

SOM Automation System

(Signals Officer Mess Automation System)



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Engineering

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CERTIFICATE

Certified that the contents and form of project report entitled “**SOM Automation System**” submitted by Capt Saad Rehman, Capt Hammad Hassan and Capt Syed Waqar ul Hassan have been found satisfactory for the requirement of the degree.

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ABSTRACT

The Signal Officer Mess Automation System will help the guests and residents of Signals Officers Mess to reserve rooms and other facilities of the room. The core part of the project is the SMS alert and billing automation system. There are three types of the end users for this Signals Officers Mess Automation System. The first ones are the Guest Room NCO who uses the system for the reservation purposes. The other end users are the admin user and the Mess Staff Including Mess Secy users who are given separate authentication to the Signals Officers Mess Automation System.

Mess Secy and staff users will be able to log onto the system from computers within the SOM Automation System. The user interfaces displayed in this document will reflect the screens that will be seen when using the system computers. The user login will be the same for all types of users. The access control function will determine the level of access based on the user type. The user type will be triggered by the user ID, and the appropriate menu will be displayed. The following screen will be displayed for the initial login to the system.

DECLARATION

No portion of the work presented in this dissertation has been submitted in support of any other award or qualification either at this institution or elsewhere.

DEDICATION

In the name of Allah, the Most Merciful, the Most Beneficent To our parents and Supervisor, without whose unflinching support and Cooperation, a work of this magnitude would not have been possible.

ACKNOWLEDGMENTS

There is no success without the will of ALLAH Almighty. We are grateful to ALLAH, who has given us guidance, strength and enabled us to accomplish this task. Whatever we have achieved, we owe it to Him, in totality. We are also grateful to our parents and family and well-wishers for their admirable support and their critical reviews. We would like to thank our supervisors **Col Dr. Adnan Ahmed Khan**, for their continuous guidance and motivation throughout the course of our project. Without their help, we would have not been able to accomplish anything.

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CHAPTER 1
INTRODUCTION

1 Introduction

The Mess Automation System will help the guests and residents of Signals Officers Mess to reserve rooms and other facilities of the room from anywhere in the country. The core part of the project is the SMS alert and billing automation system. There are three types of the end users for this Signals Officers Mess Automation System. The first ones are the customer who uses the system for the reservation purposes. The other end users are the admin user and the management users who are given separate authentication to the Signals Officers Mess Automation System.

1.1 Purpose

The purpose of this document is to present a detailed description of SOM Automation System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external input.

1.2 Problem domain

The Problem domain for our project was simple, as the Fees were earlier generated on a manual system. A Clerk was filling all the fees bills which takes time and is a hectic work for him to do and bit tedious as well. There are lot of chances of error in this. For the Error Correction and for the ease of the Mess Staff we have developed such system which will automate the Signal Officer Mess and Guestroom along with it.

1.3 Motivation

Main Motivation included two of the main points such as:

- Saving Time of the Mess Staff
- Providing Easy to Use System
- Booking Guests will be quite easier
- Generating SMS Which is a handy tool now a day to send acknowledgement.
- Adding Officers Data one time only for future use.

1.4 Goals and objectives

1.4.1 Goals

The main goal of the project is to design a scalable and extensible system for managing the mess activities. The system will be designed with the user-centric approach that will ensure that the user requirements mentioned in the documents must be full filled and must conforms to the required standards. The new proposed system will operate efficiently by eliminating all the time-consuming issues and provides a better and much enhanced services to the customers as well as the management and staff of the Signals Officers Mess. The proposed software is versatile-platform software such that it will work in all the operating systems.

1.4.2 Objective

Provide a web based interface through which users (Mess Secy, Guest Room NCO and Admin) can login from the system and generate Bills of the Officers, Manage and Book Guestroom and Send SMS to Particular

User. Along with that the Admin Can Add Any Officers and Users to the System and assign roles to them.

1.5 Deliverables

Deliverable Name	Deliverable Summary Description
Software Requirements Specification(SRS) Document	Complete Description of WHAT system will do, who will use it. Detailed description of functional and non-functional requirements and system features.
Analysis Document	Detailed requirement analysis and analysis models are included.
Design Document	Complete description of How the system will do. Design models are included.
Code	Complete code with the SQL Database.
Testing Document	Whole system is tested corresponding to the specifications. System is tested at all levels of Software Development Life Cycle (SDLC).
Complete System	Complete working system.

