**Analysis Notes**

**The Check Inn #1 Hotel Management System**

Project Manager: Group 2

Date: March 5th, 2024

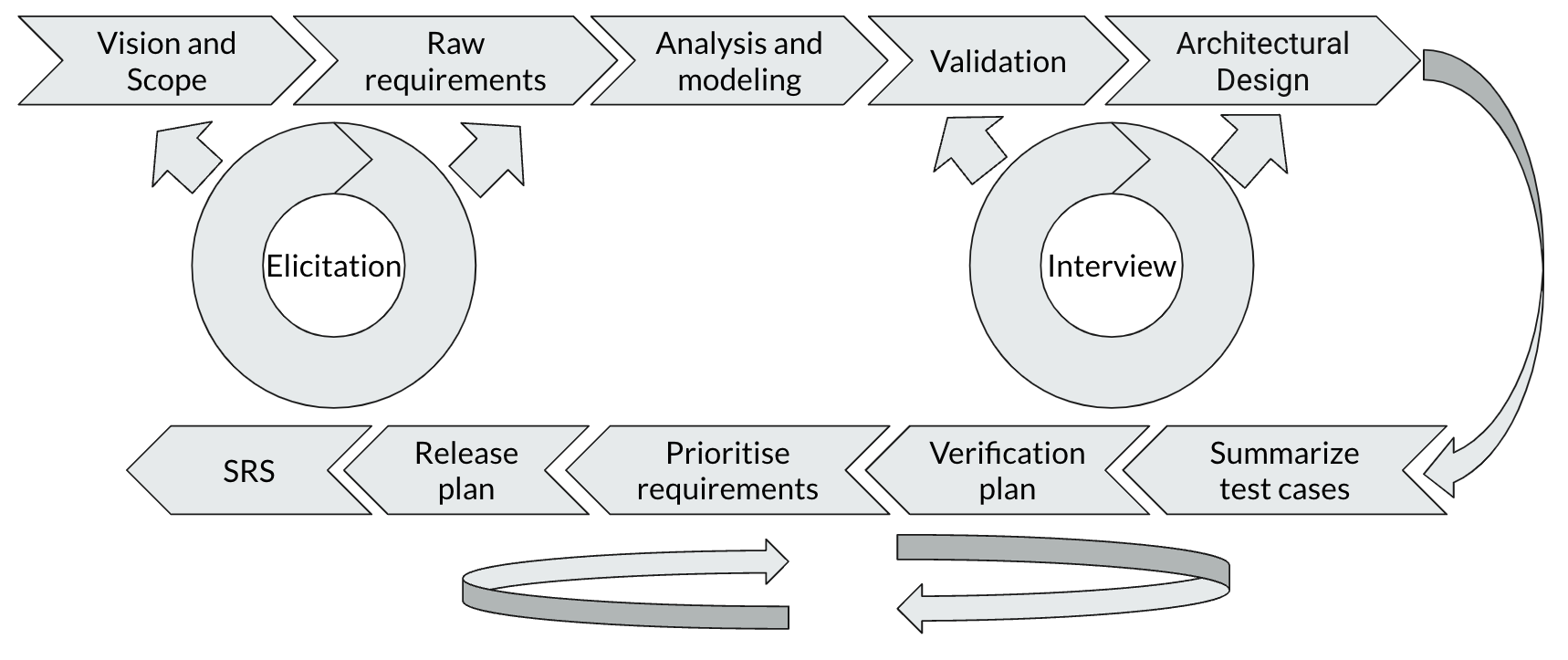
Stakeholders Involved: Group 4

**Project Overview**

The Check Inn #1 Hotel Management System is an ambitious initiative aimed at transforming the guest experience and streamlining hotel operations for the Check Inn Canadian hotel chain. The project is centered around the development and implementation of a comprehensive digital platform, with the "Online Booking and Reservation Management" feature being a critical component. This analysis delves into the project's strategic objectives, key features, potential risks, dependencies, and overarching business context.

**Elicitation Strategies**

Elicitation strategies were employed through a combination of interviews and workshops involving participants from Group 4. These sessions were designed to gather comprehensive insights and requirements to inform the project's direction. All elicitations were conducted with group 4 throughout February and March. The whole elicitation and documenting process is continuous. We perform elicitation for each design document and polish the documents based on stakeholders’ feedback gathered from elicitation sessions.



