**FINAL PROJECT DESCRIPTION FOR PRN231 COURSE**

**SPRING2024**

**Group name: 01**

**Members of Group:**

**1.** Trương Anh Kỳ -DE160671

**2.** Bùi Văn Toàn-HE163899

**3.** Phạm Xuân Trung-HS160623

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# I. Introduction

Welcome esteemed readers to our promising journey - the Web Intermediary for Booking Hotels, Guesthouses, and Homestays! Here, we're not just constructing an ordinary booking system; we're propelling you into a technological odyssey with ASP.NET Core Web API, SignalR, and Razor Pages.

**Objectives**

Our aim extends beyond merely creating a booking platform. We strive to make every interaction seamless, swift, and captivating. Our system is more than just a place for reservations; it's an immersive experience, offering real-time connectivity, interaction, and sophistication.

**Technologies Employed**

**ASP.NET Core Web API - Robust Foundation**

We've chosen ASP.NET Core Web API to construct a robust infrastructure, ensuring you have all the necessary tools for flexible and rapid interactions.

**SignalR - Real-time Connectivity**

Unlimited connectivity through SignalR allows you to relish the excitement of real-time interactions when booking and managing your reservations.

**Razor Pages - Interactive Interface**

Razor Pages isn't just an interface; it's an art of interaction. Beautifully designed, flexible, and user-friendly, it guarantees the smoothest booking experience for you.

**Key Features**

Modern Booking: Experience a convenient and modern booking process like never before.

Refined Reservation Management: Track and manage every detail of your reservations with the flexibility of SignalR.

Real-time Interaction: Receive instant notifications, creating a sense of interaction like never before.

**User Base**

We cater to a diverse user base - from customers to accommodation providers. So, brace yourself for an unlimited online adventure, and join us in transforming every booking into an unforgettable experience!

# II. Project Objectives

Our project is driven by the following key objectives:

**Enhanced User Experience:** Elevate the user experience by providing an intuitive, aesthetically pleasing, and user-friendly interface for seamless navigation and interaction.

**Efficient Booking Process:** Streamline the booking process, offering a modern and efficient way for users to reserve accommodations with minimal effort and time.

**Real-time Collaboration**: Facilitate real-time collaboration between users and accommodation providers through SignalR, ensuring instant updates, notifications, and interactive communication.

**Data Security and Integrity**: Implement robust security measures to safeguard user data and maintain the integrity of the booking system, fostering trust and reliability.

**Scalability and Performance**: Design the system to be scalable and high-performing, capable of handling increased user loads and maintaining responsiveness during peak usage periods.

**Comprehensive Reservation Management**: Provide users and accommodation providers with comprehensive tools for managing reservations, ensuring transparency and effective communication.

**Technology Showcase**: Demonstrate the capabilities of cutting-edge technologies, including ASP.NET Core Web API, SignalR, and Razor Pages, showcasing their potential in creating a dynamic and modern web application.

# III. Database Design

# 3.1 Tables in your database

Note: Attribute with underline is Primary key

### 3.1.1. Table name: Accounts

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| AccountID | Int | 10 | Primary key, Identity |
| FirstName | Nvarchar | 50 | Not null |
| LastName | Nvarchar | 50 | Not null |
| Email | Varchar | 255 | Not null |
| Password | Varchar | Max | Not null |
| Role | Varchar | 50 | Not null |

### 3.1.2. Table name: Services

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| ServiceID | Int | 10 | Primary key, Identity |
| ServiceName | Nvarchar | 50 | Foreign key, refers to RoomTypetable |
| Price | Float | 10 | Not null |
| IsDelete | Boolean | true/false | Not null |
| Description | Text |  |  |

### 3.1.3. Table name: Coupon

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| CoupondID | Int | 10 | Primary key, Identity |
| CouponCode | Nvarchar | 50 | Foreign key, refers to RoomTypetable |
| Remain | Nvarchar | 50 | Not null |
| Reduction | int | 10 | Not null |
| EndDate | Date | dd/MM/yyyy | Not null |
| IsDelete | Boolean | true/false | Not null |

