

Portfolio

**Agile Programming
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1.0 Introduction:

A renowned provider of conference facilities based in Glasgow, has been grappling with a significant obstacle. Advent of the pandemic heralded a decline in occupancy rates, a challenge accentuated by the existing manual and telephonic booking systems. The purpose of this project, therefore, is to devise an intuitive, secure, and user-friendly web booking system that would meet the customer experience, streamline functions, and eventually, revitalise occupancy rates in a conference hall.

Addressing the above problem necessitates an approach that is not only flexible and efficient, but also iterative and incremental, characteristics embodied by the Agile programming. Within the Agile paradigm, the SCRUM framework is particularly relevant, as it prioritises continuous feedback, collaborative decision-making, and iterative improvement. The aim of this report explores the application of Agile SCRUM in the development of a web-based Conference Management System, within a real-world context.

1.2 Responsibilites of group members:

Within the Agile programming environment, group members are assigned tasks based on their individual strengths. Drawing from previous experience in implementing Scrum, it was advantageous for myself to assume the role of the Scrum Master. To facilitate effective planning and communication, we employed a color-coded tab system in an Excel spreadsheet, which was accessible to all team members.

1.3 Technology and platforms used for development:

The software artifacts were constructed utilizing ASP.net as the primary framework, supported by the incorporation of MySQL and myPHPAdmin for database management. The programming language employed for development was C#. In terms of hardware, Windows PCs equipped with Core i5 processors were utilized for the project.

2.0 Requirements Engineering:

Requirements forms the cornerstone of any software development project. Initial stage involved the comprehensive analysis of the client's requirements. In a real world it is achieved by having interactive sessions with the product owner and other relevant stakeholders involved in the conference management process.

Functional Requirements:	
	<ul style="list-style-type: none">Allow client to book conference facilities, catering services, as well as equipment.(Backend and user creation)(3)
	<ul style="list-style-type: none">Develop a scheduling system that shows the start date, floor, and start and end times of each conference.(4)
	<ul style="list-style-type: none">Record the number of participants attending each conference for meal planning purposes.
	<ul style="list-style-type: none">Allow client to access and modify their bookings based on availability.
	<ul style="list-style-type: none">Provide a secure online booking system that is accessible 24/7 and compatible with most browsers.
	<ul style="list-style-type: none">Website that allows customers to view and book conference facilities.(1)
	<ul style="list-style-type: none">Support multiple departments involved in booking, organizing, and managing conferences on various floors and halls.
	<ul style="list-style-type: none">Develop a scalable and adaptable system that can adjust to changes in the market's rules and regulations.
	<ul style="list-style-type: none">Allow client to book catering services.(2)
	<ul style="list-style-type: none">The system should be compatible with various devices and operating systems.
	<ul style="list-style-type: none">The system should provide accurate and up-to-date information about available conference facilities and equipment.
	<ul style="list-style-type: none">The system should ensure that all customer data is backed up regularly.
Non-Functional Requirements:	
	<ul style="list-style-type: none">The system should be secure and ensure user privacy.
	<ul style="list-style-type: none">The system backend should have a fast response time to minimize downtime.
	<ul style="list-style-type: none">The website should have a clean and user-friendly interface. UI essential
	<ul style="list-style-type: none">The system should be scalable and able to handle a large number of bookings.
	<ul style="list-style-type: none">The system should be reliable and able to handle unexpected errors.
	<ul style="list-style-type: none">The system should be easy to maintain and update.

Under the Agile umbrella, the requirements were collated into a 'Product Backlog', a dynamic document that lists all the desired features of the final product, often suggested to as 'User Stories'. Each user story represents a specific requirement from the perspective of an end-user, ensuring that the final product aligns seamlessly with user expectations. In Agile, requirements

engineering is an ongoing activity, ensuring that the final product remains relevant and valuable to the end-user.

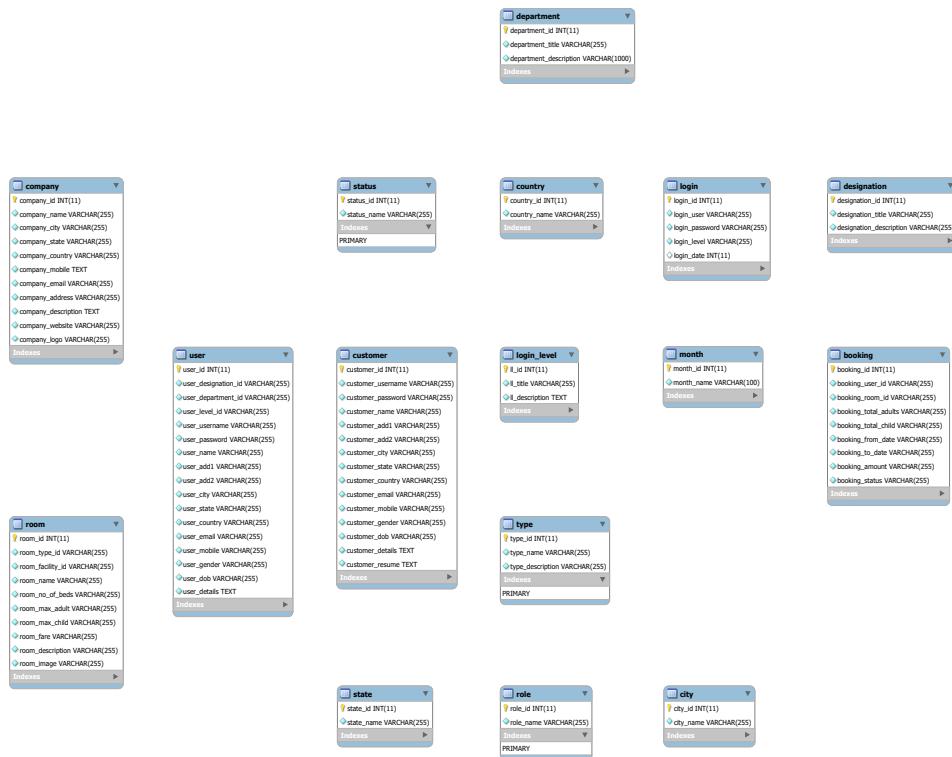
Unlike traditional methodologies, the Agile approach embraces change. The product backlog is continually refined and reprioritised based on stakeholder feedback, market changes, and project progress, ensuring that the most valuable features are developed first. The SCRUM framework further complements this by dividing the product backlog into 'Sprint Backlogs' for each sprint, enabling the team to focus on a subset of requirements and adapt to changes effectively.

Each sprint concludes with a review meeting where the completed features are demonstrated to the stakeholders, and their feedback is incorporated into the product backlog for future sprints. This approach allows for continuous improvement and innovation, ensuring that the final Conference Management System meets the evolving needs of the client and their customers. Risk management started at the onset, during the initial Sprint Planning Meeting. Here, potential risks, such as scope creep, technology compatibility issues, and resource availability, were identified and discussed. Mitigation strategies were proposed, forming the first line of defense against potential project impediments.

Furthermore, the SCRUM framework's iterative nature inherently reduces risk. By breaking down the project into smaller, manageable sprints and delivering working increments of the product at the end of each sprint, the risk of project failure is significantly reduced. The client receives value early and frequently, and the team can quickly adapt to changes, minimising the risk of delivering an obsolete product.

3.0 Designing the project:

Designing consist of visualizaiton of the plan; starting from the entity relationship diagram to established the relationship between the objects and class.



4.0 Project Management and Methodology:

For the given project, the Agile methodology was selected due to its dynamic nature of the requirements and the evolving landscape of online booking system. SCRUM, with its distinctive approach of breaking down complex tasks into adaptable 'sprints', promotes flexibility, simplifies risk management, and encourages frequent testing and adaptation. It is characterised by its simplicity and its ability to encompass changes swiftly, making it an ideal candidate for this project.

SCRUM framework facilitated effective collaboration, communication, and flexibility, guiding the engineering of a software artefact that met the client's needs and provided a high-quality, user-friendly experience. The development of the Conference Management System stands as a testament to the efficacy of the Agile approach in software engineering, highlighting its ability to deliver valuable, customer-centric solutions in a dynamic environment.

User Story	
User Glassgow Conference Booking System	
Story ID	Conference booking
R101	Clients/users/admin should be able to navigate the system in user friendly & intuitive manner
R103	I Should be able to check the current bookings
R104	I Should be able to add new bookings to assist customers with add ons
R105	I Should be able to modify the booking
R106	I Should be able add customers/ guest into the system
R107	I Should be able to take payment and check payment status
R108	I Should be able check housekeeping inventory
R109	I Should be able check the daily updates as notification
R110	I Should be able check in and check out guest
Admin of Glassgow Conference Booking System	
Story ID	As an Admin
A101	I Should be able manage user by create edit and delete user along with accepting user area
A103	I Should be able manage rooms by controlling availability
A104	I Should be able manage rooms by setting up price
A105	I Should be able to offer discount/ set special offer for eligible booking
A106	I Should be able take payment and check payment advance feature
A107	I Should be able to make refund back to the card or other tender
A108	I Should be access the reports on service and regular bookings
A109	I should be able to run daily report with all changes on the last 24h

The project, aiming to deliver a web-based Conference Management System, aligns perfectly with the SCRUM framework. In terms of risk management strategies, embodied in the daily SCRUM meetings and sprint retrospectives, provide mechanisms for identifying, tracking, and mitigating potential risks promptly. The ensuing chapters delve into the practical application of SCRUM principles within this project, shedding light on how this methodological approach guided the project from inception to completion.

The product backlog consisted of user stories covering various perspectives, such as booking conference rooms, managing catering services, planning equipment needs, and making booking amendments. These user stories were prioritized based on importance. The module

tutor, as the product owner, oversaw the team's progress, provided suggestions, and upon completion, all team members successfully demonstrated the software artifact to the tutor.

Product Backlog					
Story ID	Story Name	Status	Size	Sprint	Priority
R101	Users and Admin should be able login into the system using correct credential to access the booking system	Done	4	1	High
A101	Admin should manage profile by create edit and delete user along with acceing receptionist log in area	Done	4	1	High
A102	Admin Should be able to access customer database in order to edit/update/delete data	Done	10	1	High
R106	Admin should be able add customers/ guest into the system	Done	2	1	High
A104	Admin should be able manage rooms by setting up price per night	Done	6	2	High
A103	Admin should be able manage conference rooms by controlling availability	Done	2	2	High
R103	Users should be able to check the current bookings	Done	4	2	High
R105	Users and admin should be able to modify the booking	Done	2	2	High
R110	Users should be able check in and check out guest	Done	3	2	High
R104	Users should be able to add new bookings to assist customers with add ons	Done	5	2	Medium
A106	Users should be able take payment and check payment advance feature	Done	3	3	Low
R107	System should be able to take payment and check payment status	Done	4	3	Medium
A108	Admin should be access the reports on service and regular bookings	Planned	10	4	Low
A109	Admin should be able to run report	Planned	4	4	Low
R109	Users should be able check the daily updates as notification	Planned	2	4	Low
R102	Users should be able to navigate the system in user friendly & intuitive manner	Done	6	4	Low
R108	Users should be able check housekeeping inventory**	Postponed	10	4	Medium

Legend Sprint 1 Sprint 2 Sprint 3 Sprint 4

The Agile methodology's iterative and incremental nature was instrumental in the engineering of the Conference Management System software artefact. The system was developed over several sprints, with each sprint delivering a working increment of the final product. This approach allowed for continuous improvement and adaptability, ensuring the system evolved to meet the changing needs and expectations of the client.

