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|  | **Cruise Ship Management**  **Technical Design Document** |
| |  |  |  |  | | --- | --- | --- | --- | |  | **Prepared By / Last Updated By** | **Reviewed By** | **Approved By** | | **Name** | Shrish Nandakumar |  |  | | **Role** |  |  |  | | **Signature** |  |  |  | | **Date** |  |  |  | |
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# Introduction

## Purpose of this document

The purpose of this document is to outline the **technical design, component details, and database structure** of the **Cruise Ship Management System**. It also defines the **scope, assumptions, risks, and dependencies** involved in the project.

## Project overview

*The* ***Cruise Ship Management System*** *is a web-based application designed to manage* ***facility bookings and billing*** *for voyagers onboard a cruise. The system allows* ***voyagers*** *to book available facilities, check their booking history, and manage payments.* ***Admins*** *can manage facilities, approve or reject bookings, and oversee billing.*

# Solution Summary

## Scope

*The project focuses on the following functionalities:*

* ***Voyagers****: Login, book facilities, view booking history, check billing details.*
* ***Admins****: Manage facilities, approve/reject bookings, generate billing records, monitor system usage.*
* ***System Features****: Facility management, booking system, billing, authentication, and notification alerts.*

## Assumptions

* The system is designed for a **single cruise ship** with multiple facilities.
* **Only registered users** (Voyagers and Admins) can access the system.
* Bookings are managed **on a first-come, first-served basis**.
* **ASP.NET Core Identity** is used for authentication and authorization

## Dependencies

* **ASP.NET Core MVC** for backend development.
* **Entity Framework Core** for database management.
* **SQL Server** as the database.
* **Bootstrap & jQuery** for frontend design and API calls.
* **ASP.NET Core Identity** for user authentication and authorization.

## Risks

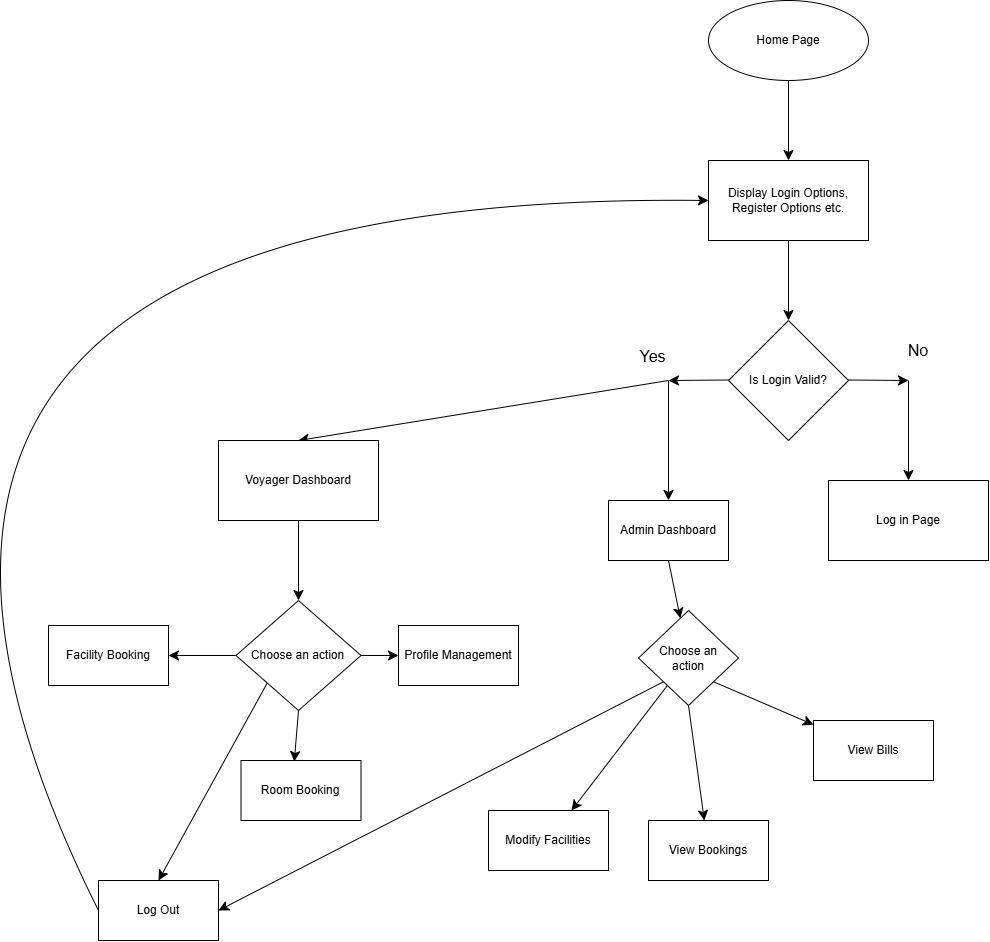
* ***Data inconsistency*** *if multiple users try to book the same facility simultaneously.*
* ***System downtime*** *due to unexpected errors in API calls.*
* ***Scalability limitations*** *if the number of users increases beyond the expected range.*
* ***Security concerns*** *if authentication and authorization are not properly configured.*

# Schematic Diagram

A diagram of a company

Description automatically generated

# System Design



# Database Design

## 

## A screenshot of a computer screen Description automatically generated

## Tables Structure

*<This sub section will describe the table structure>*

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Length** | **Nulls** |
| **Id** | int | - | No (Primary Key) |
| **VoyagerId** | string | - | No |
| **Amount** | decimal | - | No |
| **Status** | string | 50 | No |
| **CreatedDate** | DateTime | - | No (Default: DateTime.Now) |
| **BookingId** | int | - | No (Foreign Key) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Length** | **Nulls** |
| **y** |  |  |  |
| **UserName** (Inherited) | string | - | No |
| **Email** (Inherited) | string | - | No |
| **PasswordHash** (Inherited) | string | - | No |
| **Name** | string | - | No |
| **StreetAddress** | string | - | Yes |
| **City** | string | - | Yes |
| **State** | string | - | Yes |
| **PINCode** | string | - | Yes |

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Length** | **Nulls** |
| **Id** | int | - | No (Primary Key) |
| **VoyagerId** | string | - | No |
| **FacilityId** | int? | - | Yes (Nullable) |
| **RoomId** | int? | - | Yes (Nullable) |
| **BookingDate** | DateTime | - | No (Default: DateTime.Now) |
| **StartTime** | DateTime | - | No |
| **EndTime** | DateTime | - | No |
| **Status** | string | 50 | No (Default: "Pending") |

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Length** | **Nulls** |
| **Id** | int | - | No (Primary Key, Auto-Increment) |
| **Name** | string | 30 | No |
| **Description** | string | 200 | Yes |
| **Fee** | decimal | - | No |
| **AvailableSlots** | int | - | No (Range: 1-100) |
| **ImageURL** | string | - | Yes |
| **CreatedBy** | string | - | No |
| **CreatedByUser** | UserProfile (FK) | - | No |
| **Bookings** | Collection<Booking> | - | Yes (Navigation Property) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Length** | **Nulls** |
| **Id** | int | - | No (Primary Key) |
| **RoomNumber** | string | 50 | No |
| **Type** | string | 100 | Yes |
| **Fee** | decimal | - | No |
| **AvailableSlots** | int | - | No |
| **CreatedBy** | string | - | Yes |
| **CreatedByUser** | IdentityUser? (FK) | - | Yes |
| **Bookings** | Collection<Booking> | - | Yes (Navigation Property) |

# Appendices

## Glossary

|  |  |
| --- | --- |
| **Acronyms** | **Definitions** |
|  |  |

## Other

# Terms & Conditions

***Disclaimer: Please do not circulate or distribute this document outside of Cognizant Network, We have a Zero Tolerance Policy. Kindly adhere to 100% Compliance at all times.***

# Change Log

*Please note that this table needs to be maintained even if a Configuration Management tool is used.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version Number | Changes made | | | |
| V<n.n> | *<If the change details are not explicitly documented in the table below, reference should be provided here>* | | | |
| Page no | Changed by | Effective date | Changes effected |
|  |  |  |  |
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