Table 1 Deliverables

1.6 System overview

The software to be produced is a Mess Automation System which will help the customers of Signals Officers Mess to reserve rooms and other facilities of the hotel from anywhere in the country. The core part of the project is the reservation and the booking system to keep track of the reservations and room availability. This will be explained in detail in '3 – Functional Requirements' section. There are three types of the end users for this Signals Officers Mess Automation System. The first ones are the customer who uses the system for the reservation purposes. The other end users are the admin user and the management users who are given separate authentication to the Signals Officers Mess Automation System.

The booking module is used to reserve Signals Officers Mess rooms. The guests can book the rooms through online or through phone or in person. The guests need to enter their personal details. When the guests book the room through telephone or in person, the staff members of the Signals Officers Mess Automation System need to enter the customer details by logging to employee modules with corresponding authorization.

CHAPTER 2
LITERATURE REVIEW

2 Literature Review

2.1 Limitations

We have used both structured analysis as well as object oriented analysis for the development of this Software Requirement Specification document. Analysis can be defined as understanding the business needs as well as processing the requirements. We have designed the structural chart, Data Flow Diagram and Entity Relationship diagram for the structured analysis of the project. Similarly, we have developed Class Diagrams, Use case diagrams and Activity diagrams for the Object-Oriented view of the project.

The structured analyses make the project into a small, well defined set of activities and specify the sequence and interaction between these activities. They give diagrammatic and other modeling techniques to give a precise idea on how to develop the system for the developers. One of the key tools used in the structured analysis is the Data Flow Diagrams. The data flow diagrams will help to identify the flow of data within an application and how the data moves between different processes in the system. A Data flow diagram will show what information will be input to the system and what information will be output from the system, where the data will come from and where it is stored and how the flow and control of data will go from one process to another. The Entity Relationship diagram will help to identify the different entities in the system and how it will be

interacting with other entities in the system. The Activity diagram defines the major activities that are happening in the system.

2.1.1 Limitations of Manual fees generation and Guest Room Booking

The group will be documenting all the stages in the software development life cycle. All the documents will be created according to Signals Officers Mess staff. The documents will be kept with us and all the changes made to the documents will be tracked and maintained. These documents can be used by the Project team members as a reference for future modifications.

CHAPTER 3
SOFTWARE REQUIREMENT
SPECIFICATION

3 Purpose

3.1 Project Scope

The software to be produced is a Mess Automation System which will help the customers of Signals Officers Mess to reserve rooms and other facilities of the hotel from anywhere in the country. The core part of the project is the reservation and the booking system to keep track of the reservations and room availability. This will be explained in detail in '3 – Functional Requirements' section. There are three types of the end users for this Signals Officers Mess Automation System. The first ones are the customer who uses the system for the reservation purposes. The other end users are the admin user and the management users who are given separate authentication to the Signals Officers Mess Automation System.

3.2 Overall Description

The booking module is used to reserve Signals Officers Mess rooms. The guests can book the rooms through online or through phone or in person. The guests need to enter their personal details. When the guests book the room through telephone or in person, the staff members of the Signals Officers Mess Automation System need to enter the customer details by logging to employee modules with corresponding authorization.

3.2.1 Product Perspective

Functional requirements for the purposed system which define the fundamental actions of the system contain all the information of the software requirements for the development of the booking system for Signal Officer Mess Automation project.

3.2.2 Product Features

Following features are to be added in the product:

- Ability to Authenticate and Sign in of each Roles
- Ability to Generate Bills of Officers
- Ability to Print Bills of Officer
- Ability to Add / Edit Users, Guests and Officers Data
- Ability to Search any guest room
- Ability to Book a Guestroom

3.2.3 User Classes and Characteristics

Users shall include

- Mess Staff
- Guest Room NCO
- Administrator (Mess Secy)

3.2.3.1 Mess NCO Staff

Mess NCO Staff is responsible for the fees to edit and view it to confirm and acknowledge the data.

