APPENDIX A **Matriculation Number:**

(Note: this document was issued to all candidates prior to the examination as pre-reading material)

LAH Reservation System Case Study

1. Introduction

Loft Asia Hotels (LAH) is a chain of boutique hotels offering ***hip and chic*** Asian accommodation targeting international travellers and tourists.

The bulk of the ***LAH*** business is generated by travel agents or through referrals. ***LAH*** does not have its own online reservation system and relies on third-party hotel reservation portals. Recently, a review of the online reservation process was carried out and the hotel management felt that the customer experience was not favourable. For instance, making a reservation over the internet was not seamless since users had to switch from the hotel website to the third party reservation system. The survey also reflected that the use of third party portals for room reservations gave the impression that the hotel was a budget player which is detrimental to the hotel's image. In addition, the third party systems were generic without support for specific features that the ***LAH*** hotels require. These reasons prompted the management consider it necessary for the hotel group to implement their own reservation system accessible through their website.

2. System Architecture and Technology

The IT department has proposed to build a new ***Hotel Reservation & Room Management System*** that would facilitate hotel sales staff, partners and online customers to make/manage room reservations. In addition to the Reservation functionality, the system also provides some room and guest management features like maintaining the check-in/check-out information, maintaining consolidated information regarding guest stay like providing facilities to view/update the services rendered to the guest like room-service, catering and travel services. The first phase of the new system will primarily focus on functions to support its in-house user needs and the online customers reservation functions. The integration with other systems like the LAH financial system, LAH catering system, and reservations systems used by agents/ airlines and other third party portals would be addressed in the second phase.

The Chief Information Officer (CIO) is keen to adopt good software engineering practices and, at the same time, take advantage of the numerous powerful and productive features offered by the .NET platform. The software solution was designed based on a ***Layered Architecture*** to ensure effective separation of concerns. In addition, the system leverages on relevant enterprise design patterns.

Based on the above plan, a browser-based .NET application has been implemented in Phase I using the standard Microsoft suite of products and technologies, such as ASP.NET, IIS, Windows Advanced Server, COM+ services, SQL Server 2008 and .NET 4.0 framework tools. The solution incorporates componentised architecture providing software components (façades or back-end layers) that meets the non-functional requirements of the subsequent phases.

The system has gone live and has been in stable operation for several months. Satisfied with the progress, LAH is now exploring creation of services so that inter-application communications can be established using WCF and Web Services. They are also actively considering the use of SharePoint for their portal operations.

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3. Functional Requirements

Note: This section provides high-level specifications that have been scaled down to focus only on the essential information to answer the exam questions. If you require additional inputs for answering questions, you may make appropriate assumptions.