**Stakeholders Profiles**

**1. Customers (Hotel Guests)**

* Interests: Easy booking, personalized service, convenience during stay (e.g., mobile check-in/out), and the ability to provide feedback.
* Contributions: Provide feedback on system usability and functionality; their needs drive the system's feature set.
* Elicitation Techniques: Interviews, Use Cases Session
* Why it Matters: Directly impacts guest satisfaction and their likelihood to return or recommend the hotel to others.

**2. Hotel Staff**

* Sub-groups:
  + Front Desk Employees: Interested in efficient check-in/out processes, guest management, and providing personalized service.
    - Need: Efficient tools for managing check-ins/outs, guest inquiries, and special requests to improve service speed and quality.
  + Housekeeping and Maintenance Teams: Seek streamlined task scheduling and reporting of room readiness or maintenance issues.
    - Need: Automated scheduling of tasks, real-time room status updates, and a straightforward way to report completed duties or issues.
  + Revenue Managers: Focus on dynamic pricing and revenue management tools to optimize profitability.
    - Need: Access to dynamic pricing tools and comprehensive analytics for informed decision-making regarding room rates and promotions.
  + Marketing Managers: Require access to guest data for targeted marketing and loyalty program management.
    - Need: Detailed guest data for creating targeted marketing campaigns, managing loyalty programs, and personalizing guest communications.
* Contributions: Offer insights into operational workflows, identify essential features, and participate in system testing.
* Elicitation Techniques: Workshops

**3. Hotel Management (Including Hotel Manager)**

* Interests: Overall project success, return on investment, guest satisfaction scores, and operational efficiency.
* Contributions: Provide strategic direction, allocate budget and resources, and make critical project decisions.
* Elicitation Techniques: Interviews
* Need: High-level overview of hotel performance, including occupancy rates, revenue, guest satisfaction scores, and system ROI.

**4. IT Department/Technical Team**

* Interests: System reliability, scalability, security, and integration with existing hotel infrastructure.
* Contributions: Technical expertise in system design, development, testing, and maintenance. Ensure the system meets non-functional requirements.
* Elicitation Techniques: Interviews and workshops
* Need: A scalable, secure, and maintainable system architecture that integrates smoothly with existing hotel technologies and databases.

**5. Legal and Compliance Officers**

* Interests: Ensuring the system complies with relevant regulations (e.g., GDPR, PCI DSS), data privacy laws, and accessibility standards.
* Contributions: Provide guidance on legal requirements, conduct compliance audits.
* Elicitation Techniques: Interviews
* Need: Assurance that the system complies with all applicable laws, payment processing standards , and accessibility guidelines.

## 

## **Requirements**

### **Functional Requirements:**

### **1: Online Booking and Reservation Management**

### **1.1 Functional Requirement**

* Description: The system shall offer an online booking interface that allows guests to book rooms directly through the hotel's website or mobile app without the need for telephone interaction.
* Rationale: To provide a seamless, direct booking experience for guests, increasing convenience and satisfaction.
* Acceptance Criteria: A guest can search for available rooms, select a room, enter personal and payment information, and confirm the booking without needing to call the hotel.

**1.2 Functional Requirement**

* Description: The online booking system shall enable guests to compare different room types, check availability, and view rates for selected dates before making a booking.
* Rationale: To assist guests in making informed decisions that match their needs and budget, enhancing the user experience.
* Acceptance Criteria: Guests can filter and compare rooms based on type, availability, amenities, and rates; and view detailed descriptions and images of the rooms.

**1.3 Functional Requirement**

* Description: Upon completing a booking, guests shall receive an immediate confirmation via email or through the booking platform, including all relevant details about their stay (e.g., dates, room type, rate, cancellation policy).
* Rationale: To reassure guests that their reservation is secured and provide them with all necessary information for their stay.
* Acceptance Criteria: A confirmation email or notification is automatically sent to guests upon successful booking, containing all pertinent details of their reservation.

**1.4 Functional Requirement**

* Description: The system shall provide hotel staff with access to a centralized dashboard for viewing and managing all reservations, facilitating efficient room allocation and preparation for guest arrivals.
* Rationale: To streamline the reservation management process, improving operational efficiency and guest service readiness.
* Acceptance Criteria: Staff can access, review, and manage reservations in real-time through a centralized system, including making changes to reservations as needed.