Sprint 1							
Story ID	Story Name	Story ID	Responsible	Status	Est	Day 1	Day 2
R101	Admin should be able to look at all functionalities	R101	Ziaul	Done	2	1	1
A101	Manager should manage profile by create edit and delete user along with acceing receptionist login area	R101	Ziaul	Done	4	3	1
Task name		A101	Rashed	Done	2	2	0
Log in form		A101	Ziaul	Done	1	0	1
Wireframing- Lucid Chart		R101	Ziaul	Done	1	1	0
User creation		R101	Ziaul	Done	1	1	0
Setting user attributes		R101	Ziaul	Done	4	3	1
User personal details form		A101	Rashed	Done	4	0	4
User authentication and security		A101	Ziaul	Done	2	1	1
Conference Room creation with attributes		R101	Unassigned	Done	16	4	12
Room pricing & availability		R101	Unassigned	Done	10	8	2
Creating main menu		A101	Ziaul	Done	10	5	5
Conference Booking form		A101	Rashed	Done	4	2	2
Check in/out forms		A101	Ziaul	Done	2	1	1
SRS Document		A101	Rashed	Done	4	2	2
Design System Diagrams							
Design Use case Diagrams							
Design Scrum tracksheet							
Total Hours						67	34
							33
Sprint 1 Retrospective							
Design	User case diagram, Sequence Diagram, Dataflow diagram & Activity diagram draft						
Layout, functioalities, Use case specification, deciding the project scope and limitation							
Code	Basic blueprint has been initiated with user creation and log in						
Basic class diagram has been generated from Visual studio. MySQL and PHP myhas been sucessfully connected							
Test	Forms and user creation is tested, no build error found on form however user log in issues been addressed						
Standard unit test has been initiated at this stage. Test log table has been prepared to log test in every sprint.							
Database	Creation of database been Intialized with MySQL server and PHP with class diagram and relationship						
Data table has been designed with attributes and normalized.							
Documentation	Draft Design and requirement specification document presented to the client.						
Documentation skeloten has been formed with assignent guidelines, literate review intiated, aims and objectives finalised							

Sprint 2							
Story ID	Story Name	Story ID	Responsible	Status	Est	Day 1	Day 2
A104	Manager should be able manage rooms by setting up price per night						
A103	Manager should be able manage rooms by controlling availability						
R103	Reception should be able to check the current bookings						
R105	Reception should be able be able to modify the booking						
R110	Reception should be able check in and check out guest						
R104	Reception Staff should be able to add new bookings to assist customers with add ons						
Task name		Story ID	Responsible	Status	Est	Day 1	Day 2
Database Design		R105		Done	15	6	9
Database Connection		R104		Done	4	4	0
Data Retrieval		R104		Done	4	3	1
New booking menu structure		R110		Done	16	8	8
Add customer to register and use site		R105		Done	2	0	2
Conference Room type		R105		Done	4	3	1
Additional Service forms		R110		Done	6	4	2
Added Services (tick box, service charge added to the final bill)		A104		Done	4	2	2
Data grid View tool to display the Conference rooms.		A104		Done	10	8	2
Adding Conference rooms		A104		Done	10	6	4
Total Hours					75	44	31
Sprint 2 Retrospective							
Design	All diagram revised and modified, high level features. Suggested to be modified to detailed level features in sprint 3						
Lucid chart coloberaiton, Use case diagram, Sequence diagram finalised							
Code	Sharing code and live session to accomodated peer programing						
Github colloboration has few issues of pulling and pushing repository,							
Test	User log in issues been resolved, issues around data retrieval has been adressed, test log needs to be documented Alpha testing done						
Database	Relationship, joins, primary keys, foreign keys are identified as well as creation of table and views.						
Documentation	Project Scope fully defined, Functional requirments finalised,SRS document is finalised with team as per IEEE templet.						

Unit Testing was performed concurrently with development, ensuring any issues were identified and rectified early. Following the completion of development and testing, a working increment of the product was demonstrated to the client in a Sprint Review Meeting. The client's feedback was collected and incorporated into the Product Backlog for future sprints.

Sprint 3

Story ID	Story Name					
A106	Admin should be able take payment and check payment advance feature					
A105	Admin should be able to offer discount/ set special offer for eligible booking					
R107	F/E Staff should be able to take payment and check payment status					
Task name	Story ID	Responsible	Status	Est	Day 1	Day 2
Store Procedure	A106	Ziaul	Done	5	2.5	2.5
Beta Testing	A105	Rashed	Done	5	3	2
Class diagram	R107	Unassigned	Done	1	1	1
Entity Relationship diagram	A103	Rashed	Done	1	1	2
Creating Employee mangment DB	R103	Ziaul	Done	16	8	8
Non-Functional Requirements check	R107	Ziaul	Done	3	1.5	1.5
Total				31	17	17
Sprint 3 Retrospective						
Design						
Entity Relationship diagram from SQL server						
Code						
Commenting code has been partially implimented,						
Test						
Test log is ongoing with each development stage, Unit test, Integration test						
Database						
Logical class diagram Store Procedure, Foreign key issue is adressed						
Documentation						
SRS documentation to be finalised and project planning to be documented						

Sprint 4						
Story ID	Story Name					
Task name	Story ID	Responsible	Status	Est. Hours	Day 1	Day 2
Store Procedure	R106	Ziaul	Done	5	3	2
Beta Testing	A107	Ziaul	Done	5	3	2
Data visualization	R109	Unassigned	Done	5	2	3
Reports query	A109	Unassigned	Postponed	5	2	3
Reports dashboard	R108	Rashed	Postponed	5	3	2
Bug fixation	A107	Ziaul	Done	5	3	2
Accumulating all screenshots for documentation	A109	Ziaul Rashed Conroy	Done	5	2	3
Setting user Characteristics -Skill Levels	A107	Ziaul Rashed Conroy	Done	5	3	2
Finalise Scrum Tracksheet	A109	Ziaul Rashed	Done	5	2	3
Moidify sprint and meeting minutes with evidence	A109	Ziaul Rashed	Done	5	3	2
Compare design and implimentation for user interf.	A107	Ziaul Rashed Conroy	Done	5	2	3
Total				55	28	27
Sprint 4 Retrospective						
Design						
Overall verification						
Code						
Commenting code has been fully implimented, Beta testing error addressed						
Test						
Bug fixation						
Database						
Foreign key issue resloved, Database is shared across the team to test alongside application						
Documentation						
Full documentation finalised and project planning has been included into the report						

At the conclusion of each sprint, a Retrospective was held to reflect on the sprint's successes and challenges and to identify areas for improvement. Lessons learned from these retrospectives were implemented in subsequent sprints, driving continuous improvement in the engineering process.

Each sprint commenced with a Sprint Planning Meeting, where the team and the client collaborated to decide the User Stories from the Product Backlog to be addressed in the upcoming sprint. These User Stories formed the Sprint Backlog, guiding the development work for the sprint. Daily SCRUM meetings were held to monitor progress, identify any impediments, and adjust the plan as necessary, fostering a responsive and flexible development environment.

Date/Day Agenda	
07/05/2023	<p>Discussed and worked on improved functionalities to the "New Booking" form:</p> <ul style="list-style-type: none"> Make Checkin/Customer/Additional Services/Payment/Cancel Booking a single form with a panel underneath that will load those form options Added listView tool to display the rooms. More columns to be added with details of the room to be selected. <p>Discussed login functionality within "MainMenu" form:</p> <ul style="list-style-type: none"> - Make Checkin/Customer/Additional Services/Payment/Cancel Booking a single form with a panel underneath that will load those form options similar to what happens with Main Menu form. - Added listView tool to display the rooms. - More columns to be added with details of the room to be selected. - Discussed login functionality within "MainMenu" form: - This will be displayed as a popup screen that will then grant access depending on user level. - Additional form with login/password to be closed if user change options on main menu (check for form instance before adding another one) - Discussed design of the "Manage Bookings" form to be added once user click on the button with same name on Main Menu.
Attendee	Minutes of the Last Meeting
Rashed	Conformed Desktop program using visual studio target framework 4.7.2 .
Conroy	Task assignments for everyone is updated
Favor	Matter Arising
Ziaul	Database foreign keys assigning problem , Connection Issues
	Scrum Master's Report :
	Ziaul presented draft copy of SRS , Rashed made sure all is going with plan,
	Costel to collaboarting Lucid Chart , Anas and Eduardo collaborating Github work well
	Discussion
	Anas works through github file access for connection for everybody + as above
	Task Planning for next week:
	Sprint 1 partially accomplished with amendments resolving database issues
	Date and Time of next meeting :
	24/05/2023
	Any other Business:
	Members's absense are notified to everybody, task has been rescheduled

Date/Day	Agenda
01/05/2023	<p>Main functionalities</p> <p>GitHub setup so everyone can check and modify the code (more research to be done on this)</p> <p>Agreed on layout of the prototype to discuss with the rest of the group</p> <p>Service simulation</p> <p>Customer approaches and wants to book a Conference room</p> <p>User check if the customer is an existing or new customer</p> <p>When clicking on new booking, dropdown list to select existing customer or new one to register</p> <p>When clicking on new booking, dropdown list to select existing customer or new one to register</p> <p>New customer will enable form to create new entry to the database to be further selected as existing customer.</p> <p>Customer registration for will be filled up with the responsible for the booking (other guests should only offer name for control purposes)</p> <p>Room type features dropdown lists to return how the customer wants the room to be:</p> <p>Button to add beds/room details Double/Single En suite? Desk/work area?</p> <p>System will return what rooms are available to offer the customer. When "Confirm" button clicked, this will send a query on the database with the options available for selection.</p> <p>Other guests information Other people that will stay in (full name, age, gender, relationship to main contact provided [daughter, son, wife, husband])</p> <p>Check in/Check out</p> <p>Laundry services tick box, add service charge to final price</p> <p>Room service (added service)</p> <p>Food options (display added price and add it to main total: Breakfast, Lunch ,Dinner included? (Basic/Premium/etc)</p>
Attendee	Minutes of the Last Meeting:
Ziaul	Task assignments to everyone in the team are to update
Rashed	Matter Arising:
Conroy	Database connection error to fix, Redesign Use case diagram,
Favor	Scrum Master's report :
	Ziaul completes SRS docs, Rashed co-ordinates all, Favor design Use case diagram worked Visual studio set up
	Task planning for next Meeting
	Design sprint 1 , coding , Unit testing
	Date and Time of NextMeeting:
	16/05/2023
	Any other business:
	None

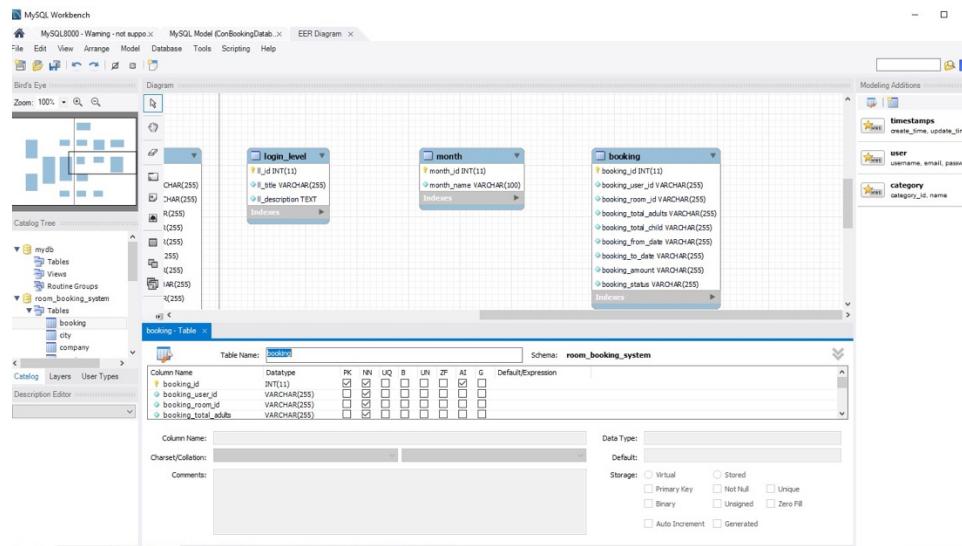
Date/Day	Agenda
21/04/2023	<p>Customer should be allowed to book/reserve a room</p> <p>Record personal details</p> <p>Display the room type availability, maximum occupants and rates</p> <p>Update/modify existant booking and personal details</p>
Attendee	
Favor	Minutes of the Last Meeting
Ziaul	Tutor discussed the requirements
Rashed	Matter Arising
Conroy	Assigning task to the team members
Ziaul	Scrum Master's Report
	Noted all the protocols and note team members' task
	Discussion
	As presented above and set out the functionalities and scopes to narrow down proposed application/program + as above
	Task Planning for next meeting
	Ziaul and Rashed to design database , Favor and Conroy for designing Diagrams, Rashed to maintain Scrum , Ziaul to programming

