

Cowboy Hotel: System Proposal

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Executive Summary

Cowboy Hotel is in need of a new booking system that will help newly hired staff with conference room bookings. The hotel's current system is not built to incorporate these conference room bookings, resulting in the workers having to handle this situation manually. The main issues Cowboy Hotel is facing, what they require the new system to include, the overall value it will bring to the company, and any special constraints that were identified and compiled into a Systems Request document. Additionally, the expected duration of this project will be 113 days, starting on January 25, 2024, and ending on May 17, 2024. More details on the expected start and end dates for individual tasks can be seen in the project work plan. The feasibility analysis shows this project's estimated costs and benefits, with a total benefit of \$112,000 and an overall return on investment of 26.9% over the next three years after implementation.

Analyzing this project's technical, economic, and organizational feasibility shows that this new booking system should provide a net benefit to Cowboy Hotel. The development of this new system should provide minimal technical risk as long as those in charge of interacting with the system are trained properly. When looking at the economic feasibility of this project, the projected increase in revenue is sufficient enough to cover the operational costs associated with the development of the new system, and our cost-benefit analysis shows that the project can be completed within budget. Finally, the implementation of this new system will improve the organization as a whole by simplifying conference room bookings as well as reducing costs associated with booking errors.

In order to create a booking system that will satisfy all of Cowboy Hotel's needs, we must define the requirements their new system should include. The requirements definition document outlines the functional and non-functional requirements the new booking system must have. These requirements are then implemented in the set of Use Cases provided, which shows the system's responses to our staff's input when creating customer profiles, booking reservations, making changes to reservations, and creating reports. Next, physical process models were created to show how the new booking system will operate. These models show a visual representation of how the main functions of the system will operate. The context level diagram shows how the new booking system is going to operate on the surface level. The Level 0 diagram shows all of the major processes associated with the system. The Level 1 diagrams show how each of the actions from the Level 0 diagram function. Finally, to understand how the data will move within the new system, a physical data model was created showing the relationships between the different entities required for the functionality of this new booking system.

After carefully examining the functional and non-functional requirements of what Cowboy Hotel is requesting its new booking system to have, our team decided buying a pre-existing booking software would be the best option. This decision was made due to the amount of pre-existing booking softwares available on the market that accommodates the business' needs. Additionally, building an entirely new system from scratch would take a long time to develop and would be too costly. The pre-existing booking software that was chosen for this project was Oracle's OPERA 5 Property Management Solutions, which is a system built for hotel companies to manage all of their bookings in one service. This system includes room reservations, catering software, reporting and analytics, and accounting functions.

Once the acquisition strategy was made, a hardware and software specification document was prepared to show the associated costs with this business decision. The total hardware cost comes out to \$885.92, which includes the purchase of two desktop setups and ethernet cables. The total software cost comes out to \$15,917.08, which includes the purchase of the pre-existing booking software and everything else needed to run the system. This comes out to a total of \$16,803 for the hardware and software requirements for the project, providing a solution that is well below the allotted \$50,000 budget.

Finally, examples of User Interface layouts have been provided to show the potential layout for the Hotel's new booking system. These layouts include a conference room booking screen and a calendar screen, intended to demonstrate the potential design of the website that the booking specialist will use. These examples illustrate how we plan to efficiently design the website adhering to the 3-click rule, ensuring optimal usability and appealing interface designs for the hotel's customers.

To conclude, Cowboy Hotel's new booking system should be an internal system that the hotel's staff and managers only have access to. The main function of this new system is to make conference bookings, view upcoming reservations, and store customer, event, venue, and performance data. Additionally, this system should be able to create reports for the Hotel Manager to track performance. Finally, the system should be able to change a client's reservation if necessary. If a client requests a change in their reservation, the manager must approve the change to ensure it does not interfere with other existing bookings. In conclusion, implementing the new booking system represents a transformative milestone for the Cowboy Hotel. This leap forward is poised to set a new standard in hospitality management, ensuring the Cowboy Hotel leads the way in customer satisfaction and efficiency.

Systems Request

Project Sponsor - Jaime Bradson, Hotel Manager

Business Need:

Cowboy Hotel is in need of a new system that will help staff with booking the hotel's newly built conference rooms

- Cowboy Hotel's current system is not built to handle the incorporation of the new conference rooms, so the hotel is currently making conference room bookings by hand.
 - This has resulted in many errors in reservations, creating the need for a new booking system
-

Business Requirements:

The new booking system will be run on two computers placed in the conference room scheduling office and the Hotel Manager's office. The main functions of this new system are to:

- Create customer profiles
 - Book reservations and catering for the hotel's conference rooms
 - View upcoming reservations
 - Update existing reservations if needed
 - Store customer, event, venue, payment, and performance data
-

Business Value:

The new conference rooms are expected to make up about \$125,000 of the hotel's revenue in the first year and potentially reach up to \$150,000 in three years. Additionally, the hotel is expected to see a \$35,000 increase in hotel room revenue due to conference room attendees staying at the hotel. Finally, to fund this project, the company has \$50,000 to fund this project upfront, but they are expected to use the projected increase in revenue to help fund the ongoing maintenance of the new system and pay for the salaries of the new employees that will be hired to work on conference room bookings.