**1.5 Functional Requirement**

* Description: The system shall automatically update room inventory across all booking channels in real-time to reflect current availability, preventing overbooking and ensuring accurate room status.
* Rationale: To optimize room occupancy and revenue while avoiding the negative impact of overbooking.
* Acceptance Criteria: When a booking is made or canceled, the system instantly updates the inventory across all channels, and changes are reflected in real-time to all users and staff.

### 

**2: Check-In/Out and Room Assignment Automation**

**Functional Requirement 2.1:**

* Description: Guests shall have the ability to complete the check-in and check-out process using their mobile devices, without the need to queue at the hotel's front desk.
* Rationale: To provide a more convenient and streamlined experience for guests, reducing wait times and improving overall satisfaction.
* Acceptance Criteria: Guests can check in or out through the hotel’s app or website, receive a digital room key (if applicable), and complete all necessary procedures electronically.

**Functional Requirement 2.2:**

* Description: The system shall allow guests to check in via their mobile device before arriving at the hotel, offering the option to bypass traditional front desk interactions.
* Rationale: To expedite the arrival process, enabling guests to go directly to their rooms upon arrival and start their stay with ease.
* Acceptance Criteria: Guests can perform check-in actions, including preference confirmation and estimated arrival time, on their mobile device before arrival.

**Functional Requirement 2.3:**

* Description: Guests shall be able to request room changes or upgrades through the hotel’s mobile app or website, facilitating easy customization of their stay.
* Rationale: To empower guests to tailor their stay according to their needs and preferences directly from their mobile device, enhancing the personalization of service.
* Acceptance Criteria: Through the app, guests can view available room upgrades or changes and request them instantly, with any applicable charges clearly displayed and added to their bill.

**Functional Requirement 2.4:**

* Description: The system shall enable hotel staff to automatically assign rooms based on guest preferences, status, and availability, early on the day of check-in.
* Rationale: To ensure that guest rooms are allocated in a manner that aligns with their preferences and loyalty status, personalizing the experience.
* Acceptance Criteria: The system auto-assigns rooms considering guest requests, preferences, and status, prioritizing assignments based on loyalty program tiers where applicable.

**Functional Requirement 2.5:**

* Description: Hotel staff shall be able to facilitate an express check-out process for guests through the system, enabling guests to depart swiftly without manual billing and key return procedures.
* Rationale: To streamline the departure process for guests, enhance satisfaction, and efficiently manage room turnover for incoming guests.
* Acceptance Criteria: Guests can complete check-out via the app, including viewing and settling their bill electronically, with the system automatically updating room status for housekeeping.

**3: Guest Profile Management**

**Functional Requirement 3.1**

* Description: Hotel staff members shall have the ability to access and update guest profiles within the system to provide personalized services and enhance guest satisfaction.
* Rationale: To ensure staff can offer tailored services based on the individual preferences and history of each guest.
* Acceptance Criteria: Staff can view, add to, and edit guest profiles, including preferences and special requests, through a secure and intuitive interface.

**Functional Requirement 3.2**

* Description: The system shall automatically update a guest’s profile with details of every service request they make, including room bookings, dining, spa services, and other amenities.
* Rationale: To accumulate valuable data on guest preferences and spending, aiding in the identification of loyal and high-value customers.
* Acceptance Criteria: Each guest interaction with hotel services is logged in their profile in real-time, accessible to relevant staff for review and action.

**Functional Requirement 3.3**

* Description: Hotel staff shall have immediate access to guest profiles during their stay to offer personalized service and anticipate guest needs.
* Rationale: To enable staff to provide a high level of customized service, improving the guest experience.
* Acceptance Criteria: Staff can quickly access guest profiles on demand, including current stay details and historical preferences, via a desktop or mobile device.

**Functional Requirement 3.4**

* Description: The system shall enable hotel staff to track and analyze guest feedback and preferences over time, facilitating ongoing service improvement and the creation of personalized offers.
* Rationale: To leverage guest feedback for continuous improvement and to tailor offers and communications to guest preferences.
* Acceptance Criteria: The system aggregates and displays guest feedback trends and preferences, which can be used for making operational improvements and personalized service decisions.