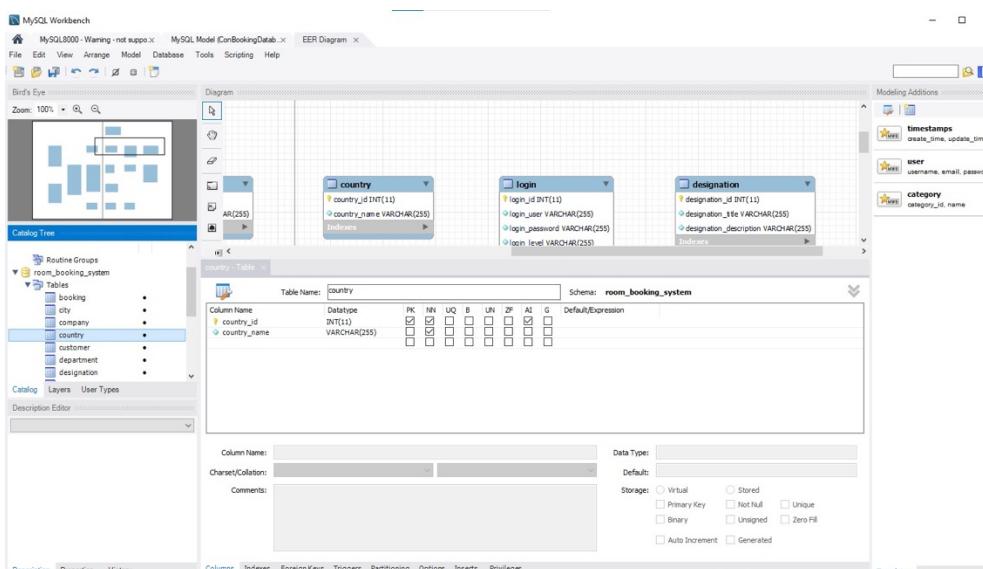
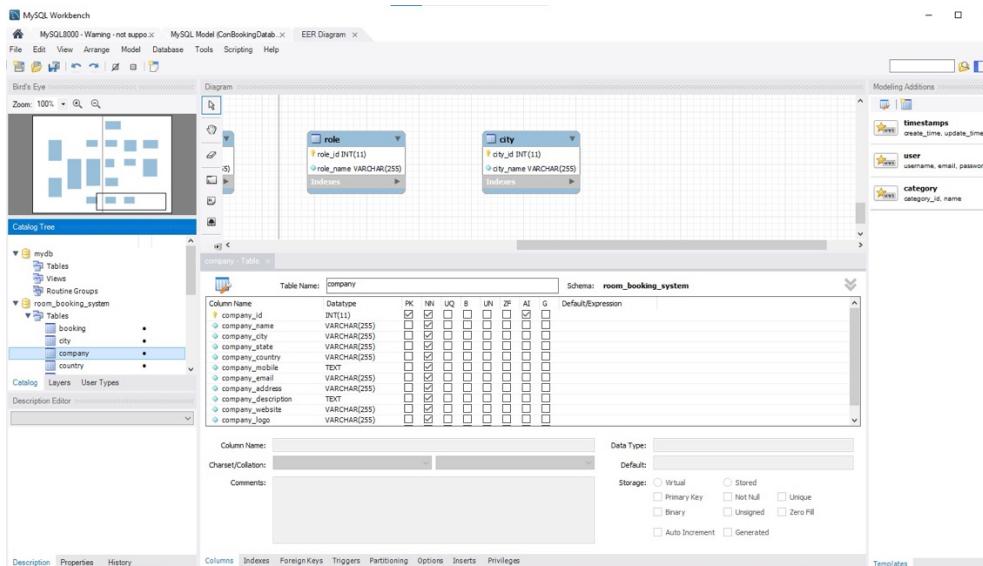
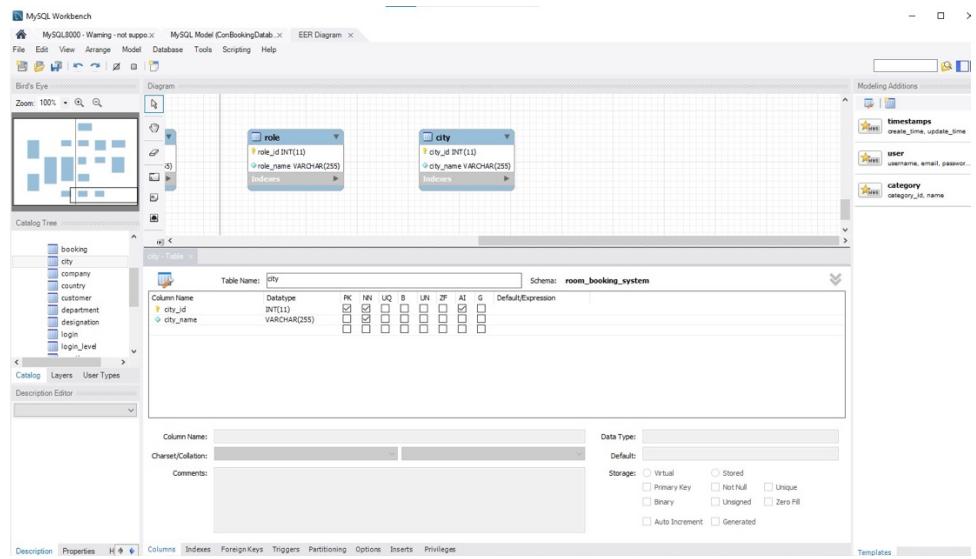
5.0 Discussion of the tasks demonstrated

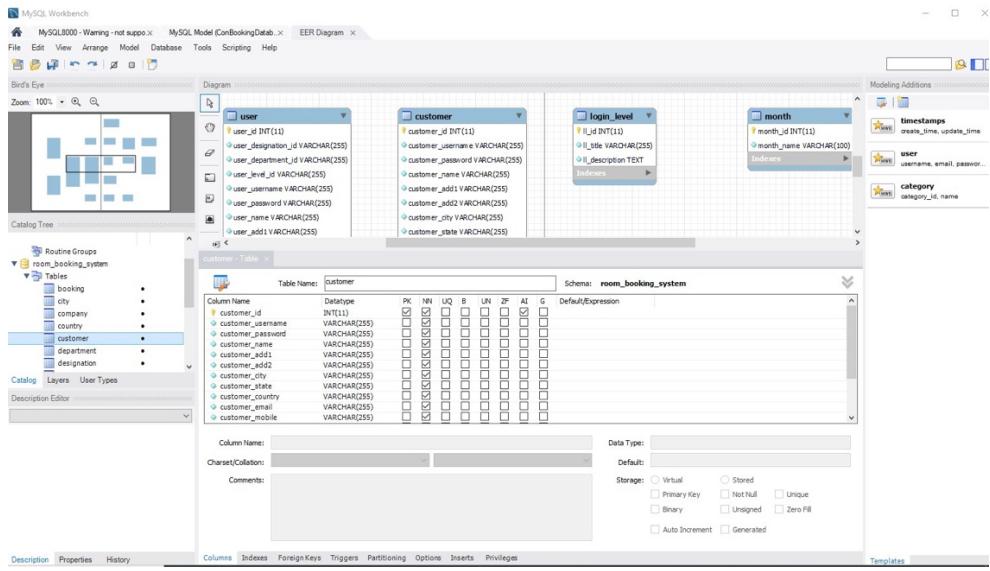
The web application development was scheduled for a demonstration at the end of the semester. Team members rehearsed and presented the functional software to the tutor via Microsoft Teams. The demonstration was recorded for reference and evaluation purposes. Following the presentation, the team members made minor improvements based on the tutor's suggestions before submitting the final report.

5.1 Evidence of database schema used:

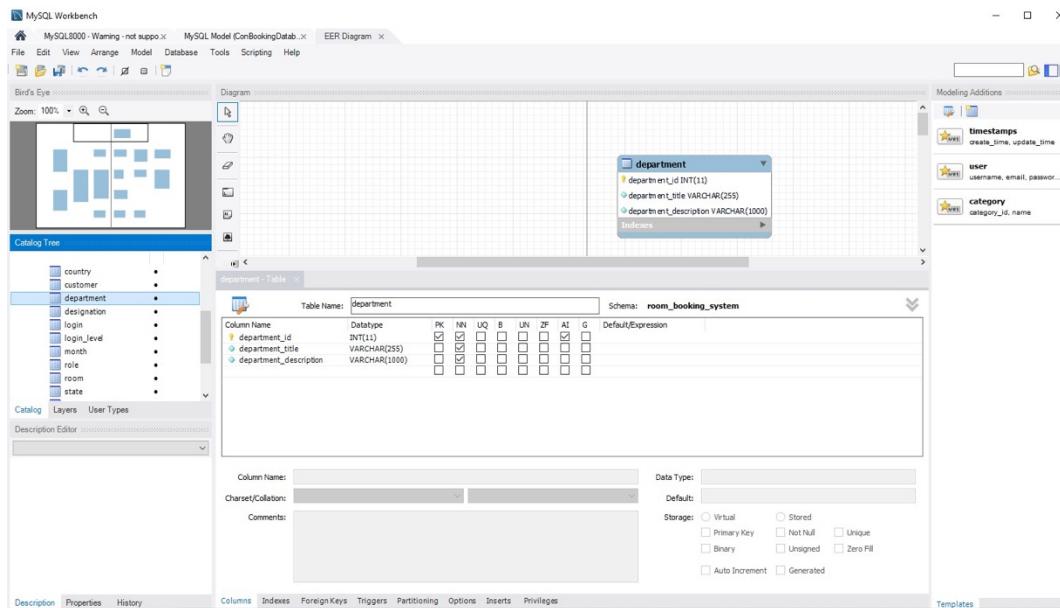
The team members took pride in utilizing both myPHPAdmin and mySQL Workbench, that brought dynamism to the workflow. The use of a relational database began by translating the Entity-Relationship Diagram (EERD) into a normalized tabular format with appropriate data structures.