3.2.3.2 Guest Room NCO

Guestroom NCO is responsible for Booking the Guests. According to Rooms Available on different protocol.

3.2.3.3 Administrator

Administrator is responsible for adding any officer or user and assigning roles to the users.

3.2.4 Operating Environment

The server machine is expected to have Windows 7 or Later working along with MS SQL Server Management Studio.

The client machine however just requires a web browser and an internet connection. It requires client to have a compatible browser preferably Mozilla Firefox 11.0 and any operating system is supported. The project does not require client to have any advanced computing machine.

3.2.5 Design and Implementation Constraints

- The project should be completed within specified time period including Planning, Designing, Development, Testing and Deployment.
- The Requirement Traceability Matrix (RTM) should be correlated and completed.
- The product should be user-friendly, reliable and should maintain the mess standards without compromising the quality.
- The system architecture and design should be open and in a standard way such that additional functionalities can be added later without much effort.
- The consultation with the Signals Officers Mess staff regarding project development comes at no cost to the project.

3.3 System Features

Mess Secy and staff users will be able to log onto the system from computers within the SOM Automation System. The user's computers will access the system via a LAN connection. The user interfaces displayed in this document will reflect the screens that will be seen when using the system computers. The user login will be the same for all types of users. The access control function will determine the level of access based on the user type. The user type will be triggered by the user ID, and the appropriate menu will be displayed. The following screen will be displayed for the initial login to the system.

The major features of the software end product shall include following:

3.4 External Interface Requirements

3.4.1 User Interfaces

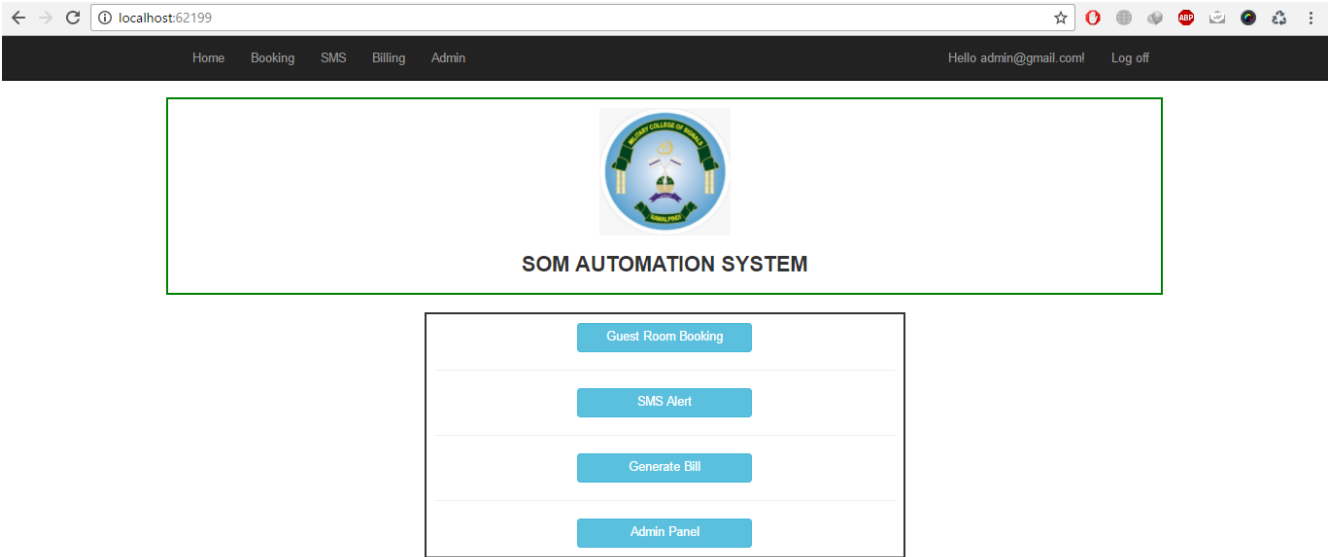


Figure 1: Homepage

3.4.2 Hardware Interfaces

Here is some requirement of project which relates to the client side and server side, is defined below. It just explains necessity of some hardware and software to perform a project task.

