish to be the only users of the software. It takes all information and requests entered by the user and updates the model accordingly to let it take care of the back-end functionality.

3)  
Rubric Criteria:  
Create detailed UML class diagram 15%  
Your Response:

A diagram of a company

Description automatically generated

4)  
Rubric Criteria:  
Explain approach, steps, and rationale of the detailed class diagram model 25%  
Your Response:

To create the detailed class diagram model, I compared my result from the previous assignment to the simplified class diagram given in the analysis file given for this assignment. I added the three different kinds of rooms as extended child classes to the diagram, and I also adjusted methods and members accordingly as I saw necessary. Since the Calendar is responsible for making and dropping the reservations, I linked the two classes via a composition. I also changed the Room class to just having a number and its subclasses will hold the price and feature details depending on the kind of room they are.

After composing the class diagram, I reviewed each class to make sure the methods and members included were logical and still fit the criteria of the software.

5)  
Rubric Criteria:  
Create user interface mockup 10%  
Your Response:

Step 1: John and Jane enter the guest’s requested start and end dates into the system

A white rectangular object with black text

Description automatically generated

Step 2 and 3: All available rooms during the requested date range and prices are displayed for John and Jane to inform the guest. Guest picks a room if available

A screenshot of a room

Description automatically generated

Step 4: John and Jane ask for the guest’s name and makes the reservation with or without the 1-day guarantee payment as agreed with by the guest. If there are no available room, process starts again with different dates or no reservation is made.

A close-up of a form

Description automatically generated

6)  
Rubric Criteria:  
Explain approach, steps, and rationale of the user interface mockup 10%  
Your Response:

In order to make the mockup of the interface I carefully read each step in the analysis provided for the assignment. I divided what would happen in each step and thought about where to put them in the interface. Using draw.io, I created the mockup of the interface. Step 1 only asks for the start and end dates so I have those fields for entering that information and a button. I combined steps 2 and 3 since John and Jane use the calendar to search for available rooms and the guest selects an available room which goes into step 4 where their information is entered and they choose to agree with the 1-day guarantee or not.

7)  
Rubric Criteria:  
Reflect on the learning experience and lessons learned 10%  
Your Response:

This assignment got me more used to the concept of making design models based on architecture. That was challenging for me since there were so many topics and types of architecture patterns that could be used for planning a software. It was hard to decide which architecture and pattern was more applicable to this situation. Eventually, it had gotten easier for me to decide what kind of model to use. After that, I learned how to make a better detailed class diagram. This assignment also served as a great tool for me to learn how to make interface mockups of a software. This assignment definitely improve my approach to software design principles. I hope to take this learning experience further as I go through the remainder of the class.