Special Issues or Constraints:

- The new system should be made available as soon as possible in order for the hotel to start making the most out of their new conference rooms
 - The costs for this project should not exceed \$50,000
-

Project Work Plan

Task ID	Task Name	Assigned To	Estimated			Actual			Dependency	Status
			Duration (Days)	Start Date	Finish Date	Start Date	Finish Date	Duration Variance		
1	Planning		21	1/25/2024	2/15/2024	1/25/2024	2/12/2024	3		Closed
1.1	Create a Systems Request and Cost-Benefit Analysis	Jonathan	7	1/25/2024	2/1/2024	1/25/2024	2/1/2024	0		Closed
1.2	Create Project Work Plan	Jonathan	7	2/1/2024	2/8/2024	2/1/2024	2/7/2024	1		Closed
1.3	Establish Project Charter	Group 1	7	2/8/2024	2/15/2024	2/8/2024	2/12/2024	3	1.2	Closed
2	Analysis		35	2/15/2024	3/21/2024	2/15/2024	3/21/2023	0	1.3	Closed
2.1	Perform Requirement Analysis	Group 1	14	2/15/2024	2/29/2024	2/15/2024	2/29/2024	0		Closed
2.2	Use Case Analysis	Group 1	14	2/22/2024	3/7/2024	2/22/2024	3/7/2024	0		Closed
2.3	Data Flow Diagrams	Group 1	14	2/29/2024	3/14/2024	2/29/2024	3/14/2024	0	2.2	Closed
2.4	ERD + Requirements Definition Document	Group 1	14	3/7/2024	3/21/2024	3/7/2024	3/21/2024	0	2.3	Closed
3	Design		35	3/28/2024	5/2/2024	3/28/2024	5/2/2024	0	2.4	Closed
3.1	Architecture Design	Group 1	7	3/28/2024	4/11/2024	3/28/2024	4/11/2024	0	2.4	Closed
3.2	Interface Design pt. 1 + 2	Group 1	7	4/11/2024	4/18/2024	4/11/2024	4/18/2024	0		Closed
3.2.1	Interface Design pt. 3	Individual	10	4/18/2024	4/28/2024	4/18/2024	4/28/2024	0		Closed
3.3	Program & Database Design	Group 1	14	4/18/2024	5/2/2024	4/18/2024	5/2/2024	0	3.2	Closed
4	Implementation		22	4/25/2024	5/17/2024	4/25/2024	5/17/2024	0	3.3	Closed
4.1	Moving to Implementation	Group 1	22	4/25/2024	5/17/2024	4/25/2024	5/17/2024	0		Closed
4.2	Transition to New System	Group 1	15	5/2/2024	5/17/2024	5/2/2024	5/17/2024	0		Closed

Feasibility Analysis

	2024	2025	2026	2027	Total
Benefits					
Increased revenue from conference room bookings		125,000	150,000	150,000	425,000
Increased revenue from hotel room bookings		35,000	35,000	35,000	105,000
Total Benefits		\$160,000	\$185,000	\$185,000	\$530,000
Development Costs					
Software Development	15,917.08	0	0	0	15,917.08
Training and Implementation	16,000	0	0	0	16,000
Additional Equipment	4,000	0	0	0	4,000
2 Computers	885.92	0	0	0	885.92
Setup & Installation	13,197				13,197
Total Development Costs	\$50,000	0	0	0	\$50,000
Operational Costs					
Maintenance	0	5,000	5,000	5,000	15,000
Booking Specialist Salary	0	60,000	60,000	60,000	180,000
Assistant Booking Specialist Salary	0	50,000	50,000	50,000	150,000
Miscellaneous	0	7,500	7,500	7,500	22,500
Total Operational Costs	0	\$122,500	\$122,500	\$122,500	\$367,500
Total Costs	\$50,000	\$122,500	\$122,500	\$122,500	\$417,500
Total Benefits - Total Cost	(\$50,000)	\$37,500	\$62,500	\$62,500	\$112,500
Cumulative Net Cash Flow	(\$50,000)	(\$12,500)	\$50,000	\$112,500	
Return on Investment	26.95%				

Technical Feasibility:

From a technical perspective, developing this new booking system is expected to carry minimal risk. The main concern might arise from the potential unfamiliarity of users and analysts with the specific application or its underlying technology. However, this challenge is addressed by properly training the users on the system through developing support services during the initial adoption phase to efficiently understand the system.

Additionally, compatibility with existing systems is not a concern. The selected hardware and software have been evaluated for compatibility with existing systems at Cowboy Hotel, with findings indicating that integration will be seamless with minimal need for additional modifications or upgrades. The new software is designed to be interoperable with our existing database systems, ensuring that data flow remains uninterrupted and secure across platforms.

Overall, the risks of creating this new booking system are low. The main risk is that users and analysts might not know the new system or technology well. We can overcome this by providing thorough training and support while they get used to it. Also, the new system will work well with our existing systems and won't cause any disruptions. So, with the right training and support, building this new booking system for the hotel should go smoothly and successfully.

Economic Feasibility

As seen in the cost-benefit analysis, the total benefit over the three years would be \$530,000.00 in profits with these benefits increasing more than the year before. This project has been allotted \$50,000 in total to fund this project. The main components of costs required to keep the system running include developmental and operational costs. The developmental costs are software development, training, and project management, which ends up costing \$50,000 for the project. Along with operational costs of \$367,500, which includes software maintenance, hardware maintenance, data backup, and quality assurance. Cowboy Hotel has enough revenue to purchase all the services and materials. In addition, profits analyzed from this software system greatly exceed the current booking system. This is attributed to the system since it will reduce errors in the booking process, leading to saved costs on errors. Plus, with an ROI of 26.95%, we can conclude that this project is worth pursuing.

Organizational Feasibility

The development of this new booking system would greatly improve the organization's overall efficiency due to the hotel staff no longer having to handle the conference room booking by hand. As a result, fewer booking errors will be made, and the time it takes to complete these bookings will be reduced. Given the new hardware and software specifications, a comprehensive training program will be initiated to ensure all relevant staff are proficient in utilizing the new system. The adoption of the new hardware and software is projected to decrease the time taken for booking and administrative tasks by approximately 30%, allowing staff to focus more on customer service and other core activities. Since the hotel plans on hiring new staff and a booking specialist to handle the new booking system, the organization will have the necessary personnel and experience to implement this new system.

Requirements Definition Document

Functional Requirements

1. Create Customer Profiles

- 1.1. The system will allow the booking specialist to create a customer profile in order to store client information.
- 1.2. The system will allow the booking specialist to update customer profiles whenever necessary

2. Book Reservations

- 2.1. The system will be able to book reservations for our customers.
- 2.2. The system will provide information on the availability of conference rooms, factoring in the date, time, and specific room requirements.
- 2.3. The system will update room availability instantly upon booking or cancellation to ensure accurate data is presented to all users.