CLIENT SIDE	SERVER SIDE
Windows 7 or Later	SQL Server Management Studio
Mouse	512 MB RAM
Keyboard	Network Interface Card
Network Interface Card	
128 MB RAM	
32-bit color display	
1024x768 standard	

Table 2 Interface Requirements

3.4.3 Software Interfaces

3.4.3.1 Client End minimum configuration

Scripting language: C# .NET, HTML

Browser: All browsers from IE 11 and onwards to Firefox and Google Chrome.

3.4.3.2 Server end minimum Configuration

Database: MSSQL

Scripting Language: SQL

3.4.4 Communications Interfaces

The client shall access the web interface (website) through the HTTP protocol and interact with this application only through the said web-interface.

3.5 Nonfunctional Requirements

3.5.1 Performance Requirements

Response time of Server on request from Desktop Application must not exceed 30 sec.

Desktop App should not take more than 15sec in processing and sending the data to Server.

3.5.2 Safety Requirements

Failure rate of application/transaction must not exceed 5 in 10,000.

MTBF (Mean Time between Failures) for server should be 1 week at minimum within 6 month of deployment. However, after 6 months of deployment MTBF must be 1 month.

MTRS (Mean Time to Restore Service) must be 2 hours' max for critical, 1 hour for major and 30 minutes for minor faults.

3.5.3 Security Requirements

Backups of directories shall be maintained automatically every day at least once. In case of Server failure application gets corrupted, it should not take more than 1 hour to install the application again and load the backup database.

3.5.4 Software Quality Attributes

The application shall be scalable for maximum possible Users.

Data of users older than 5 years' files and codes shall be discarded for better system performance.

System shall be flexible enough to cater future modifications.

System shall be modifiable if more features need to be added.

3.5.4.1 Reliability

The system will be secured from the outside attacks and unauthorized access. The system should be protected from all other outside premises.

3.5.4.2 Availability

A good system must recover easily from any kind of issues. This explains the importance of the data recovery software like the runtime Back up Data.

3.5.4.3 Maintainability

The system should be able to easily accept the changes. If any time something new is introduced to system, it is necessary that it can accept the changes easily.

3.5.4.4 Robustness

When we develop system, it should be created in a way which would support the extensibility. If a new customer or staff detail is to be added, the procedure should be easy and less time consuming, there can be also multiple functionalities added for doing it.

3.5.4.5 Usability

A new user must find the functions easily that he is looking for on the system. EXAMPLE: If a new customer wants to get information about the rooms and services, so these details should be categorized in a way which makes it easy for user to access them. The layout and performance of functionalities of the system should be pleasing to the user. For the administrator, the updating of the system should be easy and secure. The system should also look professional, representing the functionalities in a categorized manner.

CHAPTER 4

ARCHITECTURE AND DESIGN

4 Architectural Representation

4.1.1 Design Rationale

The different design models that were considered are mentioned below.

The primary problem was the dual nature of the Signal Officer Mess Automation System that is, it offers all the functionality of a basic website plus it also needs to actually execute code on hardware. In order to achieve this the problem was to bridge different technologies. The options available for this were

4.1.1.1 Login Function

This function is both for security and to control the user's level of access.

This function requires the user's name, ID, and PIN. The user type is managed by the access control function. The system will verify that the user name, ID, and PIN are all correct before allowing access to the system. If the information is not correct, the user will receive an error message requesting that the user try again. With a correct login, the user will be taken to the appropriate menu. The staff and mess secy will be able to login from any machine using the LAN connection. The administrator will be able to login via the LAN connection or, for data management operations, the administrator will be able to logon to the actual server. Access time for account validation and determination of user access is expected to be no more than one second via the LAN connection.

4.1.1.2 Staff Function

This function will let the user to take the orders for the booking of the guestrooms, reservation of the guestrooms, generate the monthly billing of the residents of the mess and the temporary guests. Generation of the SMS alert and reminders for the pending bills of the residents and guests is also the responsibility of the staff function. Staff will be responsible for the updation of the record and maintenance of the old record as well.

4.1.2 Basic Architecture

4.1.2.1 Architectural Design

The basic requirement for Signal Officer Mess Automation System is to provide a web interface that allows its users to generate bills and book guest rooms easily. In order to achieve these goals the design depends upon a multi-tier client server architecture pattern.