**Functional Requirement 3.5**

* Description: Guests' stay preferences shall be stored and automatically applied to future bookings to personalize each visit with minimal effort from the guest.
* Rationale: To enhance guest loyalty by demonstrating attention to their preferences and simplifying the booking process.
* Acceptance Criteria: When making a booking, guests find their preferences (e.g., room type, location, amenities) pre-selected based on their stored profile data.

**Functional Requirement 3.6**

* Description: Guests shall have the ability to update their personal profile and preferences online at any time, enabling the hotel to tailor their stay according to current needs.
* Rationale: To give guests control over their personal and preference data, ensuring the hotel can offer the most relevant and personalized service.
* Acceptance Criteria: Through a secure portal, guests can modify their profile and preferences, which are then immediately reflected in the system for staff action and future bookings.

**Functional 4: Dynamic Pricing and Revenue Management**

**Functional Requirement 4.1**

* Description: The system shall enable the revenue manager to implement dynamic pricing strategies that adjust room rates based on demand, occupancy, seasonality, and special events.
* Rationale: To maximize revenue by optimizing room rates in real-time, responding to market conditions and hotel occupancy levels.
* Acceptance Criteria: The revenue manager can set pricing rules and conditions in the system, which then automatically adjusts room rates according to these parameters.

**Functional Requirement 4.2**

* Description: The system shall allow hotel staff to adjust pricing in real-time based on current market data, competitor pricing, and hotel occupancy.
* Rationale: To ensure the hotel's pricing remains competitive and attractive to potential guests, thereby maximizing revenue opportunities.
* Acceptance Criteria: Staff can access a dashboard displaying real-time market data and competitor rates, and adjust hotel pricing accordingly through the system.

**Functional Requirement 4.3**

* Description: The system shall provide tools for hotel staff to analyze booking trends and identify high-demand periods, facilitating strategic pricing adjustments.
* Rationale: To capitalize on peak demand periods through optimized pricing strategies, enhancing occupancy rates and revenue.
* Acceptance Criteria: The system generates forecasts and reports on booking trends, enabling staff to identify high-demand periods and adjust prices or availability accordingly.

**Functional Requirement 4.4**

* Description: Guests shall have access to dynamic pricing offers through the hotel's booking platform, enabling them to secure rooms at the most competitive rates.
* Rationale: To provide guests with the best possible value for their stay, encouraging direct bookings and guest loyalty.
* Acceptance Criteria: The booking platform displays the most current rates based on dynamic pricing algorithms, allowing guests to choose the best time and rate for their stay.

**Functional Requirement 4.5**

* Description: The system shall notify guests about special rates for periods of interest, based on their preferences and previous interactions with the hotel.
* Rationale: To enhance the guest experience by offering personalized booking opportunities at reduced rates, fostering loyalty and repeat business.
* Acceptance Criteria: Guests receive personalized notifications (via email, SMS, or app notifications) about special rates or promotions matching their preferences or booking history.

**Functional 5: Housekeeping and Maintenance Scheduling**

**Functional Requirement 5.1**

* Description: The system shall enable the housekeeping manager to efficiently schedule and track housekeeping tasks, ensuring that rooms are cleaned and prepared according to the hotel’s standards.
* Rationale: To maintain high levels of cleanliness and room readiness, contributing to overall guest satisfaction.
* Acceptance Criteria: The housekeeping manager can assign tasks to staff, set deadlines, and track progress in real-time through the system.

**Functional Requirement 5.2**

* Description: The system shall provide hotel staff with real-time notifications regarding room status, facilitating timely housekeeping and maintenance actions.
* Rationale: To ensure rooms are maintained in optimal condition, improving efficiency and guest satisfaction.
* Acceptance Criteria: Staff receive instant notifications on room status changes (e.g., check-out, maintenance request) enabling quick response to cleaning and repair needs.

**Functional Requirement 5.3**

* Description: The system shall allow for the scheduling of preventative maintenance checks on hotel facilities and rooms to avoid potential issues and ensure everything is functioning properly.
* Rationale: To proactively address maintenance needs, reducing the likelihood of guest inconvenience and maintaining facility quality.
* Acceptance Criteria: Maintenance staff can schedule, track, and document regular and preventative maintenance tasks within the system, with reminders for upcoming checks.