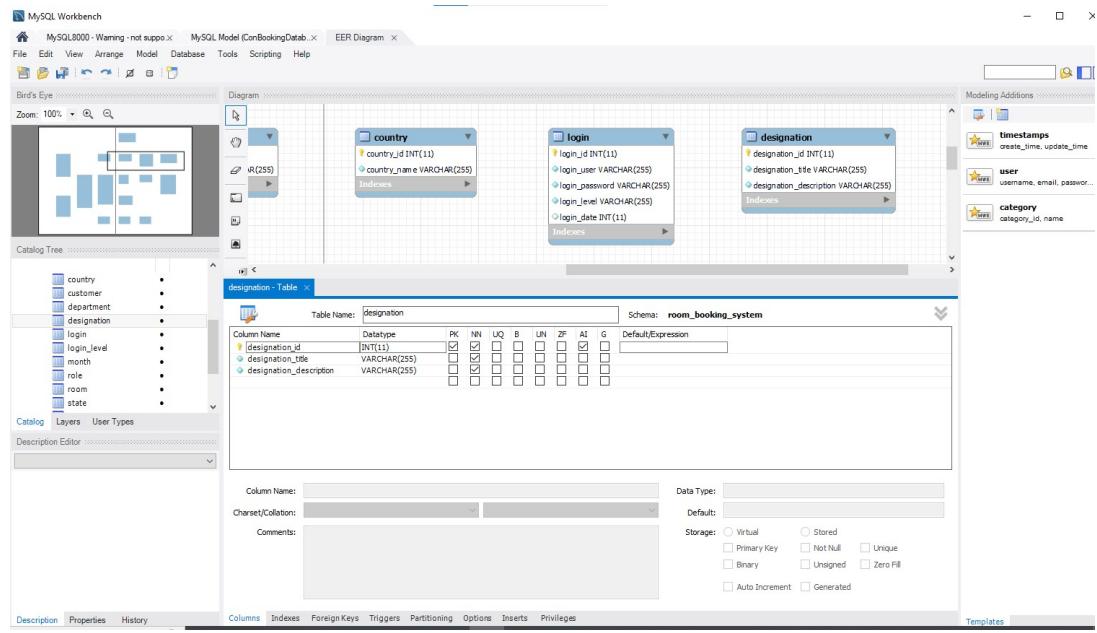


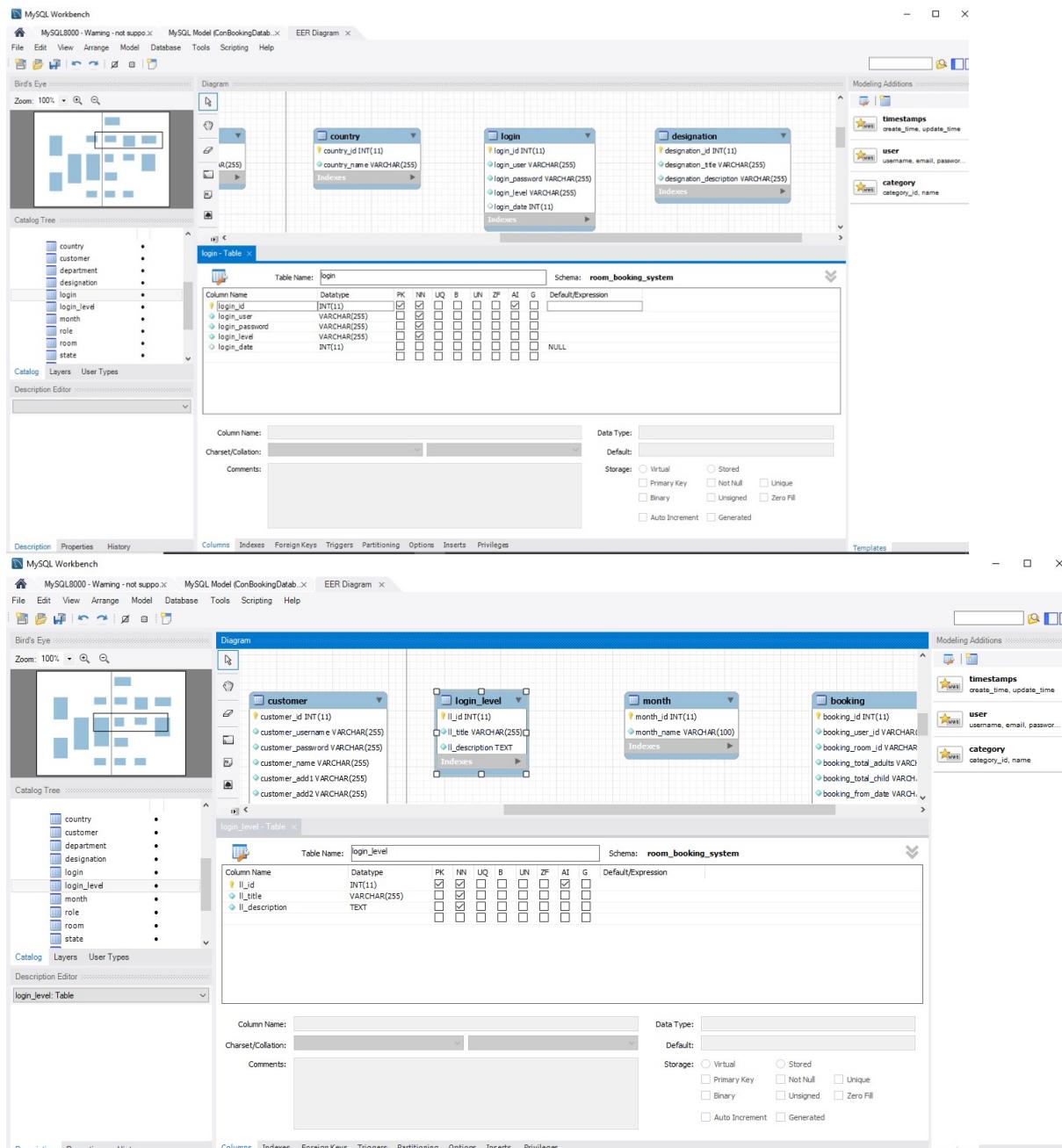


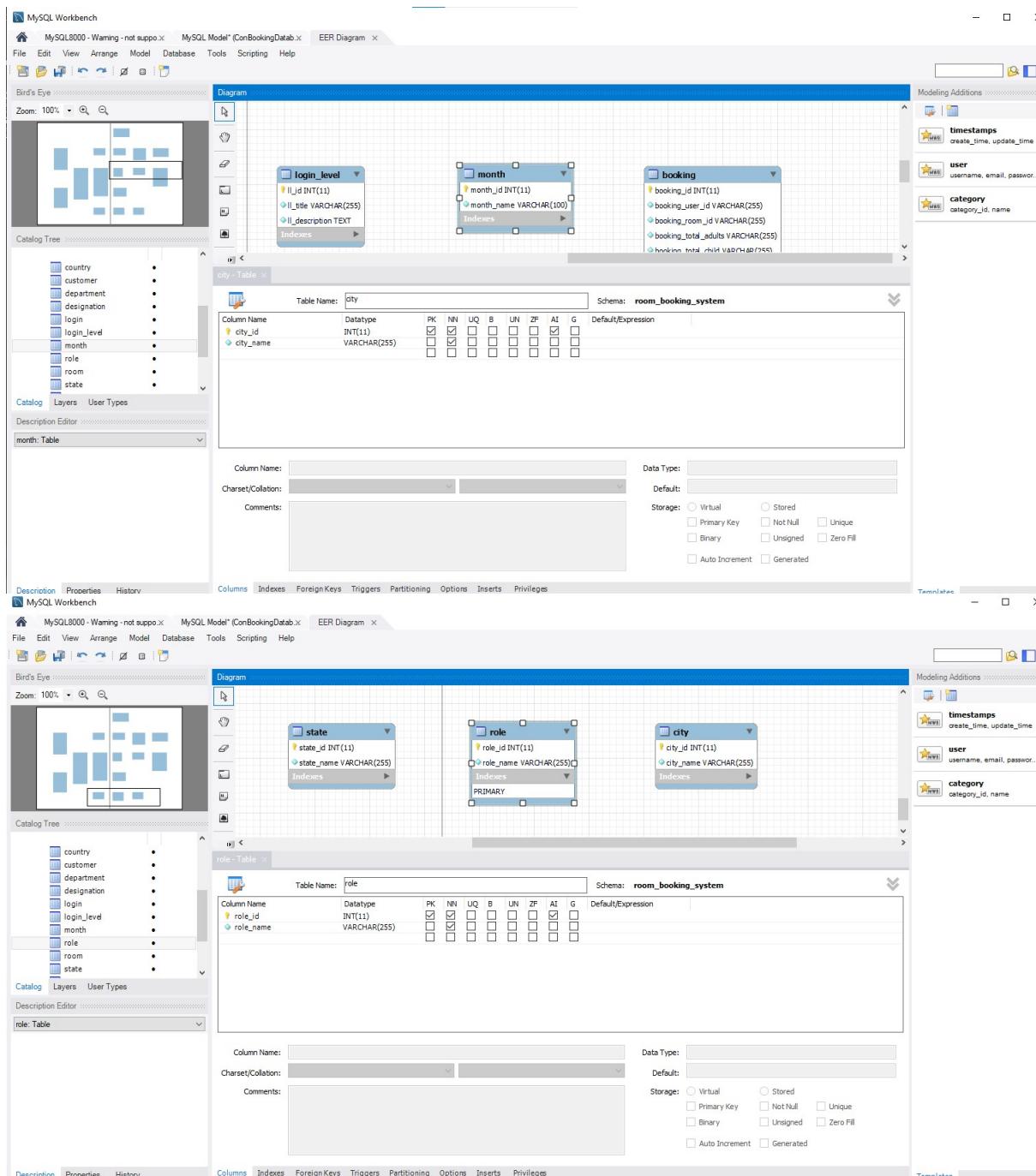


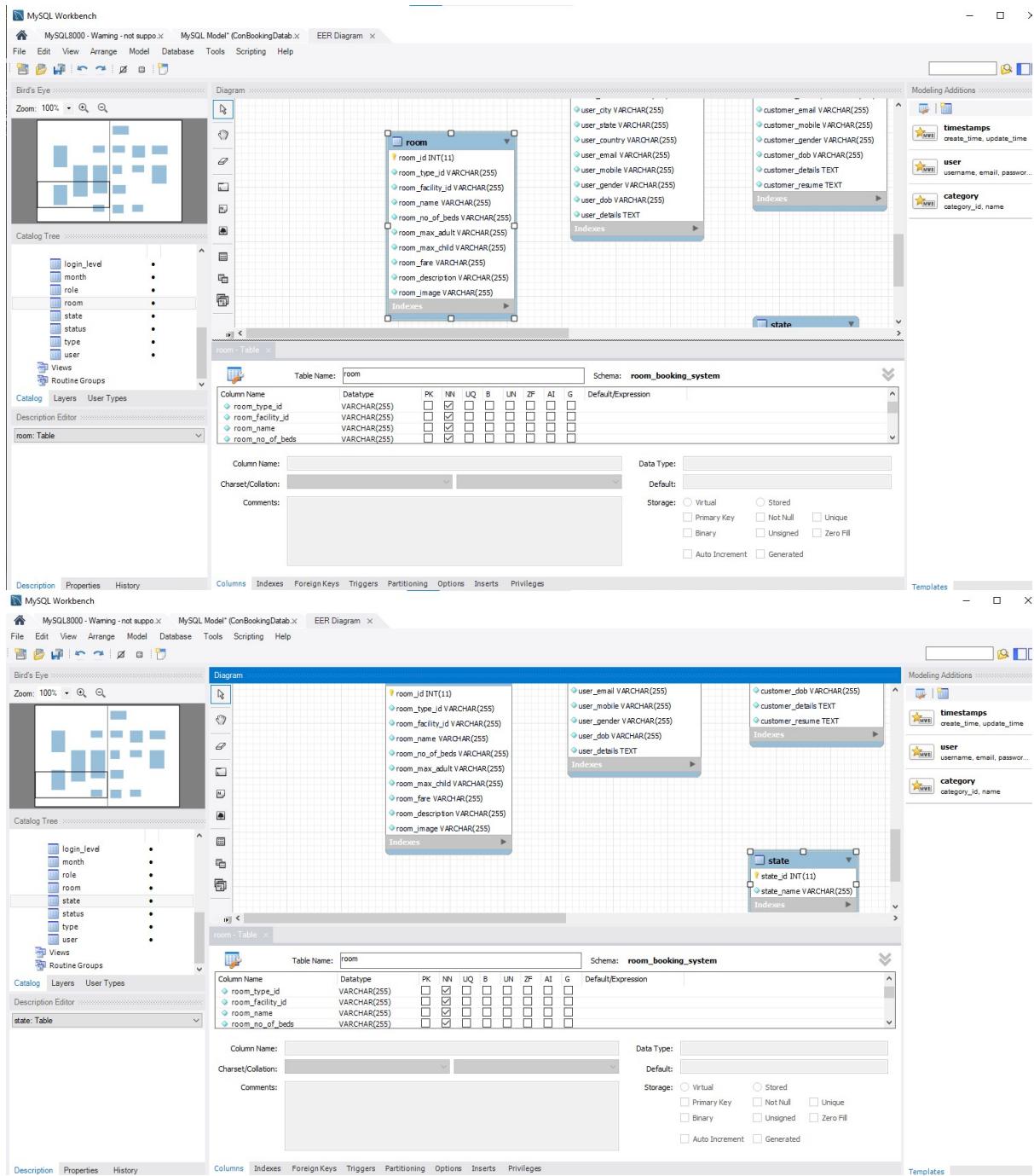
Primary key, foreign key as well as dependency has been established between the tables.

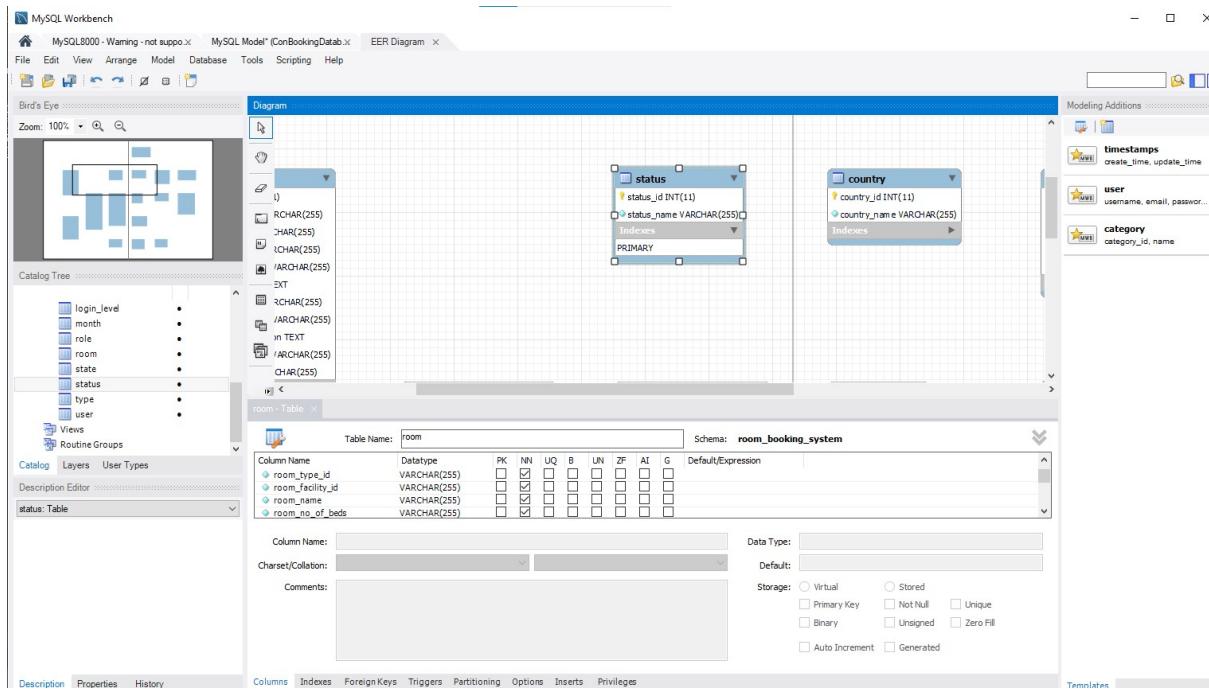








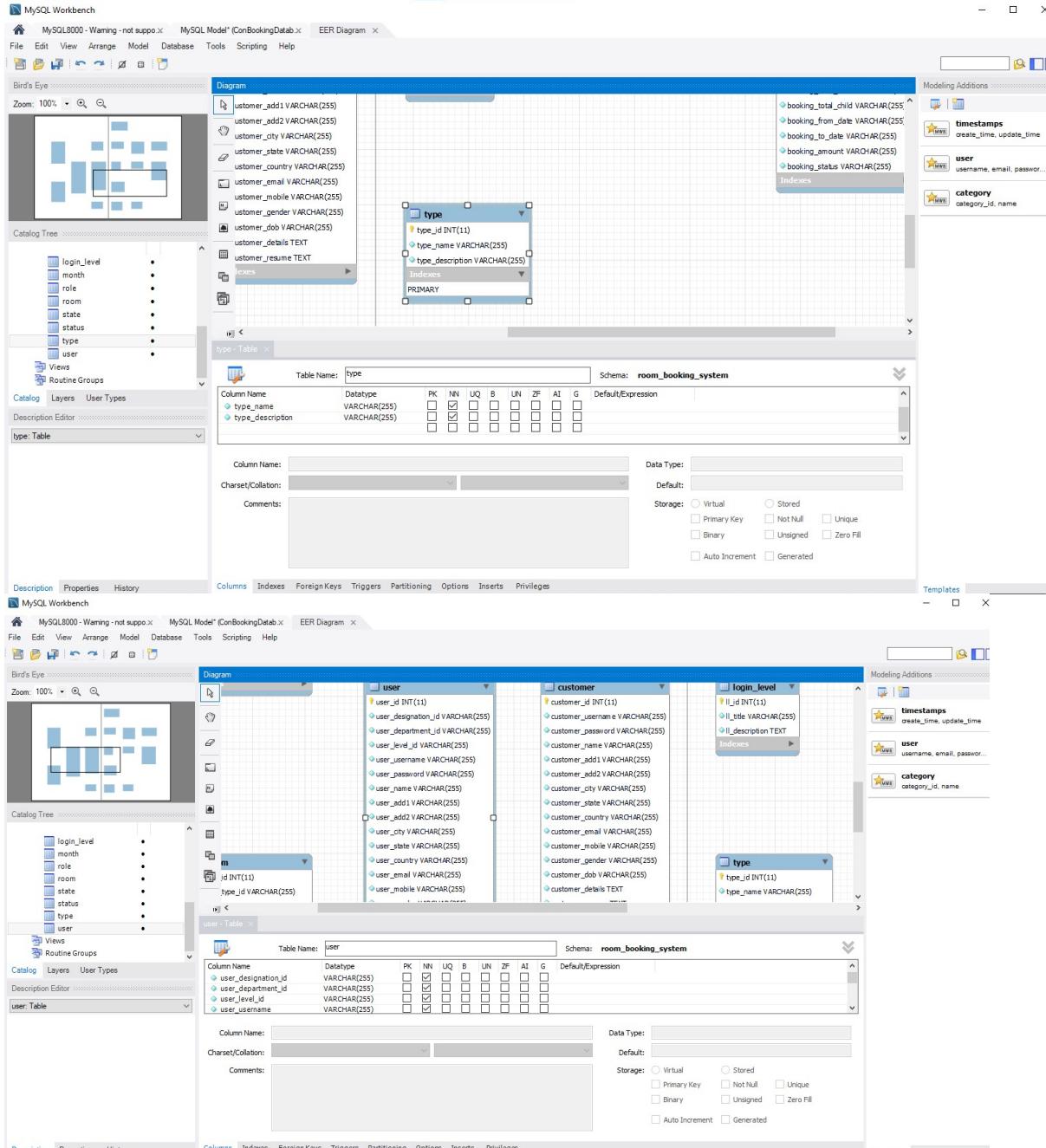




Database is fully functioning with CRUD that can be illustrated by the following screenshot for the user table.