Signal Officer Mess Automation System is a multi-tier web application that is divided into 3 major modules.

- A web interface including a 3-tier SQL server.
- A Twilio SMS service available only to the frontend service.
- A C# Execution module which provides service to the SQL Server.

4.1.2.2 Description

4.1.2.2.1 A web interface including a 3-tier SQL server

This shall provide a website interface through which the users shall interact with the system. It shall be a 3-tier web server in C# .NET utilizing the MVC (Model View Controller) architectural pattern. Thus, it shall comprise of 3 subsystems or layers i.e Model, view and controller.

Underneath the model shall be an SQL database for storing user information.

4.1.2.2.2 A Twilio SMS service available only to the front-end.

This shall be an Online SMS server that shall be responsible for handling the data and management for the Officers available in the system. The SQL server would interact with this server through invoking a small module that shall send a SMS request to this server. The Twilio SMS server shall then designate a SMS to carry out the request and send a 'SMS' to the officer.

This server allows the system to separate the web and application portion of Signal Officer Mess Automation System and thus allows the SQL server to operate independently.

4.1.2.2.3 C# .NET execution module

This shall be a small server module that shall provide the service of executing a job to the SQL server. It shall be deployed on each machine that has an Officer available for Signal Officer Mess Automation System. Each of the instance of this module shall register itself with the SQL server on startup. This module is responsible for executing a request using MVC Razor Blade and generating results in JQuery and CSHTML Views.

4.2 Architectural Goals and Constraints

- a separate back end capable of executing code upon hardware
- a web interface as a front end that remains available to the users for access
- displaying results to the user in a meaningful format

- provide user management
- A reliable link between the backend while keeping the dependencies to a minimum.

4.2.1 Throughput

Throughput is to be limited by the number of available CPU because a every job request needs to executed exclusively in order to ensure the accuracy of the results.

4.2.2 Hardware

The hardware required is a Pentium IV or later which have a SQL Server Installed for testing.