3. Book Catering

- 3.1. The system will be able to add catering services to customers' reservations upon request

4. Reservation Management

- 4.1. The system should allow hotel staff to view, modify, and cancel reservations.
- 4.2. The system should allow hotel staff to view upcoming reservations.

5. Payment Information

- 5.1. The system should be able to keep track of the customer's transactions with the company.

6. Provide Reports

- 6.1. The system should be able to provide reports to the hotel regarding details of the reservations and performance statistics.

Nonfunctional Requirements

1. Operational

- 1.1. The system will run on a Windows-operated computer and should be able to be accessed on all web browsers.
- 1.2. The system should be available 24/7.
- 1.3. The system must be easy to use so that the booking specialists have no problem updating/accessing the system.

2. Performance

- 2.1. The system should be able to upload and process information within a second.
- 2.2. The system should allow at least three users at a time.
- 2.3. The system should be able to store years' worth of data with no complications.
- 2.4. The system must not slow down or crash during busy seasons.

3. Security

- 3.1. The system has high value and is essential to the company's conference room booking process.
- 3.2. Access to this system is only permitted to those with the necessary login credentials (booking specialists and hotel managers).

- 3.3. Client information and payments will be encrypted and secured.
- 3.4. The system should be able to protect itself against viruses and other cyberattacks.

4. Cultural and Political

- 4.1. The main language displayed in the system should be English.
- 4.2. The system should be able to handle different types of customized events and needs.
- 4.3. The system should be customizable to our company's needs.
- 4.4. The system will display dates in the MM/DD/YYYY format.
- 4.5. The system should comply with relevant laws and regulations related to data protection and customer privacy.

Use Cases

Use Case Name: Add a customer	ID: UC-1	Priority: High
Actor: Booking Specialist		
Description: This use case outlines the procedure for registering new clients in the database through user input.		
Trigger: Booking specialist gets new customers.		
Type: <input checked="" type="checkbox"/> External / <input type="checkbox"/> Temporal		
Preconditions: 1. Booking specialists are equipped with access to the reservation management system.		
Normal Course: <ol style="list-style-type: none">1. Creation of a new client profile.2. The booking specialist can input customer information into the system.3. The booking specialist can upload a client profile into the system.4. The system logs and stores the entered client detail5. The system records new customer files.		
Postconditions: <ol style="list-style-type: none">1. The booking specialist update on the conference room reservation is complete.2. System record update on conference room reservation.		
Exceptions: E1: Should the booking specialist enter incorrect customer information into the system: <ol style="list-style-type: none">1. A warning message will be shown, identifying the inaccurate sections of the customer's data for the specialist to review.2. The system then gives the specialist the option to either re-enter the corrected information or exit the entry process entirely.		

Use Case Name: Creating a Reservation	ID: UC-2	Priority: High
Actor: Booking Specialist		
Description: This use case outlines the process for booking a conference room.		
Trigger: The booking specialists must create a reservation for a customer.		
Type: <input checked="" type="checkbox"/> External / <input type="checkbox"/> Temporal		
Preconditions: <ul style="list-style-type: none">1. The database for conference room bookings shows current and available rooms.2. Access to the customers profile.		
Normal Course: <ul style="list-style-type: none">1. Booking specialists enter details such as the date, size, and specific requirements for the client's event.2. The system then displays a list of available conference rooms based on the criteria provided.3. The booking specialist chooses an available conference room from the list.4. Next, they enter the client's details into the system. If the client has previously used the service, their information is retrieved from the database.5. If the client is new, the process proceeds with UC-1 (Registration of a new client profile).6. Booking specialists receive confirmation of the booking from the system.7. Reservation details are recorded in the data store.		
Postconditions: <ul style="list-style-type: none">1. A conference room is saved in the data store.2. Customer has been assigned to a conference room.		
Exceptions: <p>E1: The selected conference room is unavailable.</p> <ul style="list-style-type: none">1. System displays a message stating the room is unavailable.2. The system then prompts the user to go back.		