This screenshot shows the MySQL Workbench interface with the 'customer' table selected in the Navigator. The 'Tables' section under the 'room_booking_system' schema lists tables like booking, city, company, country, customer, department, designation, login, login_Level, month, role, room, state, status, type, and user. The 'customer' table is highlighted. The main panel shows the results of a query: 'SELECT * FROM room_booking_system.customer;'. The result grid displays 21 rows of customer data. The bottom right shows the 'Execution Plan' tab, which details the execution steps and their durations.

customer_id	customer_username	customer_password	customer_name	customer_addr1	customer_addr2	customer_cty	cust
4	Akashnil	test	Dr Akashnil	600 Singapore Road, United Kingdom	100 London Road	1	1
6	TusharAhmed	test	Tushar Ahmed	300 Chadwell Heath Road	RMB01TE	3	2
7	MitanUHesen	test	Mitanul Hesen	London:RMB1TE	London:RMB1TE	3	1
8	KarmSatter	test	Karm Satter	Dhamond:190	London:RMB1TE	4	2
9	SimonDrinks	test	Simon_Drinks	House no : 768	20 Lewisham Road, London SWE	2	2
10	GolamKibria	test	Golam Kibria	Glasgow	Scotland	1	2
11	HasnatHaque	test	Hasna Haque	789 London Westminster Abbey	67 United Kingdom	1	2
12	LiamCam	test	Liam Cam	789 London Westminster Abbey	67 United Kingdom	3	1
13	FordAhmed	test	Ford Ahmed	789 London Westminster Abbey	67 United Kingdom	2	Please Select
14	LiamCam	test	Haan Haq	789 London Westminster Abbey	67 United Kingdom	2	2
15	HaanHaq	test	Haan Haq	789 London Westminster Abbey	67 United Kingdom	2	2
16	Anas	test	Anas	789 London Westminster Abbey	97 United Kingdom	2	2
17	Anas	test	Anas	789 London Westminster Abbey	97 United Kingdom	2	1
18	ZauHaque	test	Zau Haq	789 London Westminster Abbey	67 United Kingdom	2	2
19	FavourI	test	FavourI	789 London Westminster Abbey	67 United Kingdom	Please Select	2
20	ConroyMorrison	test	Conroy Morrison	789 London Westminster Abbey	67 United Kingdom	2	2
21	RegentCollege	test	Regent College	789 London Westminster Abbey	67 United Kingdom	2	2



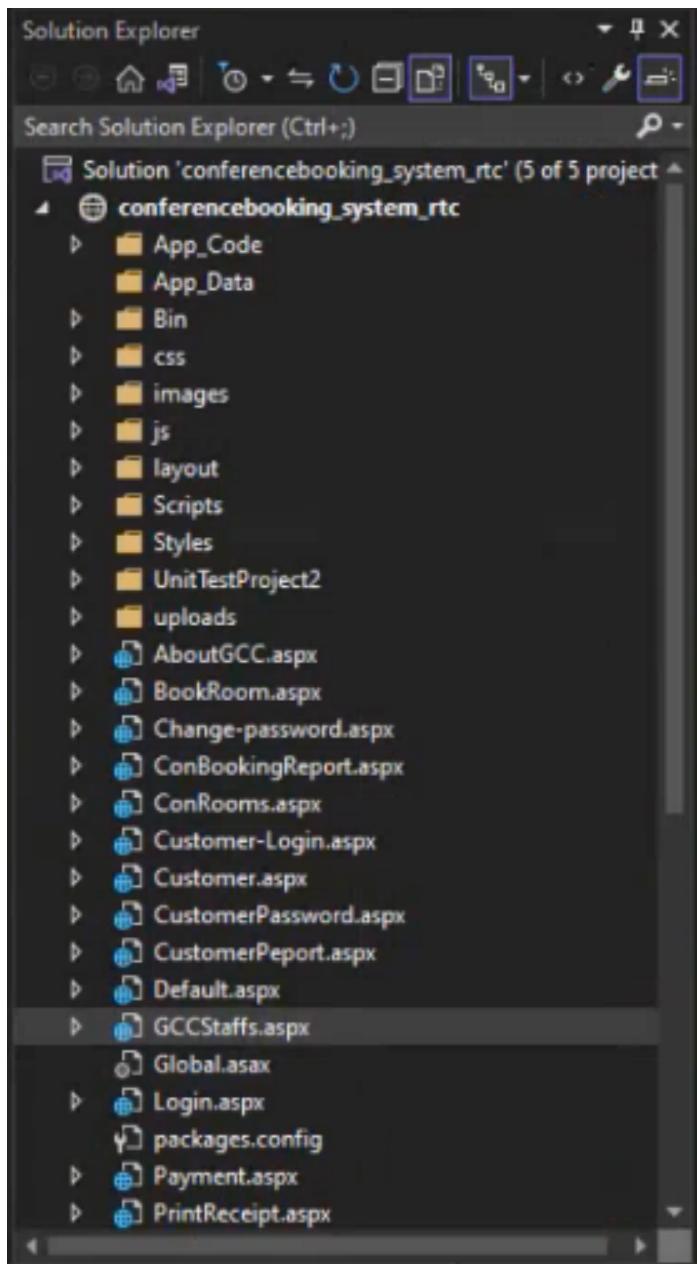
The screenshot shows the MySQL Workbench interface. In the top navigation bar, the database 'room_booking_system' is selected. The main area displays a result grid for the 'customers' table. The columns are: customer_id, customer_username, customer_password, customer_name, customer_addr1, customer_addr2, customer_city, cust. The data grid contains 21 rows of customer information. On the right side of the results pane, there are various toolbar icons for editing, exporting, and filtering. A status message at the bottom right says: 'Automatic context help disabled. Use the toolbar manually get help for the current caret position or toggle automatic help.' Below the results grid, the 'Output' tab is open, showing the execution history of the query.

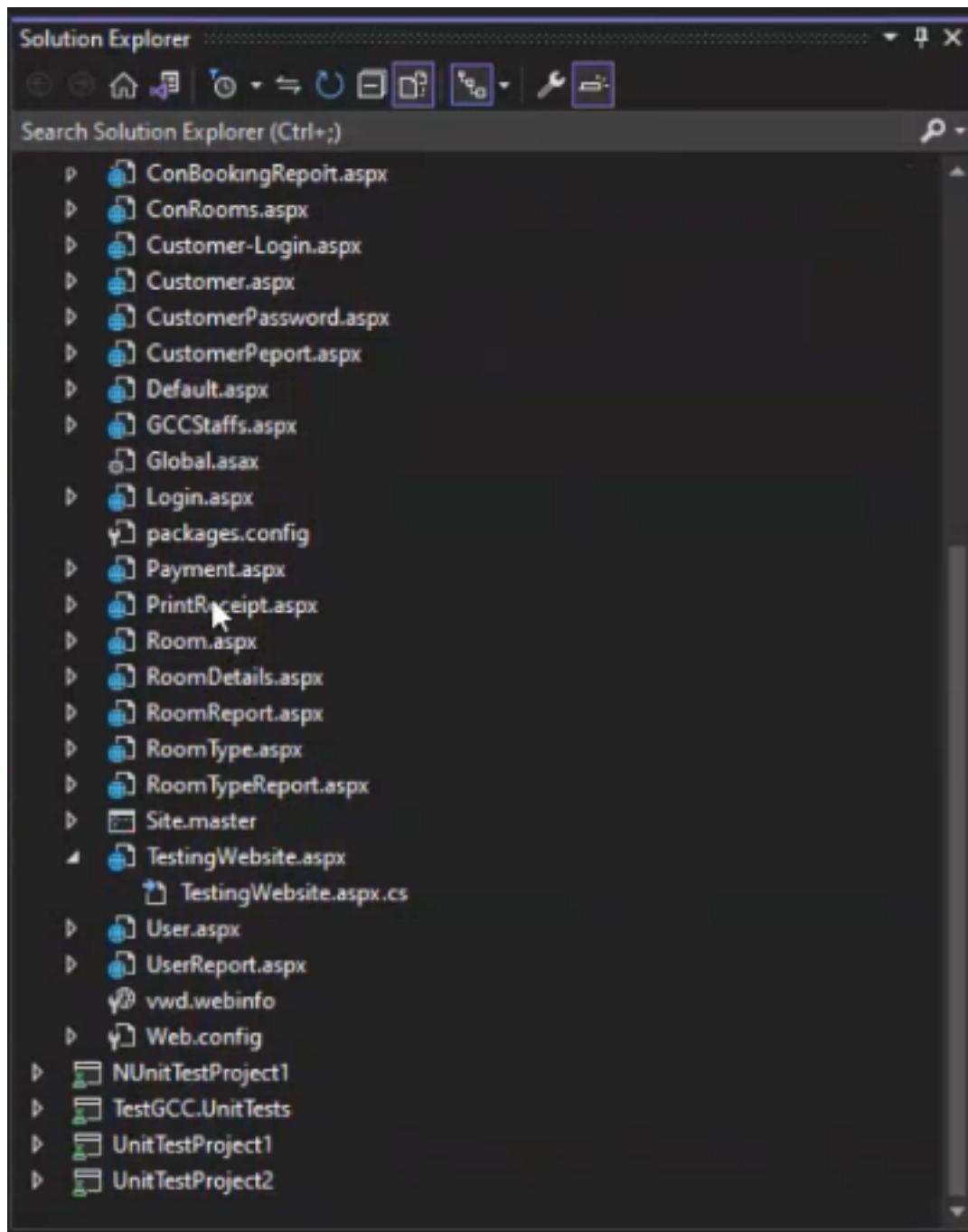
All those competent must be able to communicate with the backend by establishing the secure connection.

The screenshot shows the Microsoft Visual Studio IDE. The title bar indicates the project is named 'conferencebooking_system_rtc'. The code editor on the left contains C# code for a class named 'DBConnection'. The Solution Explorer on the right shows the project structure, including files like 'App_Code/DBConnection.cs', 'BookRoom.aspx.cs', 'CustomerPassword.aspx', 'Payment.aspx', 'CustomerReport.aspx', 'Site.master', and 'Login.aspx'. The 'App_Code' folder also contains 'Global.asax' and 'packages.config' files.