**Functional Requirement 5.4**

* Description: Guests shall have the option to request housekeeping services at times that are convenient for them, through the hotel’s app or website.
* Rationale: To offer personalized service that respects guest preferences and schedules, enhancing their stay experience.
* Acceptance Criteria: Guests can select preferred times for housekeeping services directly from their mobile device, and the system updates the housekeeping schedule accordingly.

**Functional Requirement 5.5**

* Description: The system shall enable guests to request immediate housekeeping or maintenance services through the hotel’s app, ensuring quick resolution of any room issues.
* Rationale: To provide a direct, convenient channel for guests to communicate their needs, improving response times and guest satisfaction.
* Acceptance Criteria: Guests can submit housekeeping and maintenance requests in real-time; staff are notified instantly and can acknowledge the request through the system.

**Functional 6. Customer Relationship Management (CRM) Integration**

**Functional Requirement 6.1**

* Description: The system shall enable the marketing manager and hotel staff to access and utilize CRM data to create targeted marketing campaigns and loyalty programs tailored to guest preferences.
* Rationale: To enhance guest engagement through personalized communication and offers, driving guest loyalty and repeat bookings.
* Acceptance Criteria: Marketing staff can segment guests based on CRM data (e.g., stay history, preferences) to send personalized offers and loyalty program invitations via email, SMS, or app notifications.

**Functional Requirement 6.2**

* Description: The system shall provide tools for hotel staff to analyze guest data stored in the CRM to identify trends, preferences, and areas for service improvement.
* Rationale: To continuously enhance the hotel's services and offerings based on actionable insights derived from guest data, improving overall satisfaction.
* Acceptance Criteria: The system generates reports and dashboards highlighting guest preferences, satisfaction scores, and trends, which staff can use to make informed decisions on service improvements.

**Functional Requirement 6.3**

* Description: The system shall automatically recognize returning guests through the CRM and provide them with loyalty rewards or benefits, reinforcing their value to the hotel.
* Rationale: To foster a sense of loyalty and appreciation among guests, encouraging them to become repeat customers.
* Acceptance Criteria: Upon booking or check-in, returning guests are identified by the system, which triggers the application of loyalty rewards or special offers to their reservation.

**Functional Requirement 6.4**

* Description: Guests shall receive personalized offers and promotions based on their interests, past stays, and preferences as recorded in the CRM, enhancing their stay experience.
* Rationale: To offer guests tailored experiences that meet their individual preferences, increasing satisfaction and engagement.
* Acceptance Criteria: The CRM system uses guest data to automatically generate and send personalized offers for services, amenities, or experiences likely to interest them, using their preferred communication channel.

**Functional 7. Feedback and Review Management**

**Functional Requirement 7.1:**

* Description: The system shall provide a mechanism for the hotel manager and staff to collect, store, and analyze guest feedback from various sources (e.g., direct surveys, online review platforms, in-app feedback forms) to identify service improvement opportunities and acknowledge guest satisfaction.
* Rationale: To systematically gather actionable insights from guest feedback, enabling continuous service quality enhancement and guest experience improvement.
* Acceptance Criteria: The system aggregates feedback across channels into a centralized dashboard where trends can be analyzed, and specific feedback can be reviewed in detail.

**Functional Requirement 7.2:**

* Description: The system shall enable hotel staff to monitor and respond to online reviews across various platforms, managing the hotel's online reputation and addressing any guest concerns or misconceptions promptly.
* Rationale: To maintain a positive online presence and foster trust and transparency by engaging with guest feedback publicly.
* Acceptance Criteria: Staff can access a consolidated view of online reviews, respond directly from the system, and track responses and outcomes.

**Functional Requirement 7.3:**

* Description: Guests shall have the ability to easily provide feedback during or after their stay through multiple channels (e.g., mobile app, website, email follow-up surveys) without requiring extensive effort.
* Rationale: To encourage guests to share their experiences and suggestions, contributing valuable insights for the hotel’s improvement.
* Acceptance Criteria: Guests can submit feedback through their preferred method with a straightforward and user-friendly interface, and the submission process is clearly communicated during their stay and after departure.

**Functional Requirement 7.4**

* Description: The system shall automatically acknowledge the receipt of guest feedback, and where appropriate, escalate it to hotel staff for personal follow-up, ensuring guests feel valued and heard.
* Rationale: To reinforce the hotel's commitment to guest satisfaction by demonstrating responsiveness to guest input.
* Acceptance Criteria: Guests receive an immediate automated acknowledgment after submitting feedback, and more detailed follow-ups are conducted as necessary based on the nature of the feedback.

**Functional 8. Data Analytics for Customer Insights**

**Functional Requirement 8.1**

* Description: The system shall provide data analytics tools for the hotel manager to analyze guest behavior, preferences, and trends, enabling the development of tailored services and offerings.
* Rationale: To enable informed decision-making based on guest data, improving service quality and tailoring offerings to better meet guest needs.
* Acceptance Criteria: The system can aggregate guest data across various touchpoints, analyze patterns, and present actionable insights through dashboards and reports.

**Functional Requirement 8.2**

* Description: The system shall use historical booking data and market analysis to predict future booking trends, helping the hotel prepare for demand fluctuations by optimizing staffing and resource allocation.
* Rationale: To ensure the hotel is well-prepared for peak and off-peak periods without resource wastage, based on predictive analytics.
* Source: User Story 2
* Acceptance Criteria: The system provides forecasts of booking trends with a defined accuracy range, allowing staff to adjust staffing levels and resource distribution accordingly.

**Functional Requirement 8.3**

* Description: The system shall enable hotel staff to measure guest satisfaction through surveys and feedback tools, comparing results against industry benchmarks to identify areas for improvement.
* Rationale: To set realistic service improvement goals and strategies by understanding how the hotel's guest satisfaction metrics stack up against industry standards.
* Acceptance Criteria: The system collects guest satisfaction data, benchmarks it against industry standards, and highlights areas needing attention.

**Functional Requirement 8.4**

* Description: The system shall ensure that all guest data used for enhancing stay experiences is handled responsibly, in compliance with data protection regulations, to maintain guest trust.
* Rationale: To reassure guests that their personal data is used ethically and securely to improve their stay experience, fostering trust and loyalty.
* Acceptance Criteria: The system implements robust data security measures and complies with applicable data protection laws, with clear communication to guests about how their data is used.

**Functional Requirement 8.5**

* Description: The system shall analyze individual guest preferences and past behavior to generate personalized recommendations for activities, services, and experiences during their stay.
* Rationale: To enhance guest satisfaction and engagement by offering tailored experiences and services that match their interests.
* Acceptance Criteria: Guests receive personalized recommendations through their preferred communication channel, based on an analysis of their preferences and past behavior, with a measurable increase in uptake of recommended services.

**Non-Functional Requirements**

**Usability**

* Requirement 1:
  + Description: The system shall feature an intuitive user interface, aiming for a System Usability Scale (SUS) score of at least 85 out of 100.
  + Rationale: To ensure usability for both guests and staff, facilitating an efficient and satisfactory interaction with the system.
  + Source: Customer and Staff Needs
  + Acceptance Criteria: Achieve an SUS score ≥ 85 in user testing with at least 50 participants representing a mix of guests and hotel staff.

**Performance**

* Requirement 2:
  + Description: The system shall support up to 10,000 simultaneous users with response times not exceeding 2 seconds for 95% of transactions under peak load.
  + Rationale: Maintains system responsiveness and reliability during high-demand periods.
  + Source: Staff Interviews
  + Acceptance Criteria: System load testing must demonstrate response times under 2 seconds for 95% of transactions with 10,000 simultaneous users.

**Security**

* Requirement 3:
  + Description: All personal and payment information shall be encrypted. The system shall achieve and maintain compliance and data protection.
  + Rationale: Protects sensitive guest and transactional data, ensuring trust and compliance with legal standards.
  + Source: Legal Requirements
  + Acceptance Criteria: Pass the industry annual compliance assessments and conduct bi-annual compliance reviews, with no critical findings.

**Scalability**

* Requirement 4:
  + Description: The system must be scalable to support a 50% increase in user load without degradation in performance.
  + Rationale: Ensures the system can accommodate future growth in hotel operations and guest usage without requiring a complete redesign.
  + Source: Project Forecasting
  + Acceptance Criteria: The system demonstrates stable performance under testing conditions that simulate a 50% increase in concurrent users compared to the baseline performance metrics.

**Reliability**

* Requirement 5:
  + Description: The system shall achieve 99.9% uptime, excluding scheduled maintenance windows.
  + Rationale: To ensure the system is consistently available to users, minimizing disruptions to hotel operations and guest experiences.
  + Source: Operational Standards
  + Acceptance Criteria: System monitoring reports an uptime of 99.9% over a 12-month period, excluding periods of scheduled maintenance.

**Maintainability**

* Requirement 6:
  + Description: The system shall support updates and patches with no more than 2 hours of downtime per month.
  + Rationale: To ensure that the system can be kept up-to-date with minimal disruption to operations.
  + Source: IT Department Requirements
  + Acceptance Criteria: Over a 12-month period, system updates and maintenance require, on average, no more than 2 hours of downtime per month, and any single update does not exceed 4 hours of downtime.

**Data Privacy and Protection Compliance**

* Requirement 7:
  + Description: The system must ensure all personal data is processed in compliance with Canadian data protection laws PIPEDA, providing mechanisms for data access, correction, and deletion requests by users.
  + Rationale: To protect guest privacy and ensure the hotel's compliance with data protection regulations.
  + Source: Legal Compliance Requirements
  + Acceptance Criteria: The system includes features for data access, correction, and deletion as requested by users, with all personal data processing activities fully documented and auditable. Compliance and local data protection laws are confirmed through annual audits, with no violations found.

**Compatibility**

* Requirement 8:
  + Description: The system must be fully compatible with the latest versions of major web browsers (Chrome, Firefox, Safari, Edge) and support mobile platforms (iOS and Android) to ensure accessibility and functionality across all user devices.
  + Rationale: To guarantee that all users, regardless of their device or browser preference, have a seamless and consistent experience when interacting with the hotel management system.
  + Source: User Experience Standards
  + Acceptance Criteria:
    - The system undergoes testing on the latest two versions of Chrome, Firefox, Safari, and Edge, with all core functionalities (booking, check-in/out, feedback submission, profile management) working without issues.
    - Mobile compatibility testing confirms that the system's user interface and functionalities are fully operable on devices running the latest two versions of iOS and Android.
    - Any incompatibilities identified during testing are resolved within a defined period, not exceeding 30 days from the discovery.

**Assumptions and Constraints**

**Assumptions**

**Assumption 1:**

* Description: Users (both hotel staff and guests) have basic digital literacy and can navigate standard web and mobile interfaces without extensive training.
* Impact: This assumption influences the design and development of user interfaces, suggesting that while they need to be intuitive, they do not require overly simplified designs that might sacrifice functionality for simplicity.

**Assumption 2:**

* Description: The hotel's existing IT infrastructure is sufficient to support the initial deployment of the hotel management system, including servers, databases, and network capabilities.
* Impact: This impacts the project scope and budget allocation by potentially reducing the need for significant upfront investment in new hardware or network upgrades.

**Assumption 3:**

* Description: Third-party integration partners (such as payment gateways, online booking services, and CRM systems) will provide stable and well-documented APIs for integration.
* Impact: This assumption affects the project timeline and complexity, underpinning the expectation for straightforward integration with external systems.

**Constraints**

**Constraint 1:**

* Description: The project is subject to a fixed budget, which limits the scope of initial development and prioritizes certain functionalities over others based on immediate business needs and ROI.
* Impact: May result in the deferral of some desired features or necessitate finding cost-effective solutions, impacting the system's feature set at launch.

**Constraint 2:**

* Description: The implementation timeline is constrained by the hotel's operational calendar, with a target launch in the hotel's off-peak season to minimize disruption to guests and staff.
* Impact: This tightens the development schedule, potentially compressing phases of the project lifecycle such as testing and training, which could impact the system's stability and user adoption at launch.

**Constraint 3:**

* Description: The system must comply with Canadian data protection laws PIPEDA which govern the processing and movement of guests' personal data.
* Impact: Compliance requirements may limit how data is stored, processed, and accessed, impacting system architecture decisions and possibly increasing development time and costs.