3.1 Use Case Diagram

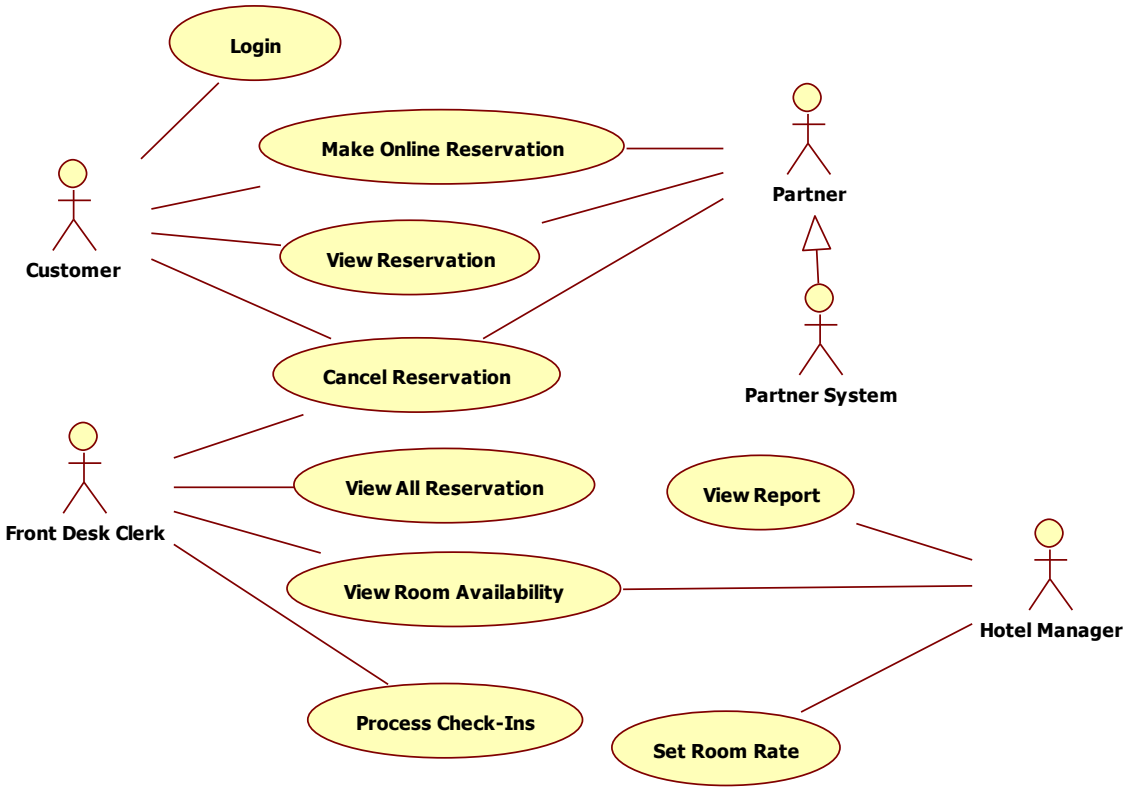

Figure 1: Use Case Diagram - LAH Reservation System

3.2 Actors

3.2.1 Customer

The customer (ie: online customer) accesses the system over the Internet to make new room reservations or to view, modify or cancel their existing reservations.

3.2.2 Partner Travel Agent

The partner travel agent can make or cancel reservations on behalf of their customers. They can also access the reservations made by them and make modifications.

3.2.3 Partner System

The travel systems of the partners can use services exposed by the ***Hotel Reservation System.*** Typically the partner system would use services to search for room availability and to make/cancel reservations.

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3.2.4 Front Desk Clerk

The front desk clerk accesses the reservation system to retrieve guest reservation details and check for the list of vacant rooms prior to checking in the guest.

3.2.5 Hotel Manager

The hotel manager keeps track of the daily status of operations, which includes reviewing reservation and check-in information. The manager would also be able to manage room types and maintain master data for the reservation system. In addition, the manager can use the system to prepare management reports and statistical charts.

3.3 Key Customer Use Cases

3.3.1 Make Reservation

This use case allows the customer to check for room availability by inputting the start date, number of nights stay, preferred room type and number of rooms required. The reservation process is a multi-step process that spans multiple pages (views) during which specific data is captured and, if required, processed. The steps in the process are as follows:

a. If the customer is already registered, he could log-in to the system. If the customer is not currently a registered member, he should register as a member by providing an e-mail ID (which would double up as user log-in ID).

b. An authenticated customer launches the reservation page which displays a list of available room types, the description of each room type and the rack rates.

c. Through a user friendly interface on the page, the user is able to specify the dates of stay, room type, number of rooms etc.

d. Upon submission of the data, room availabilities are verified for the chosen period and actual pricing with discounts (if any) and taxes are displayed for the customer to review.

e. To confirm the reservation the customer needs to provide payment information which will be processed using an external payment gateway system.

f. Once payment is successful, the booking confirmation message is displayed and the system would send an e-mail confirmation with a booking reference.

3.3.2 View Reservations

This use case allows logged-in customers to view details of their reservation.

3.3.3 Cancel Reservations

This use case is invoked when customers choose to cancel their room reservation. Upon logging-in, a customer can view a list of room reservations that he has made and cancel one or more of the reservations. The system will then calculate the refund amount based on the hotel cancellation policy and display the refund amount. Once the customer confirms the cancellation, the system will cancel the reservation and process the refund process through an external payment gateway system. An e-mail providing the cancellation reference would then be sent to the customer.

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3.4 Preconditions for the Reservation Process

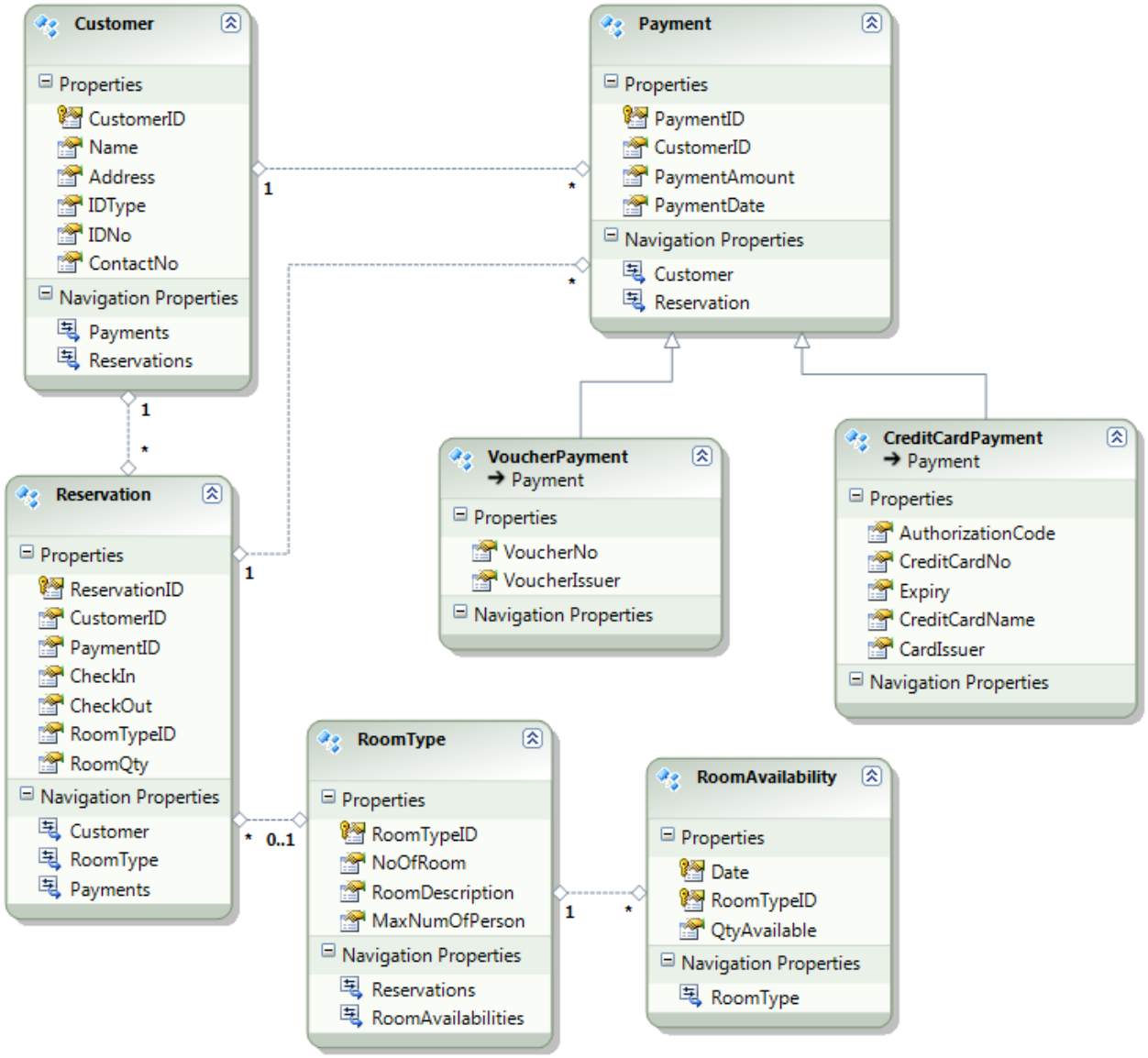
a. The customer should be a registered user and should log-in to perform the reservation.

b. The system will identify the customer using their e-mail address as their login ID.

c. The customer should possess a valid credit card or a voucher issued by an ***LAH*** partner (eg: a travel agent) to make payment for the reservation. As part of the reservation process the credit card number or the voucher should be provided.

3.5 Entity Data Model

Entity Class Context Name: **LAHReservationEntities**



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3.6 LAH Systems