### 3.1.4. Table name: BookingServiceDetails

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| BookingServiceDetailsID | Int | 10 | Primary key, Identity |
| BookingID | int | 50 | Foreign key, refers to RoomTypetable |
| ServicedID | int | 50 | Not null |
| ServiceQuantity | int | 10 | Not null |
| ServicePrice | Boolean | true/false | Not null |

### 3.1.5. Table name: ServiceImages

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| ServiceImageID | Int | 10 | Primary key, Identity |
| ImageData | Nvarchar | 50 |  |
| Serviced | Nvarchar | 50 | Not null |

### 3.1.6. Table name: Booking

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| BookingID | Int | 10 | Primary key, Identity |
| CustomerID | Nvarchar | 50 | Foreign key, refers to Customer |
| CreateDate | Date | dd/MM/yyyy | Not null |
| CheckinDate | Date | dd/MM/yyyy | Not null |
| CheckoutDate | Date | dd/MM/yyyy | Not null |
| NumberOfAdults | int | 10 | Not null |
| NumberOfChildren | int | 10 | Not null |
| ServiceAmount | int | 10 | Not null |
| RoomAmount | int | 10 | Not null |
| IsCanceled | Boolean | true/false | Not null |
| CouponID | int | 10 | Not null |

### 3.1.7. Table name:Customer

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| Customerid | Int | 10 | Primary key, Identity |
| Name | Nvarchar | 50 | Foreign key, refers to RoomTypetable |
| PhoneNumber | Nvarchar | 50 | Not null |
| Email | Nvarchar | 50 | Not null |
| IsDeleted | Boolean | true/false | Not null |

### 3.1.8. Table name: RoomTypeImages

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| RoomTypeImageID | Int | 10 | Primary key, Identity |
| ImageData | Text | 100 | Not null |
| RoomTypeId | Int | 10 | Foreign key,refers to RoomType |

### 3.1.9. Table name: BookingRoomDetails

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| BookingRoomDetailId | Int | 10 | Primary key, Identity |
| BookingId | Int | 10 | Not null |
| RoomTypeId | Int | 10 | Not null |
| RoomQuantity | Int | 100 | Not null |
| Date | Date | dd/MM/yyyy | Not null |
| BookPrice | Float | 10 | Foreign key,refers to RoomType |

### 3.1.10. Table name: RoomType

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| RoomTypeId | Int | 10 | Primary key, Identity |
| Name | Nvarchar | 100 | Not null |
| DefaultPrice | Float | 10 | Not null |
| Quantity | Int | 10 | Not null |
| IsDeleted | Boolean | true/false | Not null |
| Description | Text | 100 | Not null |
| MaxAdult | Int | 10 | Not null |
| MaxChildren | Int | 10 | Not null |
| MaxPeople | Int | 10 | Not null |

### 3.1.11. Table name: Room

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| RoomID | Int | 10 | Primary key, Identity |
| RoomTypeId | Int | 10 | Foreign key,refers to RoomType |
| IsOccupied | Boolean | true/false | Not null |

### 3.1.12. Table name: Promotion Apply

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| PromotionApplyId | Int | 10 | Primary key, Identity |
| PromotionId | Int | 10 | Foreign key,refers to Promotion |
| RoomTypeId | Int | 10 | Foreign key,refers to RoomType |

# 

### 3.1.13. Table name: Promotion

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| PromontionId | Int | 10 | Primary key, Identity |
| StartDate | Date | dd/MM/yyyy | Not null |
| EndDate | Date | dd/MM/yyyy | Not null |
| DiscountRates | Int | 10 | Not null |
| IsDeleted | Boolean | true/false | Not null |
| PromontionName | Nvarchar | 100 | Not null |

### 3.1.14. Table name: Facilities

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| FacilityId | Int | 10 | Primary key, Identity |
| FacilityName | Nvarchar | 10 | Not null |
| FacilityImage | Text | 10 | Not null |

### 3.1.15. Table name: FacilitiesApply

| **Field name** | **Type** | **Size** | **Note** |
| --- | --- | --- | --- |
| FacilityApplyId | Int | 10 | Primary key, Identity |
| FacilityId | Int | 10 | Foreign key,refers to Facilities |
| RoomTypeId | Int | 10 | Foreign key,refers to RoomType |