**Risk Analysis**

**Risk 1: Dependency on Third-Party APIs**

* Description: The project's reliance on third-party APIs for critical functionalities (e.g., payment processing, external bookings) poses a risk if these APIs change, become deprecated, or experience downtime.
* Probability: High
* Impact: High
* Mitigation Strategies:
  + Establish strong relationships with third-party providers to ensure early notification of any changes.
  + Implement abstract layers in the system architecture to minimize the impact of changing any single API.
  + Regularly review and test third-party API integrations for stability and performance, and have backup services identified where possible.

**Risk 2: Data Migration Challenges**

* Description: Migrating existing data into the new system encounters unforeseen issues, risking data loss or corruption.
* Probability: Medium
* Impact: High
* Mitigation Strategies:
  + Perform comprehensive data audits and cleansing before migration.
  + Utilize robust data migration tools and conduct trial migrations.
  + Ensure backup and recovery systems are in place and tested.

**Risk 3: User Adoption Resistance**

* Description: Hotel staff and guests may resist adopting the new system, limiting its effectiveness and ROI.
* Probability: Low
* Impact: Medium
* Mitigation Strategies:
  + Implement a comprehensive change management and communication plan.
  + Offer extensive training and support for hotel staff.
  + Incorporate user feedback into iterative system improvements.

**Risk 4: Overlooking Regulatory Compliance**

* Description: Failure to fully comply with all relevant data protection and privacy laws leads to legal and financial repercussions.
* Probability: Low
* Impact: High
* Mitigation Strategies:
  + Engage legal experts in data protection laws early in the system design process.
  + Conduct regular compliance audits and updates in response to legal changes.
  + Implement strict data handling and security measures from the outset.

**Risk 5: Budget Overruns**

* Description: Project expenses exceed the allocated budget due to unforeseen costs, leading to project delays or reduced functionality.
* Probability: Medium
* Impact: Medium
* Mitigation Strategies:
  + Establish a contingency budget for unexpected expenses.
  + Regularly review project expenses against the budget and adjust plans as needed.
  + Prioritize core functionalities for initial rollout, with additional features planned for later phases based on available funding.

**Verification and Validation Plan**

* Note: Please refer to 5th deliverables V&V notes

### **Change Management Procedure Overview**

#### 1. **Originator Submits a Change Request**

* Action: Any project stakeholder identifies a need for change and submits a detailed change request form.

#### 2. **Submitted Stage**

* Action: An evaluator performs an initial impact analysis to assess the feasibility, implications on scope, timeline, budget, and potential risks.

#### 3. **Evaluation Stage**

* Decision by Change Control Board (CCB):
  + If Approved: The CCB decides to implement the change, assigns it to a specific release, and appoints a Modifier for executing the change.
  + If Rejected: The change request is officially declined, and the originator is informed of the decision with reasons for rejection.

#### 4. **Approved Stage**

* Potential Actions:
  + If Change is Canceled: Any work or modifications related to the change are rolled back.
  + Modifier Implements the Change: The assigned Modifier makes the requested changes and then submits them for verification.
  + Direct to Verification (if applicable): In cases where no physical verification is required (e.g., policy changes), the Modifier finalizes and saves the modifications.

#### 5. **Change Made Stage**

* Potential Outcomes:
  + Change Canceled: If the change is canceled post-implementation, modifications are rolled back.
  + Verification Failed: If the change does not pass verification, it returns to the Approved Stage for reassessment and potential rework.
  + No Verification Required: Modifier finalizes the change.

#### 6. **Verified Stage**

* Action: A Verifier confirms the success of the change.
  + If Change is Canceled Post-Verification: Roll back the modifications.
  + Successfully Verified: Modifier saves all modified work products, ensuring the change is fully integrated into the project documentation and systems.

#### 7. **Closed Stage**

* Finalization: The change process is officially closed. Documentation is updated to reflect the change, and relevant stakeholders are informed of the outcome. A review might be conducted to capture lessons learned and insights for future change requests.

### **Additional Considerations**

* Documentation: Each stage of the process should be meticulously documented, including decisions made, actions taken, and the rationale behind them.
* Communication: Clear and timely communication with all stakeholders is important throughout the change management process.
* Flexibility: While this procedure provides a structured approach, flexibility may be required to adapt to the specific contexts and challenges of individual changes.