5.2 Evidence backend:

The backend of the software development project was designed and implemented using the C# programming language in visual studio 2023. Testing and documentation were conducted to provide substantiation for the effectiveness of the approach. The backend architecture was considerably structured, using industry-standard technologies such as ASP.net and seamlessly integrating databases using MySQL. The development process consists of comprehensive records maintained, encircling code repositories, version control, and detailed documentation.





```
changeYear: true,
yearRange: "-50:-18",
dateFormat: 'd MM,yy'};

</script>
<div class="wrapper row3">
<div class="rounded">
<main class="container clear">
<!-- main body -->
<div id="comments" style="width: 70%; float:left; margin-right:30px">
<h2>Add User</h2>
<div>
<label for="email">Select Role<span></span></label>
<asp:DropDownList ID="user_level_id" runat="server" CssClass="select-box" style="width:300px;" required></asp:DropDownList>
```

Output

```
Show output from Build
Build started...
----- Building started: Project: conferencebooking_system_rtc, Configuration: Debug Any CPU -----
Building directory '/UnitTestProject2/Properties/'.
Building directory '/UnitTestProject2/obj/Debug/'.
Building directory '/UnitTestProject2/'.
Building directory '/js/'.
Building directory '/layout/scripts/nivo-lightbox/'.
Building directory '/layout/scripts/tablet/'.
Building directory '/layout/scripts/'.
Building directory '/Scripts/'.
Building directory '/'.

Validation Complete
***** Build: 1 succeeded or up-to-date, 0 failed, 0 skipped *****
***** Build started at 9:20 AM and took 03.564 seconds *****
```

```
<asp:Content ID="Content1" ContentPlaceHolderID="HeadContent" Runat="Server">
<asp:Content ID="Content2" ContentPlaceHolderID="MainContent" Runat="Server">
<script>
jQuery(function() {
    $('#MainContent_user_dob').datepicker({
        changeMonth: true,
        changeYear: true,
        yearRange: "-50:-18",
        dateFormat: 'd MM,yy'
    });
</script>
<div class="wrapper row3">
<div class="rounded">
<main class="container clear">
<!-- main body -->
<div id="comments" style="width: 70%; float:left; margin-right:30px">
<h2>Add User</h2>
<div>
<label for="email">Select Role<span></span></label>
<asp:DropDownList ID="user_level_id" runat="server" CssClass="select-box" style="width:300px;" required></asp:DropDownList>
```

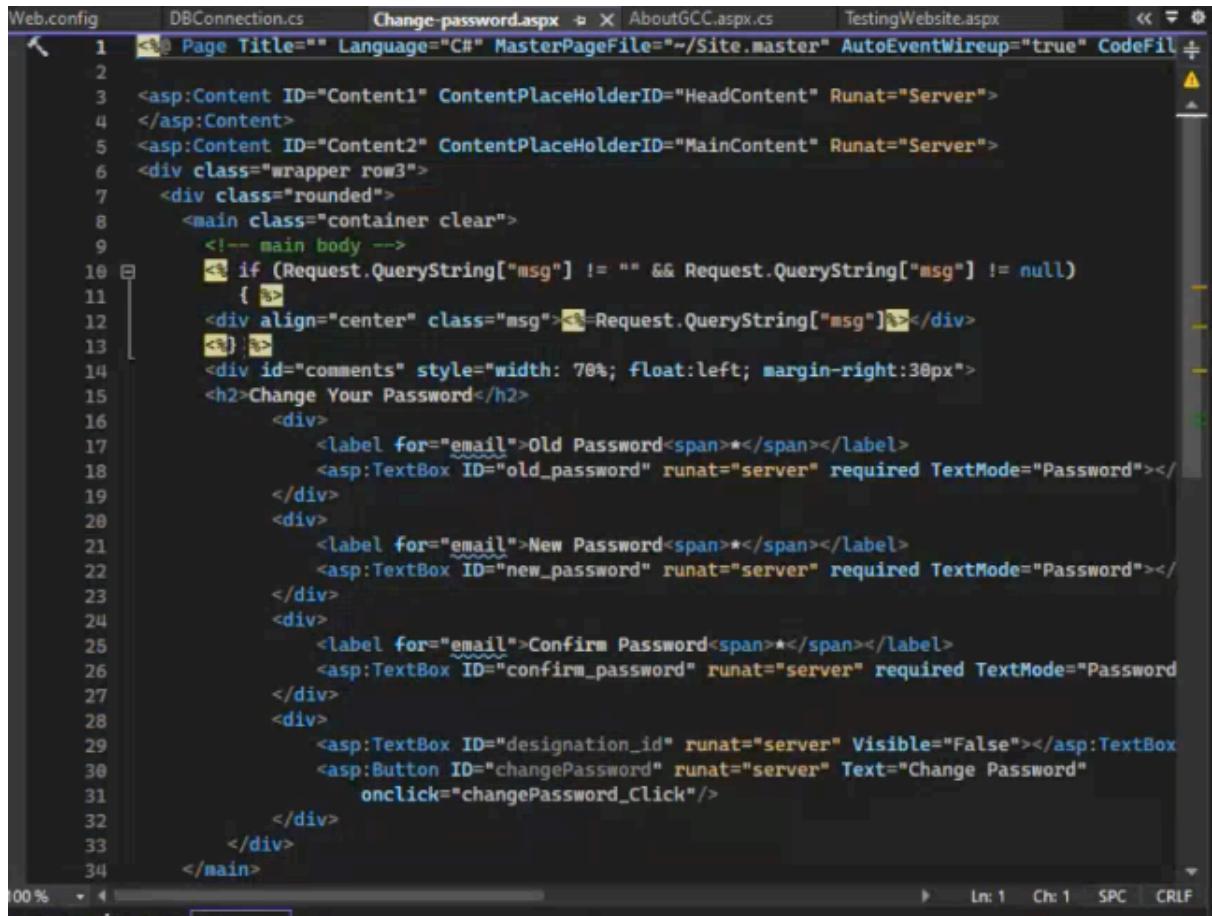
The screenshot shows the Microsoft Visual Studio interface with the following details:

- Code Editor:** The main window displays the source code for a file named "GCCStaffs.aspx". The code includes ASP.NET controls like `<asp:Content>`, `<asp:ContentPlaceHolder>`, and `<asp:Script>`, along with jQuery and CSS classes.
- Solution Explorer:** On the right side, the Solution Explorer shows the project structure. It includes files such as "Site.master", "TestingWebsite.aspx", "Testing.cs", "ConRooms.aspx", "ConRooms.aspx.cs", "GCCStaffs.aspx", "Global.asax", "Login.aspx", "Payment.aspx", "PrintReceipt.aspx", "Room.aspx", "RoomDetails.aspx", "RoomReport.aspx", "RoomType.aspx", "RoomTypeReport.aspx", "Site.master", "TestingWebsite.aspx", "User.aspx", "UserReport.aspx", "Web.config", "NUnitTestProject1", "TestGCC.UnitTests", "UnitTestProject1", and "UnitTestProject2".

The screenshot shows the Microsoft Visual Studio interface. On the left, the code editor displays the `Web.config` file with XML configuration for an ASP.NET application. It includes sections for connection strings, system.web compilation, and assembly references. On the right, the Solution Explorer pane lists various files and projects: `ConRooms.aspx`, `Customer-Login.aspx`, `Customer.aspx`, `CustomerPassword.aspx`, `CustomerReport.aspx`, `Default.aspx`, `GCCStaffs.aspx`, `Global.asax`, `Login.aspx`, `packages.config`, `Payment.aspx`, `PrintReceipt.aspx`, `Room.aspx`, `RoomDetails.aspx`, `RoomReport.aspx`, `RoomType.aspx` (with a sub-item `RoomType.aspx.cs`), `RoomTypeReport.aspx`, `Site.master`, `TestingWebsite.aspx` (with a sub-item `TestingWebsite.aspx.cs`), `User.aspx`, `UserReport.aspx`, `vvv.webinfo`, and `Web.config`. Below the Solution Explorer are other project items: `NUnitTestProject1`, `TestGCC.UnitTests`, `UnitTestProject1`, and `UnitTestProject2`.

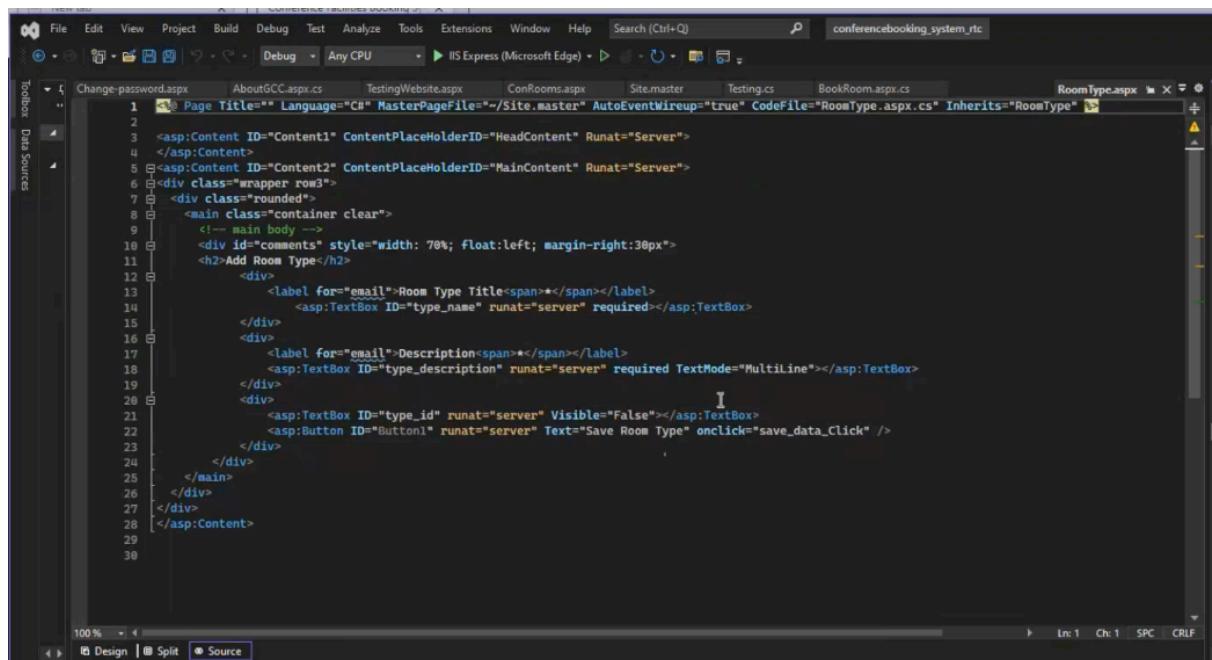
The screenshot shows the code editor for the `DBConnection.cs` file. The code defines a class `DBConnection` with a constructor that initializes a `MySQLConnection` object and sets its connection string. The code uses namespaces for System, System.Collections.Generic, System.Linq, System.Web, System.Data.OleDb, and MySql.Data.MySqlClient.

```
1  using System;
2  using System.Collections.Generic;
3  using System.Linq;
4  using System.Web;
5  using System.Data.OleDb;
6  using MySql.Data.MySqlClient;
7
8
9  /// <summary>
10 /// Summary description for DBConnection
11 /// </summary>
12 public class DBConnection
13 {
14     public MySqlConnection con;
15     public String conString;
16
17     public DBConnection()
18     {
19         conString = "Server=localhost;Database=room_booking_system;Uid=root;";
20         con = new MySqlConnection(conString);
21         con.Open();
22     }
23 }
```



```
1 <%@ Page Title="" Language="C#" MasterPageFile="~/Site.master" AutoEventWireup="true" CodeFile="Change-password.aspx.cs" %>
2
3 <asp:Content ID="Content1" ContentPlaceHolderID="HeadContent" Runat="Server">
4 </asp:Content>
5 <asp:Content ID="Content2" ContentPlaceHolderID="MainContent" Runat="Server">
6 <div class="wrapper row3">
7   <div class="rounded">
8     <main class="container clear">
9       <!-- main body -->
10      <% if (Request.QueryString["msg"] != "" && Request.QueryString["msg"] != null) >
11        { %>
12          <div align="center" class="msg"><%=Request.QueryString["msg"]%</div>
13        <% } %>
14      <div id="comments" style="width: 70%; float:left; margin-right:30px">
15        <h2>Change Your Password</h2>
16        <div>
17          <label for="old_password">Old Password<span>*</span></label>
18          <asp:TextBox ID="old_password" runat="server" required TextMode="Password"></asp:TextBox>
19        </div>
20        <div>
21          <label for="new_password">New Password<span>*</span></label>
22          <asp:TextBox ID="new_password" runat="server" required TextMode="Password"></asp:TextBox>
23        </div>
24        <div>
25          <label for="confirm_password">Confirm Password<span>*</span></label>
26          <asp:TextBox ID="confirm_password" runat="server" required TextMode="Password"></asp:TextBox>
27        </div>
28        <div>
29          <asp:TextBox ID="designation_id" runat="server" Visible="False"></asp:TextBox>
30          <asp:Button ID="changePassword" runat="server" Text="Change Password" onclick="changePassword_Click" />
31        </div>
32      </div>
33    </main>
34  </div>

```



```
1 <%@ Page Title="" Language="C#" MasterPageFile="~/Site.master" AutoEventWireup="true" CodeFile="RoomType.aspx.cs" Inherits="RoomType" %>
2
3 <asp:Content ID="Content1" ContentPlaceHolderID="HeadContent" Runat="Server">
4 </asp:Content>
5 <asp:Content ID="Content2" ContentPlaceHolderID="MainContent" Runat="Server">
6 <div class="wrapper row3">
7   <div class="rounded">
8     <main class="container clear">
9       <!-- main body -->
10      <div id="comments" style="width: 70%; float:left; margin-right:30px">
11        <h2>Add Room Type</h2>
12        <div>
13          <label for="type_name">Room Type Title<span>*</span></label>
14          <asp:TextBox ID="type_name" runat="server" required></asp:TextBox>
15        </div>
16        <div>
17          <label for="type_description">Description<span>*</span></label>
18          <asp:TextBox ID="type_description" runat="server" required TextMode="MultiLine"></asp:TextBox>
19        </div>
20        <div>
21          <asp:TextBox ID="type_id" runat="server" Visible="False"></asp:TextBox>
22          <asp:Button ID="Button1" runat="server" Text="Save Room Type" onclick="save_data_Click" />
23        </div>
24      </div>
25    </div>
26  </div>
27 </div>
28 </asp:Content>