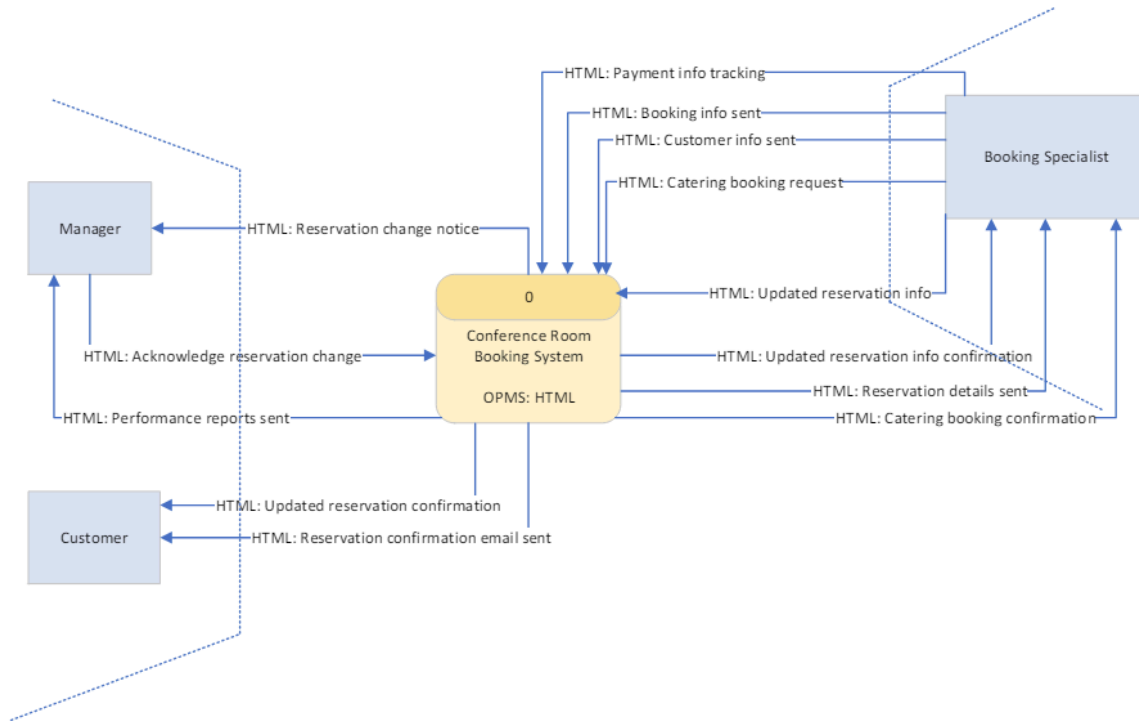
Use Case Name: Caterer Booking Conference Rooms	ID: UC-3	Priority: High
Actor: Caterer		
Description: This use case outlines the process for a caterer to book conference rooms for events at the Cowboy Hotel.		
Trigger: The caterer needs to reserve conference rooms for events.		
Type: <input checked="" type="checkbox"/> External / <input type="checkbox"/> Temporal		
Preconditions: <ul style="list-style-type: none">1. Caterer has access to the booking system.2. Conference room availability is displayed on the system.		
Normal Course: <ul style="list-style-type: none">1. Caterer logs into the booking system.2. The caterer selects the date, time, and size requirements for the event.3. The system displays a list of available conference rooms based on the criteria provided.4. The caterer chooses an available conference room from the list.5. Caterer inputs event details such as catering preferences, equipment needs, and any special requests into the system.6. If necessary, Caterer modifies the reservation based on client requests.7. The caterer receives a confirmation of the booking from the system.8. Reservation details, including catering requirements, are recorded in the system.		
Postconditions: <ul style="list-style-type: none">1. The conference room is reserved for the event.2. The caterer receives confirmation of the reservation.		
Exceptions: E1: The selected conference room is unavailable. The system displays a message stating the room is unavailable. - The caterer is prompted to select another available room. E2: The caterer encounters technical issues with the system. - Caterer contacts system support for assistance. - System support resolves the issue, allowing the Caterer to proceed with the reservation. E3: Caterer needs to make changes to the reservation after confirmation. - The caterer contacts the hotel manager to request modifications. The hotel manager approves the changes, and the Caterer updates the reservation accordingly.		

Use Case Name: Changing Reservation	ID: UC-4	Priority: High
Actor: Booking Specialists		
Description: This use case outlines the procedure of customer wanting to change their reservation of the conference room		
Trigger: Customers would like to change their reservation or cancel it.		
Type: <input checked="" type="checkbox"/> External / <input type="checkbox"/> Temporal		
Preconditions: <ul style="list-style-type: none">1. Current access to the booking system2. Reservation ID and data are up to date		
Normal Course: <ul style="list-style-type: none">1. Booking Specialists change reservations based on the customer's choice2. The system requests the reservation ID from the booking specialist3. Booking specialists input the reservation ID4. Reservation ID produces the information of the reservation from the data store<ul style="list-style-type: none">a. If the customer wishes to cancel the reservation, approval of the manager is required by the booking specialistsb. Booking Specialists cancel the reservation with the approval5. Booking specialists change the reservation information upon the requests of the customer6. A newly modified reservation ID is sent back to the data store		
Postconditions: <ul style="list-style-type: none">1. The updated reservation ID is in the data store.		
Exceptions: <p>E1: The manager does not give their approval to cancel the reservation</p> <ul style="list-style-type: none">1. The booking specialist reverts the changes and the customer is notified.		

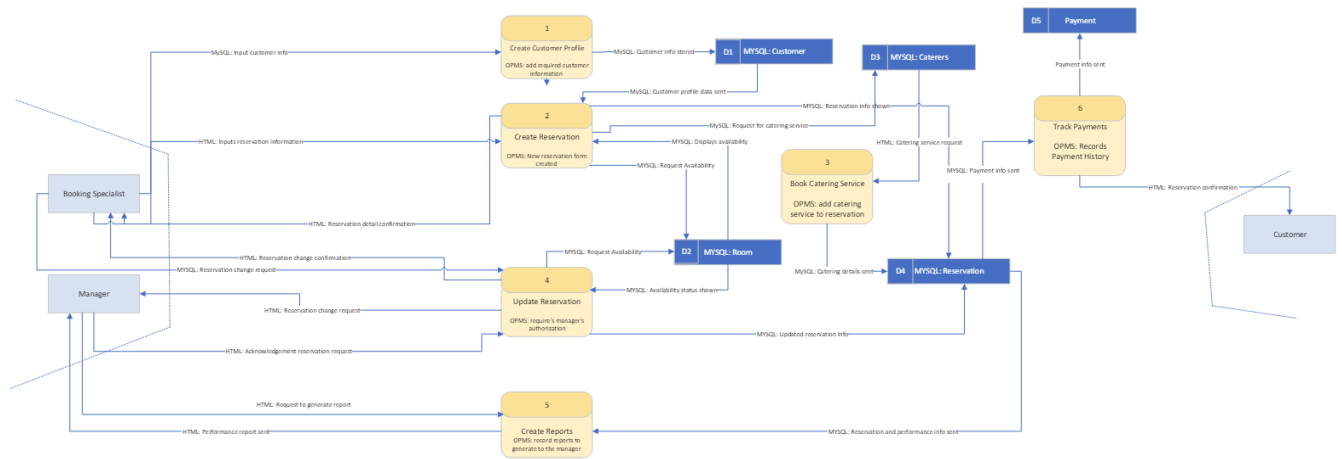
Use Case Name: Creating Reports	ID: UC-5	Priority: High
Actor: Booking Specialist		
Description: This use case involves the process of generating reports based on conference room bookings and events at the Cowboy Hotel. The primary goal is to provide management with insights into booking trends, revenue generation, and resource utilization.		
Trigger: Management requests a report on conference room bookings and events.		
Type: <input checked="" type="checkbox"/> External / <input type="checkbox"/> Temporal		
Preconditions: <ul style="list-style-type: none">1. Data on conference room bookings and events is available in the system.		
Normal Course: <ul style="list-style-type: none">1. The Booking Specialist accesses the conference room booking and event data information.2. The Booking Specialist opens the system to retrieve data on conference room bookings and events.3. The Booking Specialist generates the report using appropriate tools or software.4. The Booking Specialist inputs information for the report.5. The Booking Specialist reviews and double-checks the report for accuracy and completeness.6. The Booking Specialist delivers the report to management.		
Postconditions: <ul style="list-style-type: none">1. The report is saved in the systems		
Exceptions: <p>E1: The information inputted is invalid.</p> <ul style="list-style-type: none">1. The system displays a message: “Please input the correct information”2. The system prompts the user to change the information3. The system returns to step 54. The Booking Specialist exits the program		