4.3 Use Case View

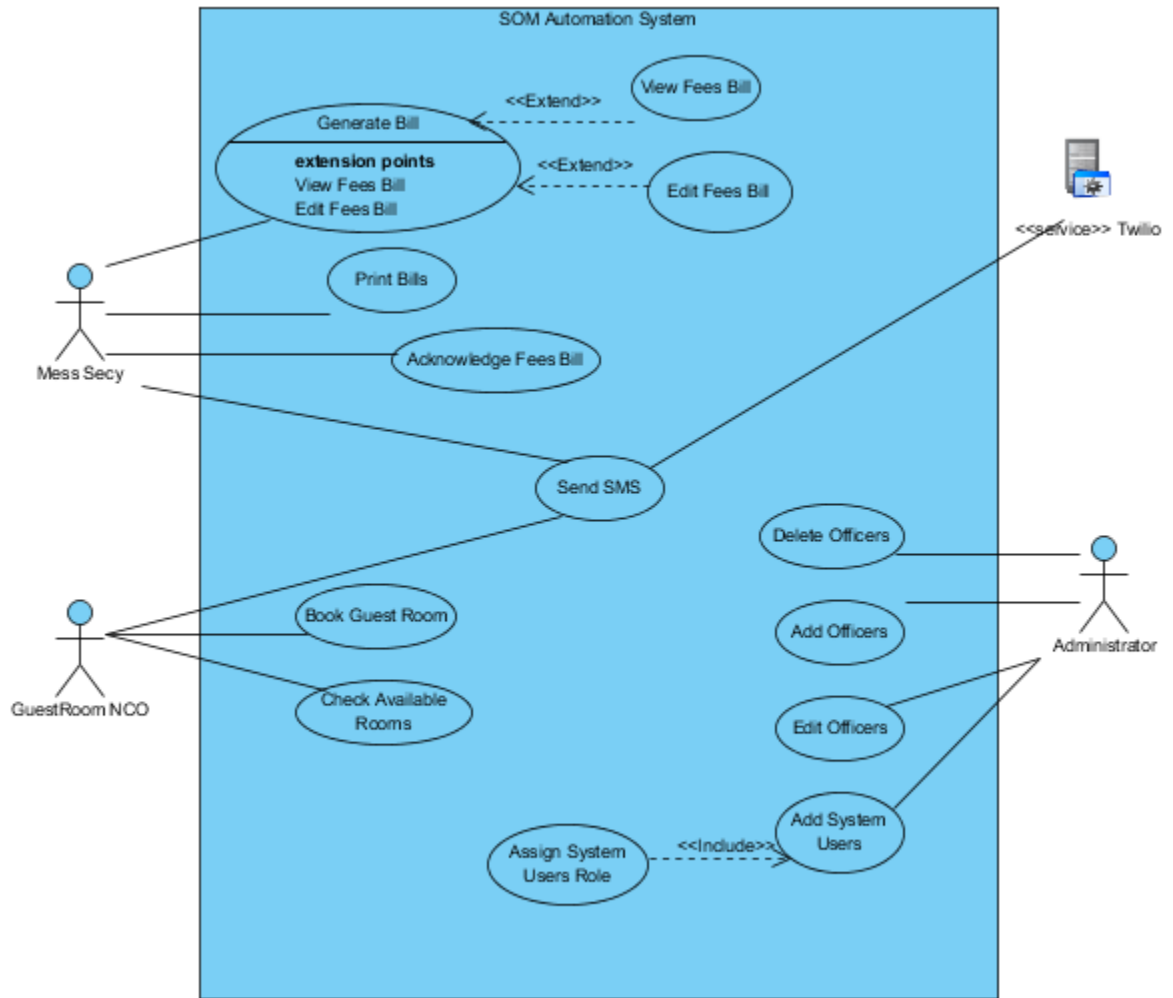


Figure 2 System Use Case Diagram

4.4 Entity Model Diagram

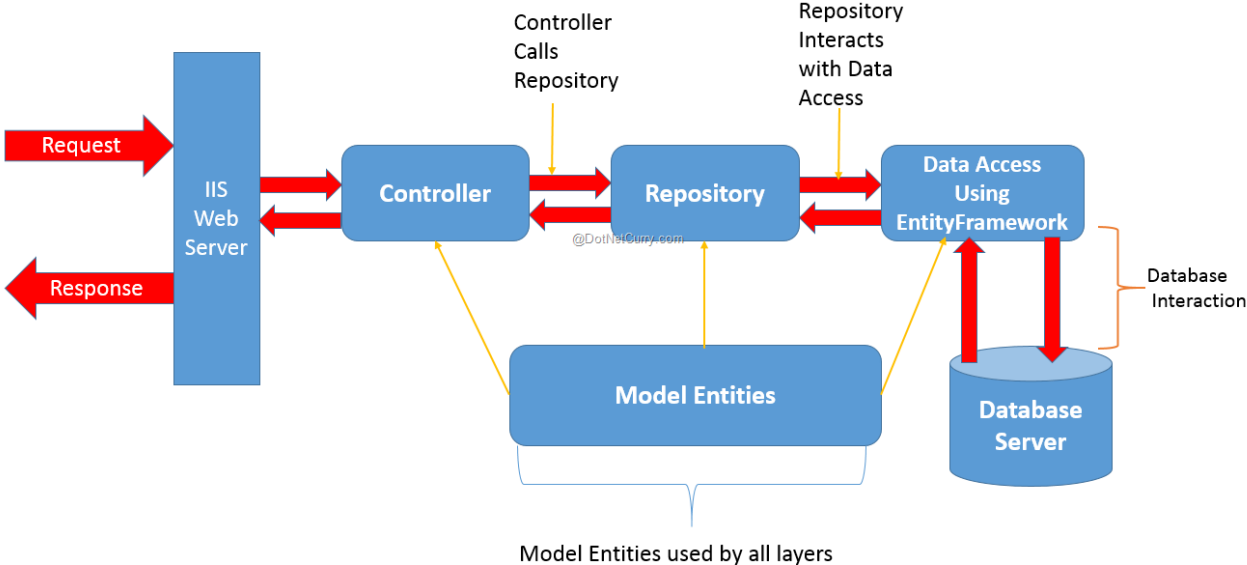


Figure 3 Entity Model Diagram

4.5 Class Diagrams