```

```

1 <%@ Page Title="" Language="C#" MasterPageFile="~/Site.master" AutoEventWireup="true" CodeFile="RoomType.aspx.cs" %>
2 <asp:Content ID="Content1" ContentPlaceHolderID="HeadContent" Runat="Server">
3   </asp:Content>
4   <asp:Content ID="Content2" ContentPlaceHolderID="MainContent" Runat="Server">
5     <div class="rounded">
6       <main class="container clear">
7         <!-- main body -->
8         <div id="comments" style="width: 70%; float:left; margin-right:30px;">
9           <h2>Add Room Type</h2>
10          <div>
11            <label for="email">Room Type Title:<span></span></label>
12            <asp:TextBox ID="type_name" runat="server" required="required" type="text" />
13          </div>
14          <div>
15            <label for="email">Description:<span></span></label>
16            <asp:TextBox ID="type_description" runat="server" required="required" TextMode="MultiLine" />
17          </div>
18          <asp:TextBox ID="type_id" runat="server" Visible="False" />
19          <asp:Button ID="Button1" runat="server" Text="Save Room Type" onclick="save_data_Cl" />
20        </div>
21      </main>
22    </div>
23  </div>
24 </asp:Content>

```



```

1 <%@ Page Title="" Language="C#" MasterPageFile="~/Site.master" AutoEventWireup="true" CodeFile="ConRooms.aspx.cs" %>
2 <asp:Content ID="Content1" ContentPlaceHolderID="HeadContent" Runat="Server">
3   </asp:Content>
4   <asp:Content ID="Content2" ContentPlaceHolderID="MainContent" Runat="Server">
5     <div class="wrapper row3">
6       <main class="container clear">
7         <!-- main body -->
8         <div class="group btspace-30">
9           <!-- Middle Column -->
10          <div class="one_half" style="width:95%">
11            <h2>All Available Conference Halls/Rooms</h2>
12            <ul class="nospace listing" style="padding:1px 1px; margin:1px 1px">
13              <li>
14                System.Data.DataTable dt = this.showDataListing();
15                foreach (System.Data.DataRow row in dt.Rows)
16                {
17                  <div style="padding:1px 1px; margin:10px 1px; float:left; width:280px; color: #000">
18                    <div class="img1 borderedbox"><a href="RoomDetails.aspx?room_id=<row["room_id"]>.ToString()></a>
19                    <p class="nospace">ConRoom Number : <a href="RoomDetails.aspx?room_id=<row["room_id"]>.<row["room_type"]> ConRoom Type : <row["type_name"]>.ToString()></a>
20                    <div>Max Person : <row["room_max_adult"]>.ToString()</div>
21                  </div>
22                }
23              </li>
24            </ul>
25          <!-- Middle Column -->
26        </div>
27      </main>
28    </div>
29  </div>
30 </asp:Content>

```

5.3 Evidence front end:

The frontend of the software project was developed emphasizing user-friendly design and seamless functionality. Thorough testing and documentation substantiate the effectiveness of our approach. Leveraging HTML, CSS, and JavaScript, we crafted an intuitive and visually appealing user interface. Responsive design principles were implemented to ensure optimal viewing experiences across various devices.

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All Available Rooms

Room Number : 302 Room Type : Delux Max Person : 50 Adulrs	Room Number : 102 Room Type : Luxury Max Person : 1 Adult	Room Number : 103 Room Type : Pearl Max Person : 2 Adulrs
Room Number : 104 Room Type : Super Luxury	Room Number : 105 Room Type : Luxury	Room Number : 106 Room Type : Delux

localhost:53044/RoomDetails.aspx?room_id=5

Print

Total: 1 sheet of paper

Printer: Microsoft Print to PDF

Copies: 1

Layout: Portrait

Pages: All

Colour: Colour

More settings

Print Cancel

27/05/2023, 14:02

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Booking Information of Room Name : 302

	Room Number : 302 Room Type : Luxury Max Person : 50 Adulrs Room Fare : 200 Per day
Room Name	302
Room Type	Luxury
Duration	50 Adulrs
Booking From Date	25 May,2023
Booking To Date	4 December,2023
Total Amount	200.00/- Per day (Rest you need to pay at hotel)

Print Ticket

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Booking Information of Room Name : 302



Room Number : 302
Room Type : Luxury
Max Person : 50 Adulrs
Room Fare : 200 Per day

Room Name	302
Room Type	Luxury
Duration	50 Adulrs
Booking From Date	25 May,2023
Booking To Date	4 December,2023
Total Amount	200.00/- Per day (Rest you need to pay at hotel)

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Room Name : 302



Room Number : 302
Room Type : Delux
Max Person : 50 Adulrs
Room Fare : 200

Room Name	302
Room Type	Delux
Max Allowed Adult	50 Adulrs
Max Allowed Child	10 Childs

Non AC Room

Book This Con Room

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Change Your Password

Old Password*

New Password*

Confirm Password*

Change Password

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Book Room Name : 302



Room Number : 302
Room Type : Delux
Max Person : 50 Adulrs
Room Fare : 200

Enter Your Booking Details

From Date*

25 May,2023

May	2023					
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Total Child*

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Book Room Name : 302



Room Number : 302
Room Type : Delux
Max Person : 50 Adulrs
Room Fare : 200

Enter Your Booking Details

From Date*

25 May,2023

To Date*

4 December,2023

Dec	2023					
Su	Mo	Tu	We	Th	Fr	Sa
	1	2				
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

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Booking Details

Room Name	From Date	To Date	Booking Amount	Total Adults	Total Childs	
108	17 May,2023	5 December,2023	3000	5	5	View Details
302	25 May,2023	4 December,2023	200	5	5	View Details
302	18 May,2023	13 May,2023	200	5	5	View Details
302	31 May,2023	5 December,2023	200	5	5	View Details
302	24 May,2023	5 December,2023	200	5	5	View Details
302	18 May,2023	4 December,2023	200	5	5	View Details
302	25 May,2023	4 December,2023	200	122	100	View Details

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Booking Information of Room Name : 108

	Room Number : 108
	Room Type : Luxury
	Max Person : 2 Adults
	Room Fare : 3000 Per day

Room Name	108
Room Type	Luxury
Duration	2 Adults
Booking From Date	17 May,2023
Booking To Date	5 December,2023
Total Amount	3000.00/- Per day (Rest you need to pay at hotel)

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Make Payment

Credit Card Number*	Name on Credit Card*
<input type="text" value="1234567890901678"/>	<input type="text" value="Md Ziaul Haque HEo8516"/>
Credit Card Type*	Expiry Date*
<input type="text" value="MasterCard"/>	<input type="text" value="December"/> <input type="text" value="2023"/>
CVV No.*	
<input type="text" value="2023"/>	
Amount Paid*	
<input type="text" value="200"/>	

highlighting the successful delivery of a polished frontend for the software application.

localhost:53044/RoomReport.aspx

Room Listing				
ID	Logo	Name	Release Date	
1		302	10 Childs	Edit Delete
2		102	1 Child	Edit Delete
3		103	2 Childs	Edit Delete
4		104	2 Childs	Edit Delete
5		105	1 Child	Edit Delete
6		106	1 Child	Edit Delete
7		107	1 Child	Edit Delete
8		108	1 Child	Edit Delete
9		109	2	Edit Delete
10		555	10 Childs	Edit Delete

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Room Type Listing				
ID	Name	Description		
1	Luxury	Luxury	Edit Delete	
2	Delux	Delux	Edit Delete	
3	Pearl	Pearl	Edit Delete	
4	Super Delux	Super Delux	Edit Delete	
5	Super Luxury	Super Luxury	Edit Delete	
6	GlasgowComfort	Professional	Edit Delete	
7	New Room 2013	Md Ziaul Haque London	Edit Delete	

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Customer Report

ID	Name	City	Date of Birth	Email	Contact No.	
4	Dr Akashnil	Glassgow	29th April, 1970	drakash_nil@gmail.com	1234567890	View Details Delete
6	Tushar Ahmed	Newcastle	19 July,190	tushar.ahmed@ukmail.com	0987654321	View Details Delete
7	Mitranul Hasan	Newcastle	26 December,2015	amit@gmail.com	9324324546	View Details Delete
8	Karim Satter	Cardiff	19 January,2000	suman@gmail.com	987654321	View Details Delete
9	Simon_Drinks	London	18 December. 1992	siomon_drinks@hotmail.co.uk	0987654321	View Details Delete
10	Golam Kibria	Glassgow	18 February,2000	golam.kibria@gmail.com	897654321	View Details Delete
11	Hasina Haque	Glassgow	9 May,2023	ziaul.heo8516@rtc.uk.net	075555555555	View Details Delete
12	Liam Ciam	Newcastle	16 May,2023	liam.ciam@gmail.com	075555555555	View Details Delete
13	Forid Ahmed	London	9 May,2023	liam.ciam@gmail.com	075555555555	View Details Delete
14	Hasin Haq	London	16 May,2023	liam.ciam@gmail.com	075555555555	View Details Delete
15	Hasin Haq	London	9 May,2023	liam.ciam@gmail.com	075555555555	View Details Delete
16	Anas	London	16 May,2023	anas.anas@gmail.com	075555555555	View Details Delete
17	Anas	London	16 May,2023	anas.anas@gmail.com	075555555555	View Details Delete
18	Ziaul Haq	London	15 May,2023	ziaul.haq@hhm.com	075555555555	View Details Delete

HOME ABOUT GCC ALL CONFERENCE ROOMS ▾ ADD NEW ▾ REPORTS CHANGE PASSWORD LOGOUT

Add Room Type

Room Type Title*

New Room 2013

Description*

Md Ziaul Haque London

Save Room Type

Add Room

Room Name*
109

Room Image*
 11.jpg

Total rooms with Beds Facility *
77

Select Room Type*

Max Adult Allowed*
122

Max Child Allowed*
111

Room Fare*
200

Description*
Professional|

Save Room

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Login Form

Username *

Saved data

admin
HasinaHaque
JohnCarlton
simondrinks
TusharAhmed
John Carlton

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Login Form

Username *

Password *

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Welcome to GlasgowConferenceRoom | Md Ziaul Haque | Logout

Search Here

HOME ABOUT GCC ALL CONFERENCE ROOMS ▾ ADD NEW ▾ REPORTS CHANGE PASSWORD LOGOUT



Room Name : 106



Room Number : 106
Room Type : Delux
Max Person : 2 Adulrs
Room Fare : 20000

Room Name	106
Room Type	Delux
Max Allowed Adult	2 Adulrs
Max Allowed Child	1 Child
Non AC Room	

Book This Con Room

Booking Information of Room Name : 106



Room Number : 106
 Room Type : Luxury
 Max Person : 2 Adults
 Room Fare : 20000 Per day

Room Name	106
Room Type	Luxury
Duration	2 Adults
Booking From Date	1 June,2023
Booking To Date	2 June,2023
Total Amount	20000.00/- Per day (Rest you need to pay at hotel)

[Print Ticket](#)

localhost:53044/payment.aspx?booking_id=47&amt=1000

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Make Payment

Credit Card Number*

Name on Credit Card*

Credit Card Type*

Expiry Date*

CVV No.*

Amount Paid*

[Book Ticket](#)

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Conference Facilities Booking System,Glasgow,United Kingdom

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Customer Portal:Conference Booking Details

Room Name	From Date	To Date	Booking Amount	Total Adults	Total Childs	Action
108	17 May,2023	5 December,2023	3000	5	5	View Details
102	1 May,2023	5 December,2023	1000	5	100	View Details
102	1 June,2023	5 December,2023	1000	200	100	View Details
102	3 May,2023	11 May,2023	1000	200	100	View Details
103	15 May,2023	1 December,2023	1000	200	100	View Details

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Customer Report

ConRoom Report

ConRoom Type Report

Booking Report

Room Type Listing

ID	Name	Description	Action
1	Luxury	Luxury	Edit Delete
2	Delux	Delux	Edit Delete
3	Pearl	Pearl	Edit Delete
4	Super Delux	Super Delux	Edit Delete
5	Super Luxury	Super Luxury	Edit Delete
6	GlasgowComfort	Professional	Edit Delete

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Customer Report

ConRoom Report

ConRoom Type Report

Booking Report

Room Listing

ID	Logo	Name	Rele	Action
1		302	10 Childs	Edit Delete
2		102	1 Child	Edit Delete
3		103	2 Childs	Edit Delete
4		104	2 Childs	Edit Delete
5		105	1 Child	Edit Delete
6		106	1 Child	Edit Delete
7		107	1 Child	Edit Delete
8		108	1 Child	Edit Delete

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Customer Report						
ConRoom Report						
Booking Details						
Room Name	From Date	To Date	Booking Amount	ConRoom Type Report	Adults	Total Childs
302	3		300		11 November,2017	View Details
102	12		1200		12 December,2016	View Details
103	15		1500	3	09 January,2017	View Details
104	4		400	4	19 January,2017	View Details
105	5		500	1	16 January,2017	View Details
103	12		2400	3	17 January,2017	View Details
102	2		500	2	18 January,2017	View Details
103	2		500	2	21 January,2017	View Details
104	23		6900	4	16 July,2021	View Details
104	34		8500	2	2 July,2021	View Details
105	8 July,2021	23 July,2021	3000	12	144	View Details
105	3 July,2021	10 July,2021	3000	4	2	View Details
302	1 May,2023	1 December,2023	200	5	5	View Details
302	1 May,2023	23 May,2023	200	5	5	View Details
302	25 May,2023	4 December,2023	200	5	5	View Details
302	18 May,2023	13 May,2023	200	5	5	View Details

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Change Your Password						
Old Password*						
<input type="text" value="****"/>						
New Password*						
<input type="text" value="****"/>						
Confirm Password*						
<input type="text" value="****"/> <input checked="" type="radio"/>						
Change Password						

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Password changed successfully.

Change Your Password

Old Password*

New Password*

Confirm Password*

Change Password

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Login Form

Username *

Password *

Login Cancel

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Password changed successfully.