Physical Process Model

Context Diagram

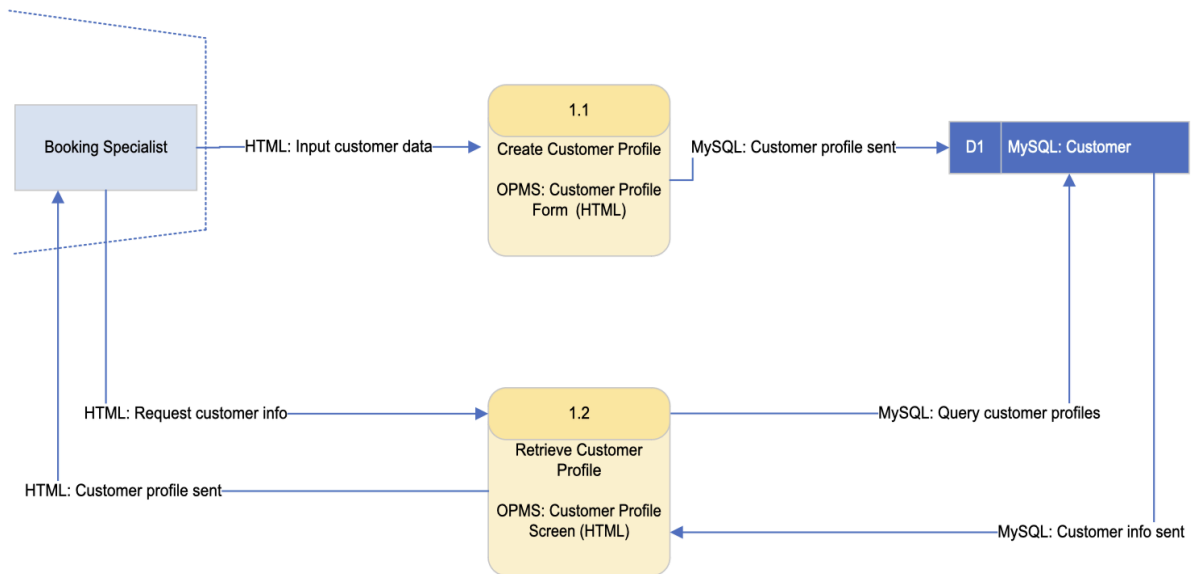


Level 0 Diagram

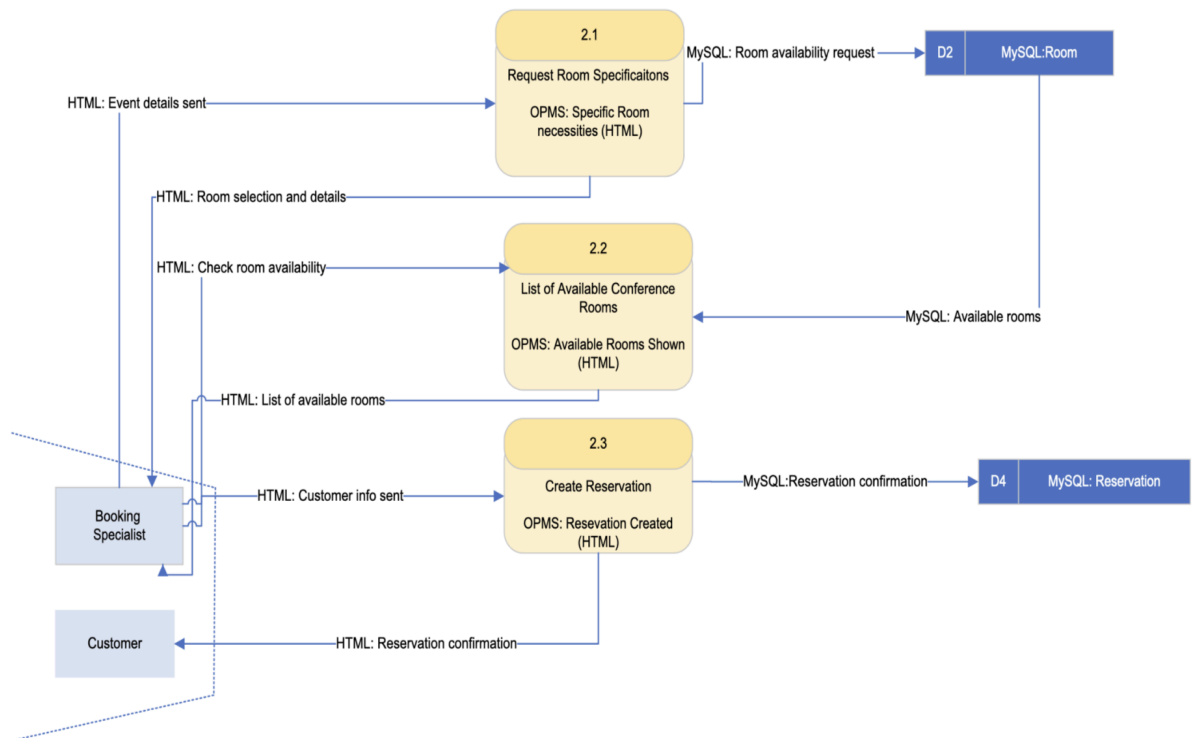


Level 1 Diagrams:

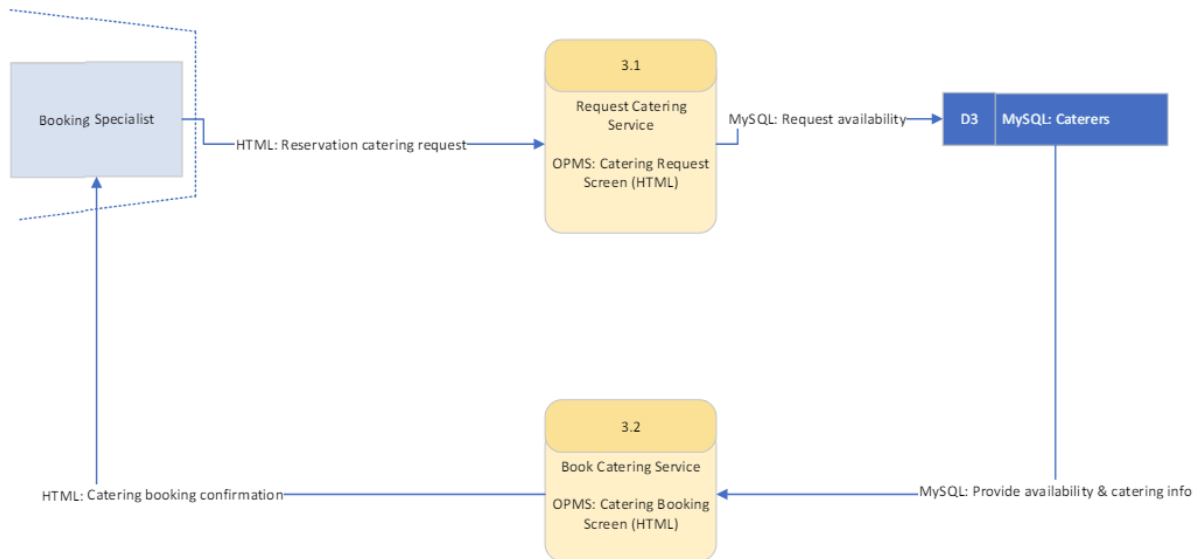
Create Customer Profile:



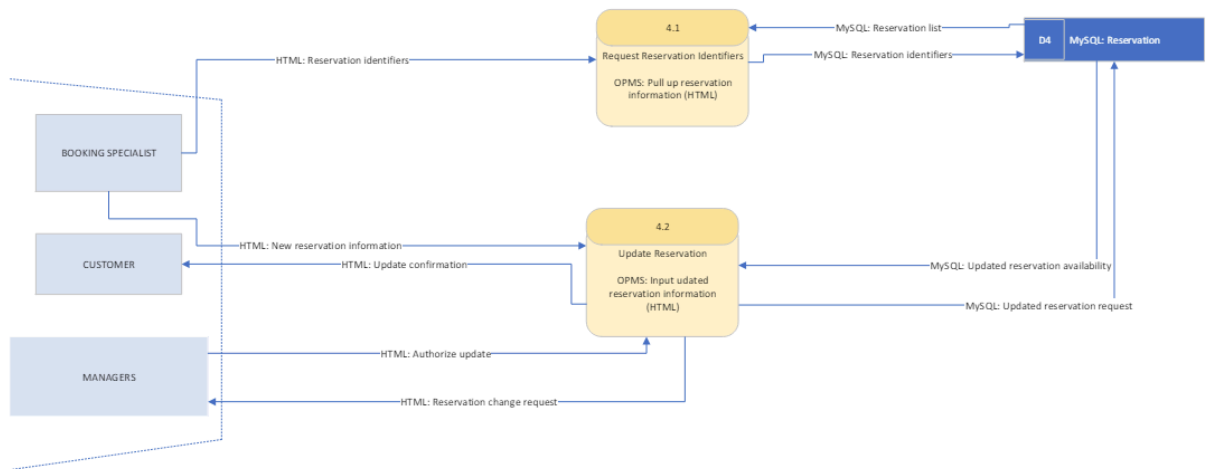
Create Reservation:



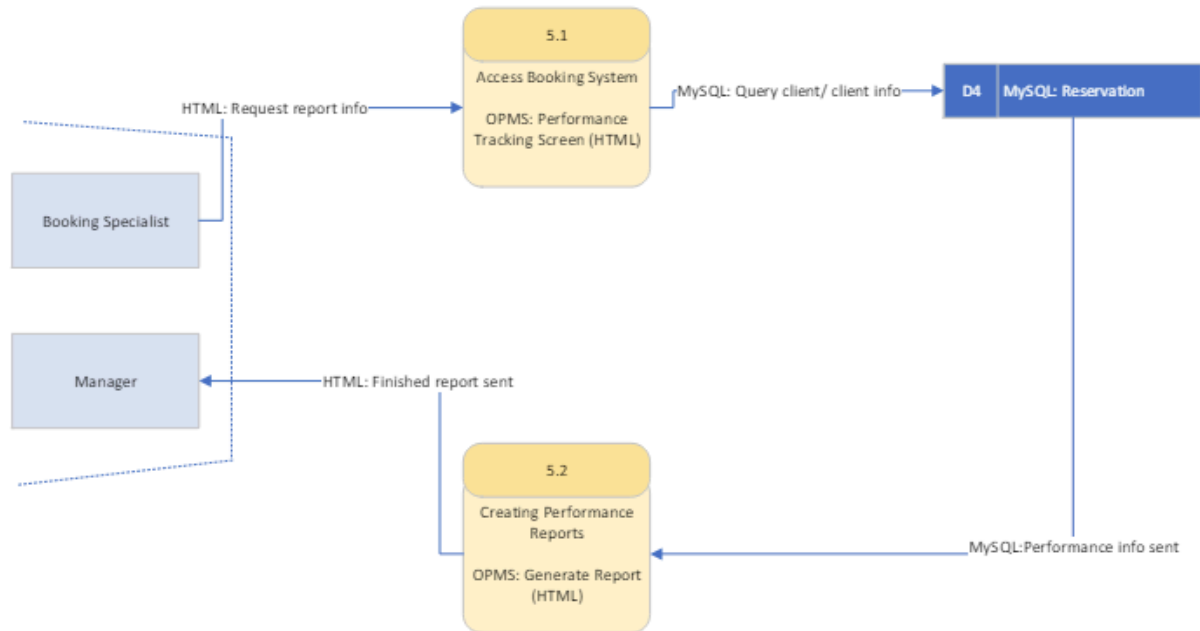
Book Catering:



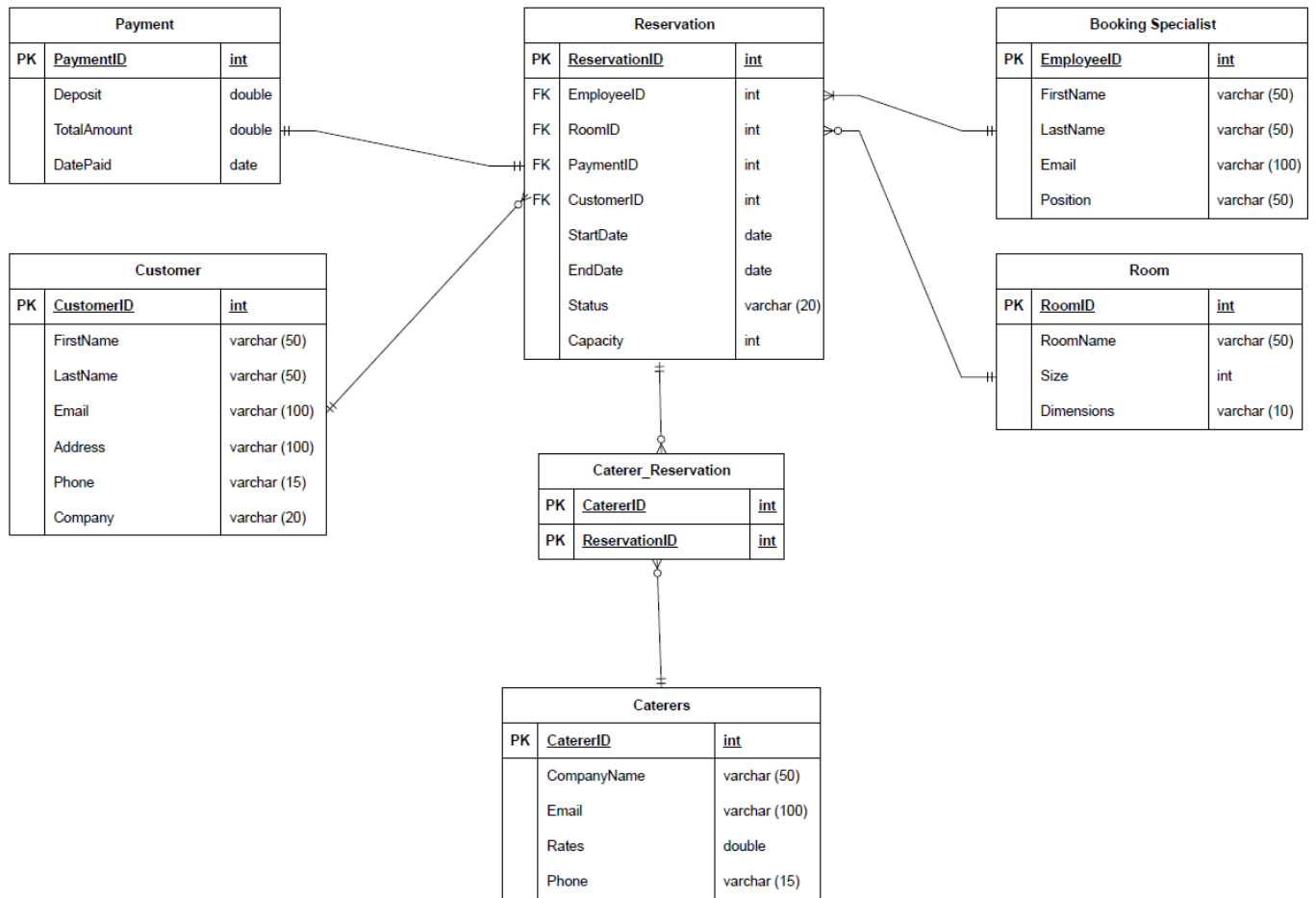
Update Reservation:



Create Reports:



Data Model



Hardware and Specification

	Standard Client	Standard Database Server
Operating System	Windows 10 Pro	Oracle Database
Special Software	<ul style="list-style-type: none"> ● Google Chrome ● Microsoft Office ● Opera Property Management System (PMS) by Oracle Hospitality 	<ul style="list-style-type: none"> ● MySQL ● Apache
Hardware	<ul style="list-style-type: none"> ● Dell OptiPlex 3040 SFF Desktop Computer <ul style="list-style-type: none"> ○ https://www.microcenter.com/product/631376/dell-optiplex-3040-sff-desktop-computer-(refurbished) <p>Desktop Hardware Breakdown</p> <ul style="list-style-type: none"> ● Processor: Intel Core i5-6500 6th Gen (6MB Cache, 4 Cores, 3.2GHz up to 3.6GHz) ● RAM: 16GB DDR3-1600 ● Storage: 256GB Solid State Drive ● Graphics: Intel HD Graphics 530 ● Front I/O Ports: ● DVD-RW Optical Drive ● USB Ports (numbers and speeds typically include USB 2.0 and USB 3.0) ● Audio-mic combo (3.5mm) jack ● Back I/O Ports: ● More USB Ports (including USB 3.0 for faster data transfer) ● Ethernet port (10/100/1000 Gigabit Ethernet) ● VGA and HDMI output for video ● Operating System: Windows 10 Pro ● TECKNET USB Wired Mouse <ul style="list-style-type: none"> ○ https://a.co/d/9PXaIWf ● AmazonBasics Matte Black Wired Keyboard <ul style="list-style-type: none"> ○ https://a.co/d/8zJ6vqy ● Acer CB272 Dbmiprcx 27" Full HD (1920 x 1080) <ul style="list-style-type: none"> ○ https://www.amazon.com/Acer-CB272-Dbmiprcx-Frameless-Adjustable/dp/B08R6CHPVM/ref=sr_1_1?crid=3PHESB2IKN39H&keywords=monitor&nav_sdd=aps&qid=1681095991&r 	<ul style="list-style-type: none"> ● PowerEdge R650xs Rack ● 500GB disk drive