# 3.2 Relationship between the tables

# 

| Relationship | Type | Collum | Collum |
| --- | --- | --- | --- |
| Services-servicesImg | 1-n | ServiceID | ServiceImageID |
| BOOKINGSERVICEDETAILS\_SERVICE | 1-n | BookingServiceDetailsID | ServiceID |
| BOOKING\_COUPON | 1-n | BookingID | CoupondID |
| BOOKING\_CUSTOMER | 1-1 | BookingID | Customerid |
| BOOKINGSERVICEDETAILS\_BOOKING | 1-n | BookingServiceDetailsID | BookingID |
| ROOM\_ROOMTYPE | 1-1 | RoomID | RoomTypeId |
| ROOMTYPEIMAGES\_ROOMTYPE | 1-n | RoomTypeImageID | RoomTypeId |
| FACILITIESAPPLY\_FACILITIES | 1-n | FacilityApplyId | FacilityId |
| FACILITIESAPPLY\_ROOMTYPE | n-n | FacilityApplyId | RoomTypeId |
| BOOKINGROOMDETAILS\_ROOMTYPE | 1-1 | BookingServiceDetailsId | RoomTypeId |

# IV.Main Functions of Application

# 4.1 CRUD:

Create Web API with Room management, Book management And Customer management : Read, Create, Update and Delete actions.

# 4.2 Other functions:

User Register:

* Allow users to create accounts within the booking system.
* Capture necessary information during the registration process (e.g., username, password, email).

Use Login:

* Enable registered users to log in to their accounts.
* Implement authentication mechanisms to secure user access.

Search Room:

* Allow users to search for available rooms based on specified criteria.
* Provide filters such as date, location, room type, etc.

Booking :

* Enable users to book a room based on their preferences.
* Capture booking details such as date, time, room type, and user information.

Sorting:

* Allow users to sort and organize search results or booked rooms.
* Provide options for sorting by date, room type, location, etc.

Export report :

* Provide functionality to export booking information for reporting purposes.

# V. Role of members

# Table – tasks of member

| **No** | **Name** | **Role** |
| --- | --- | --- |
| 1 | Trương Anh Kỳ | Dev |
| 2 | Bùi Văn Toàn | Leader ,Test,Dev |
| 3 | Phạm Xuân Trung | Dev |

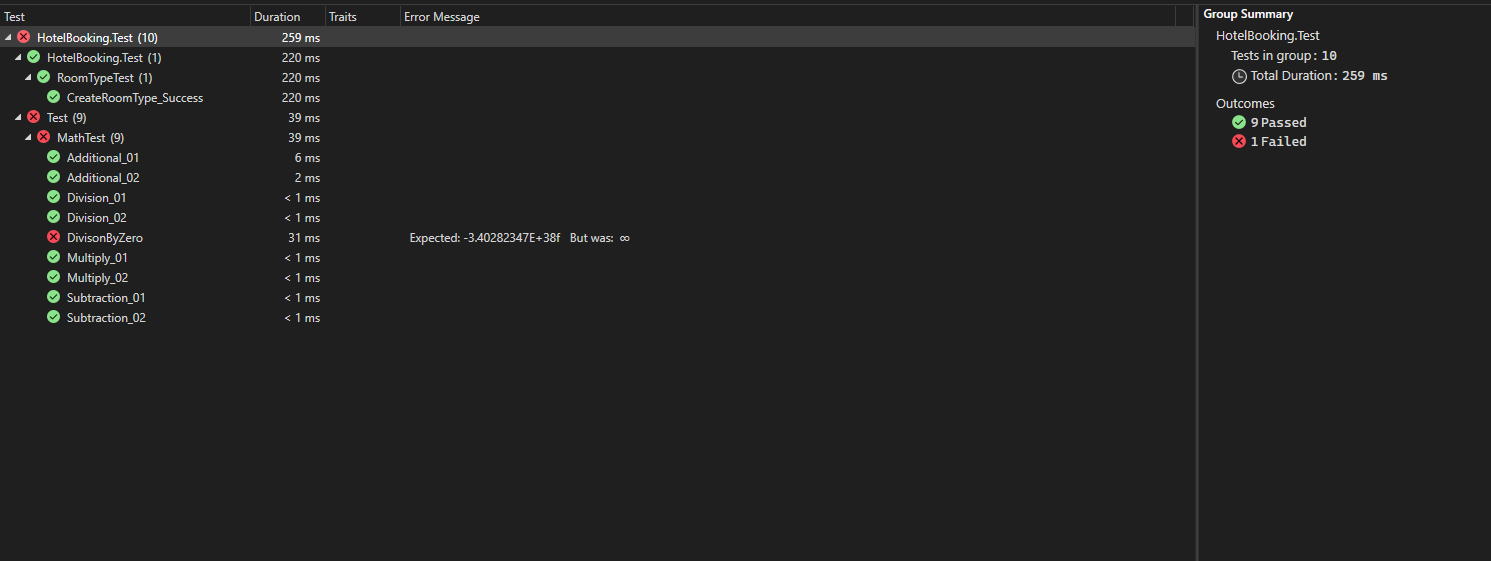
# VI. Plan for Project (3 weeks)

| No | Task | Member | Time |
| --- | --- | --- | --- |
| 01 | Create Team Group | Bùi Văn Toàn | Week1 |
| 02 | Choose topic final project | Trương Anh Kỳ  Bùi Văn Toàn  Phạm Xuân Trung | Week 2 |
| 03 | Description | Phạm Xuân Trung | Week 2 |
| 3.1 | Introduction | Phạm Xuân Trung | Week 2 |
| 3.2 | Design Database | Trương Anh Kỳ | Week 3 |
| 3.3 | Draw usecase and diagram | Trương Anh Kỳ  Bùi Văn Toàn  Phạm Xuân Trung | Week 3 |
| 4 | Research about technologies | Trương Anh Kỳ  Bùi Văn Toàn  Phạm Xuân Trung | Week 3 |
| 5 | Front End :Design the user interface | Trương Anh Kỳ  Phạm Xuân Trung | Week 4 -6 |
| 5.1 | Design HomePage , Login and Register page ,RoomBooking | Trương Anh Kỳ  Phạm Xuân Trung | Week 4 -6 |
| 5.2 | Design Page Management: Booking ,Room ,Customer | Trương Anh Kỳ  Phạm Xuân Trung | Week 4 -6 |
| 6 | Backend functionality | Bùi Văn Toàn  Trương Anh Kỳ  Phạm Xuân Trung | Week 6 -7 |
| 6.1 | CRUD : Room, Customer,Booking | Trương Anh Kỳ  Phạm Xuân Trung | Week 6 -7 |
| 6.2 | Search and sort | Bùi Văn Toàn | Week 6 -7 |
| 6.3 | User Authentication : Login ,Register | Bùi Văn Toàn | Week 6 -7 |
| 6.4 | Report |  | Week 6 -7 |
| 7 | Testing | Bùi Văn Toàn | Week 8 |
| 7.1 | Write test for Function | Bùi Văn Toàn | Week 8 |
| 7.2 |  |  | Week 8 |
| 8 | Deployment: Deploy the application to a staging environment for final testing and then to a production environment. | Bùi Văn Toàn  Trương Anh Kỳ  Phạm Xuân Trung | Week 8 |

# TEST CASE RESULTS

| **Account** | **Login** | **Functions** | **Results** |
| --- | --- | --- | --- |
| **Normal user** | **Fail** | **Thông báo người dùng => đăng nhập lại** | **Passed** |
| **Success** | **Chuyển tới trang chủ** | **Passed** |
| **Admin** | **Fail** | **Thông báo người dùng => đăng nhập lại** |  |
| **Success** | **Chuyển về trang home** |  |
| **Cho phép sử dụng dashboard** |  |
|  |  |
|  |  |

| **Account** | **Search Room** | **Functions** | **Results** |
| --- | --- | --- | --- |
| **Normal** | **Fail** | **Search room** | **Passed** |
|
|  |  |
| **Success** |  |  |
|  |  |

**Unit test :  
**

# REFERENCE MATERIALS

**Microsoft Learn : https://learn.microsoft.com/vi-vn/**