Change Your Password

Old Password*

New Password*

Confirm Password*

Change Password

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Login Form

Username *

admin

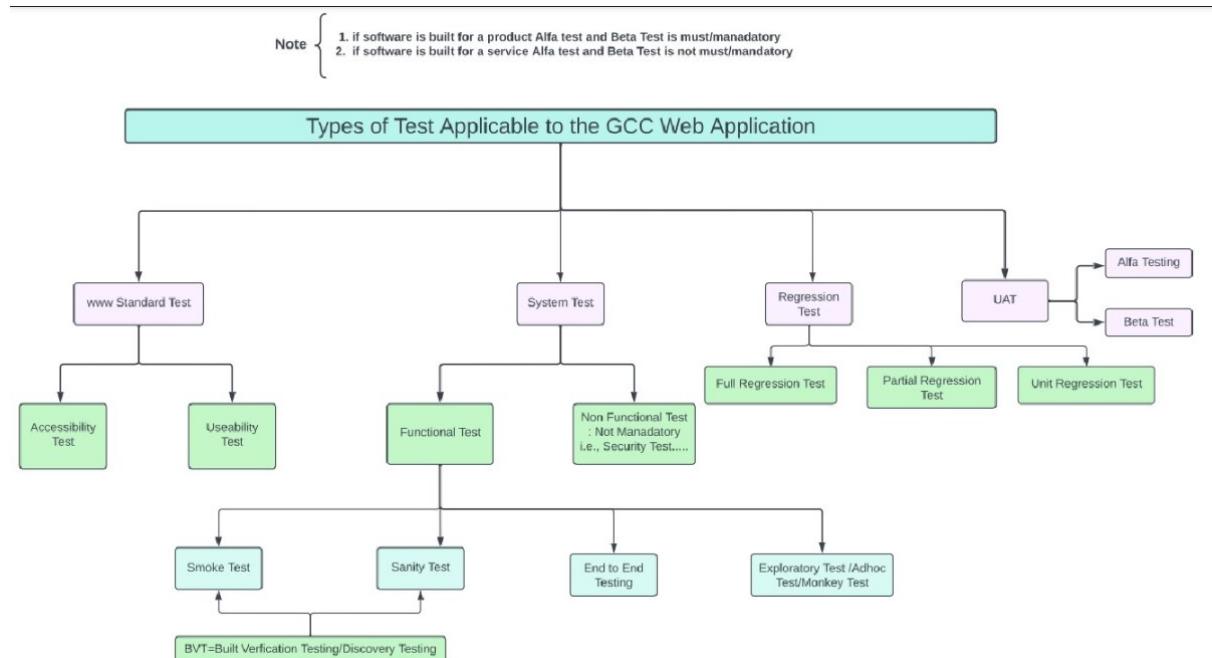
Password *

testi 

Login Cancel

6.0 Testing Strategies

Testing is an integral part of the software development lifecycle, rather than a phase that occurs after development is complete. This continuous integration of testing ensures that any issues are identified and rectified early, reducing the time and cost associated with fixing bugs in later stages.



Unit Testing was conducted to verify the smallest testable parts of the software, ensuring each individual component functioned as expected before they were integrated. This approach allowed for the early identification and rectification of issues at the micro level, enhancing the overall software quality.

Screenshot of Microsoft Visual Studio showing the configuration file (`Web.config`) and unit test results.

Web.config:

```
<configuration>
  <connectionStrings>
    <add name="ApplicationServices" connectionString="data source=.\MSSQLSERVER001;Integrated Security=SSPI;AttachDBName=conroom_db" providerName="MySQL.Data.MySqlClient" />
    <add name="conroom_db" connectionString="Data Source=DESKTOP-MFTK20T\MYSQLSERVER001;Initial Catalog=conroom_db;User Id=root;Password=123456;" providerName="MySQL.Data.MySqlClient" />
    <remove name="LocalMySqlServer" /><add connectionType="" name="LocalMySqlServer" providerName=" MySql.Data.MySqlClient" />
  </connectionStrings>
  <system.web>
    <compilation debug="true" targetFramework="4.8.1">
      <assemblies>
        <add assembly="esentlib, Version=0.0.0.0, Culture=neutral, PublicKeyToken=e77asc561934e089" />
        <add assembly="System.Numerics, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b77asc561934e089" />
        <add assembly="System, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b77asc561934e089" />
        <add assembly="MySQL.Data, Version=8.0.33.0, Culture=neutral, PublicKeyToken=c5687fc88969c4d0" />
        <add assembly="System.Configuration, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11050a3a" />
        <add assembly="System.Data, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b77asc561934e089" />
        <add assembly="System.Management, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11050a1a" />
        <add assembly="System.Transactions, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b77asc561934e089" />
        <add assembly="System.Web, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b1bf0856ad94a6a8" />
        <add assembly="System.Web.ApplicationServices, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b1bf0856ad94a6a8" />
      </assemblies>
    </compilation>
    <authentication mode="Forms">
      <forms loginUrl="/Account/Login.aspx" timeout="7200" />
    </authentication>
  </system.web>

```

Unit Test Results:

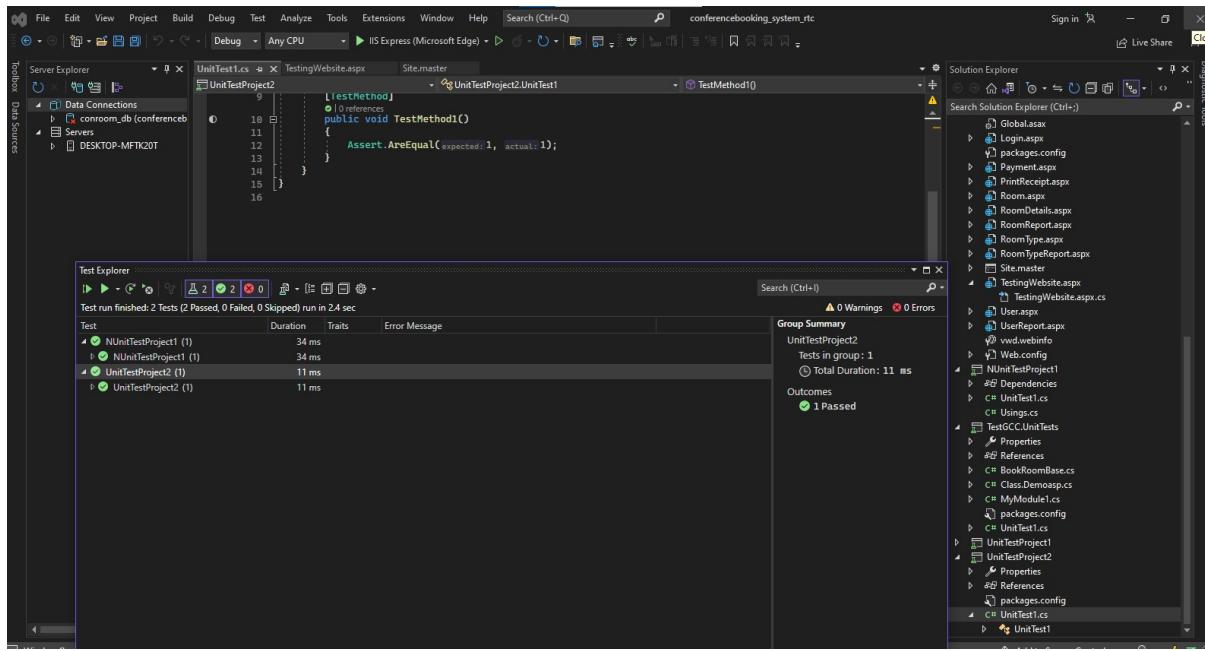
Test	Duration	Traits	Error Message
UnitTestProject2 (1)	8 ms		

Group Summary:

- UnitTestProject2
- Tests in group: 1
- Total Duration: 8 ms
- Outcomes: 1 Passed

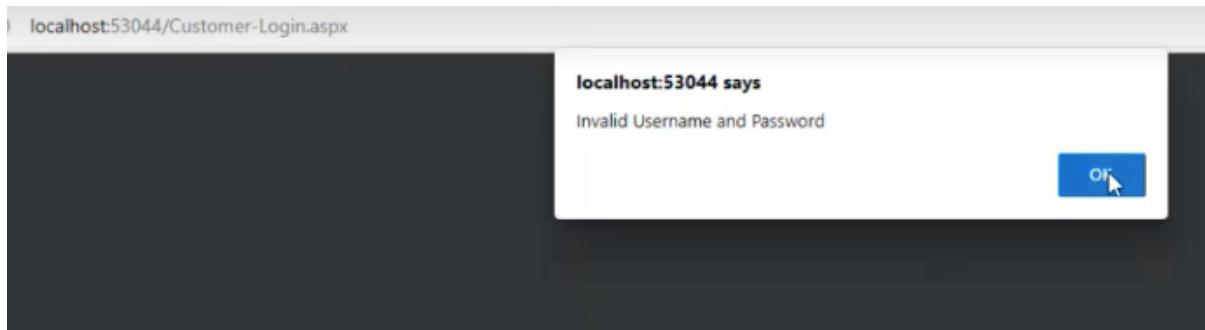
UnitTest1.cs:

```
1 // Using Microsoft.VisualStudio.TestTools.UnitTesting;
2 using System;
3 
4 namespace UnitTestProject2
5 {
6   [TestClass]
7   public class UnitTest1
8   {
9     [TestMethod]
10    [TestMethod]
11    public void TestMethod1()
12    {
13      Assert.AreEqual(expected: 1, actual: 1);
14    }
15  }
16}
```



Integration Testing was performed as the various components of the Conference Management System were combined, validating the interactions between different parts of the system. This was crucial to ensuring seamless functionality between interconnected components, such as room bookings and catering services.

User Acceptance Testing (UAT) was carried out at the end of each sprint, involving actual users of the system in the testing process. In this case, representatives from the client's team were included in UAT sessions to validate that the system met their requirements and expectations.



To effectively manage and document the testing processes, Test Logs were maintained within the SCRUM document. These logs recorded the test results, identified issues, and documented the actions taken to rectify them. The implementation of Agile testing strategies facilitated the identification and resolution of issues, ultimately ensuring the delivery of a system that provided tangible value to the client.

Risk Tracking Table				
User Stories	Functional Requirements	Unit Tested	System Tested/Status	Customer Approval
User Should be able login into the system using correct credential to access the booking system	Creating Login system for entry into Booking System	Done/Tested	YES	approved 10/05/2023
User Should be able to navigate the system in user friendly & intuitive manner	Navigability	Done/tested	YES	approved 14/05/2023
User should be able to check the current bookings	Booking checking ability	Done/Tested	YES	approved 18/05/2023
User should be able to add new bookings to assist customers with add ons	Adding- New -Booking ability	Done/Tested	YES	approved 20/05/2023
User should be able to modify the booking	Able to modify booking	Done/Tested	YES	approved 20/05/2023
User should be able add customers/ guest into the system	Able to add customer and guest	Done/Tested	YES	approved 21/05/2023
User should be able to take payment and check payment status	Able to make payment	Partially Done	YES	approved 21/05/2023
User should be able check in and check out guest	Able to check in/out	Done/Tested	YES	approved 11/04/2023
User should be able manage user by create edit and delete user	Able to manage/edit/delete	Done/Tested	YES	approved 12/04/2023
User should be able to access customer database in order to edit/update/delete data	Able to database update/edit/create/delete	Done/Tested	YES	approved 21/05/2023
User should be able manage rooms by controlling availability	Ability to mange room by availability	Done/Tested	YES	approved 22/04/2023
User should be able manage rooms by setting up price	Ability to manage room by price	Done/Tested	YES	approved 10/11/2022
User should be able take payment	Ability to take payment	Partially Done	YES	approved 24/05/2023
User should be able to make refund back to the card or other tender	ability to give return/refund	Mockup only	n/a	
User should be access the reports on service and regular bookings	Ability to access report	Done/Tested	YES	approved 24/05/2023
User should be able to run daily report with all changes on the last 24h	Ability to run daily reports	Postponed	n/a	

7.0 Conclusion and personal reflection

The development of the Conference Management System presented an intricate project, necessitating an approach that was both dynamic and responsive. As detailed in the preceding sections, the Agile SCRUM framework was adeptly employed to manage this project, driving its successful completion. The continual integration of testing within the development process further contributed to the project's success, ensuring the final product has at least basic features. In essence, this project underscores the potential of Agile approaches in delivering successful solutions in a complex and dynamic environment.

Time limitation posed a significant constraint, as we had to balance learning ASP.net and its implementation while progressing with the project. This dual focus required effective time management and adaptability. Communication among group members also presented difficulties due to the short timeframe. Limited communication hindered the exchange of ideas and coordination, which impacted our overall workflow. However, we made concerted efforts to mitigate this challenge by leveraging available collaboration tools and maximizing the opportunities for face-to-face discussions.

Despite these obstacles, we were able to overcome them by prioritizing tasks, optimizing our learning process, and utilizing Scrum methodology to streamline our workflow. We made significant progress in developing the software artifacts, thanks to the determination and commitment of the team.

Reflecting on the project, it has provided us with valuable insights into managing time constraints, learning while implementing, and the importance of effective communication. These experiences will undoubtedly benefit us in future projects where similar challenges may arise.

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