	efinements=p_n feature eleven browse-bin%3A17726581011%2Cp_n feature_seven_browse-bin%3A23991557011&rnid=23991554011&s=pc&sprefix=monitor&sr=1-1	
Network	<ul style="list-style-type: none"> • Ethernet 	<ul style="list-style-type: none"> • Ethernet

Estimated Cost of Each Piece of Hardware:

- Dell OptiPlex 3040 SFF Desktop Computer: $\$277 \times 2 = \554
- TECKNET USB Wired Mouse: $\$8.99 \times 2 = \17.98
- Amazon Basics Low-Profile Wired USB Keyboard with US Layout: $\$18.99 \times 2 = \37.98
- Cat 6 Ethernet Cable 200 ft: $\$27.99 \times 2 = \55.98
- Acer Monitor: $\$109.99 \times 2 = 219.98$

Estimated Total Cost of Hardware:

One-time cost of \$885.92

Estimated Cost of Each Piece of Software:

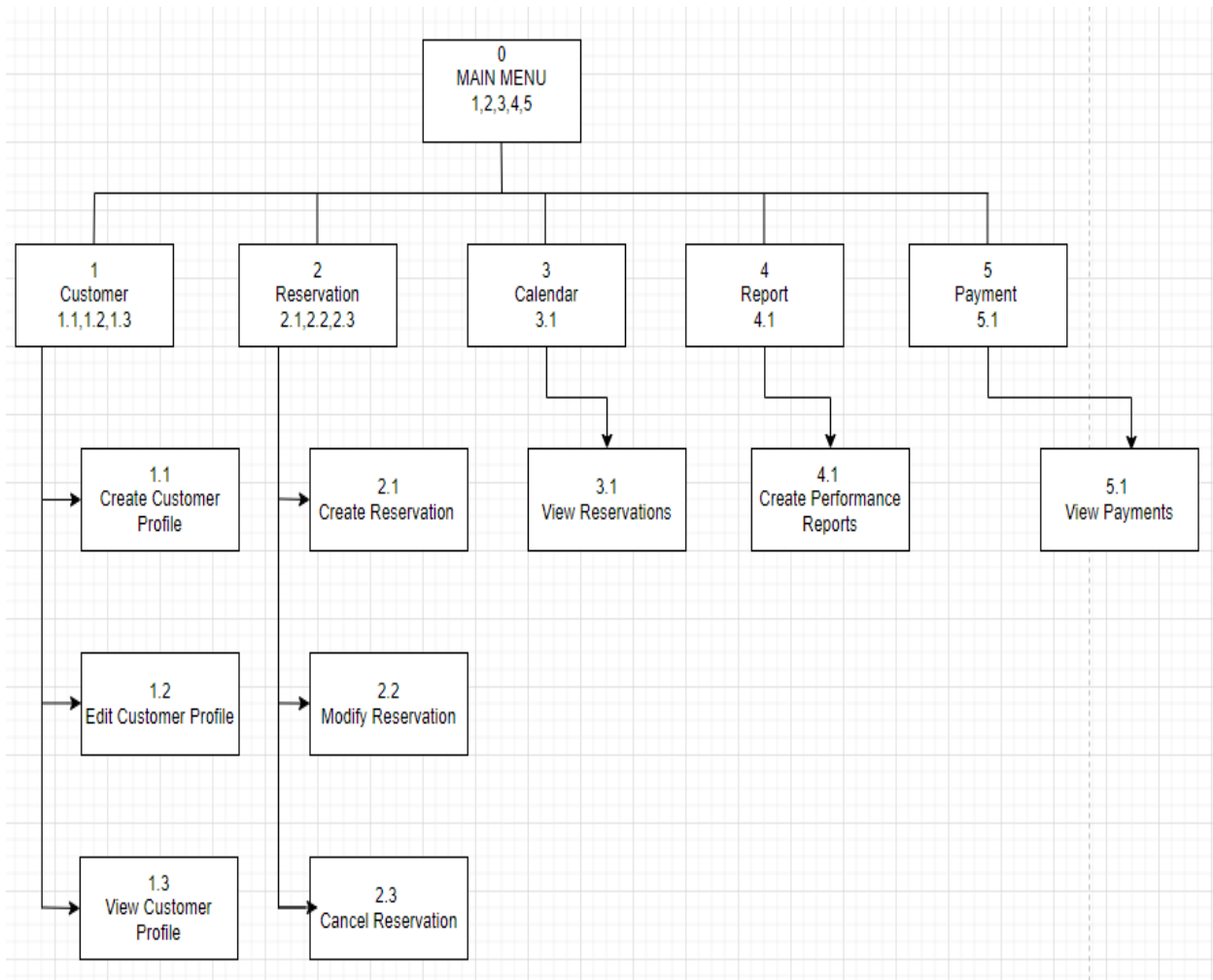
- Opera Property Management System (PMS) by Oracle Hospitality = \$10,540 annually
- MySQL = \$5000 annually
- Apache = Free Software
- Microsoft Office: \$150 annually
- Avast Ultimate Business Security: \$227.08 annually

Estimated Total Cost of Software:

\$15,917.08/ year

User interface

INTERFACE STRUCTURE DIAGRAM



Conference Room Booking UI:

