Name: Wyatt Humphrey  
Date: 2/5/2025  
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 business tier

AI-generated content may be incorrect.

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

I began by thinking about what parts the system would require functioning in an effective, secure manner. My clients would be John and Jane, as they are interacting with the registration system. My web tier would then have to be my UI displays linking functionality such as calendar display, reservation info, and room selection along with processing the payments. This tier would interact with the business tier, which would contain the backend information for our system. This tier would handle payment processing information, checking room availability, and canceling reservations. All this information would then need to be stored in a database, which is in the database tier. This tier would store information about guests, reservation data, and payment information.

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

A diagram of a computer

AI-generated content may be incorrect.

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

From the System Analysis, I used the use case diagram and the class diagram to develop what variables and methods each class would require. I began with my Room class because I knew I would need to figure out how it interacted with the room type subclasses. I determined that the Room class would have a constructor that set the initialized variables such as roomNumber, roomPrice, and availability. This constructor would be called in the constructors of the subclasses, but each with their own additional information specific to the room type. I then wrote the remaining classes. Then came the hard part of determining the class relationships. I knew that the Room and Room subclasses would have a generalization relationship due to inheritance. The other classes I determined were related by association.

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

A screenshot of a reservation

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a reservation form

AI-generated content may be incorrect.

A screenshot of a black screen

AI-generated content may be incorrect.

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

For the mockup UI, I decided to write an HTML script that contained both CSS and JavaScript to improve visual appearance and functionality. The HTML is divided into 4 different windows: the first being getting start and end dates for a reservation, then available rooms are displayed on the next window with respective room numbers, prices, and types. Then the clients can select which room they would like to book. This leads to the next window where the clients enter guest name and information and check if the guest has completed the 1-day payment guarantee. Upon submitting, a popup window appears with a summary of the reservation details confirming the reservation has been made.

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

The hardest part of this project I encountered was trying to translate the system analysis into the UML class diagram. This is mostly because I had to really begin to plan out how I would implement this system in real life and what steps I would take to complete it.