4.5.1 Class Diagram Web Project

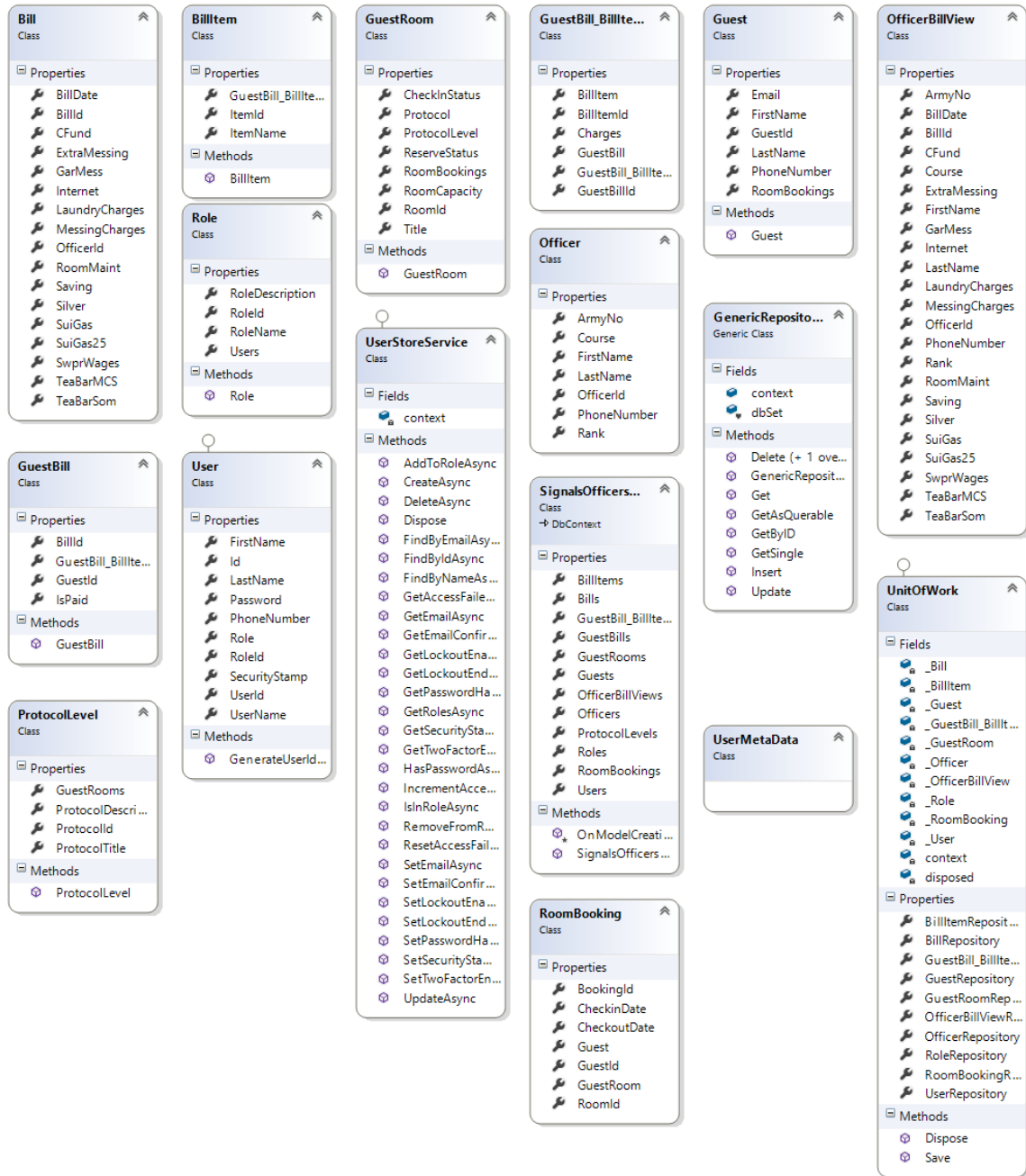


Figure 4 Web Project Class Diagram

4.5.2 Class Diagram Core Project



Figure 5 Class Diagram Core Project

4.5 Controller Class Diagram

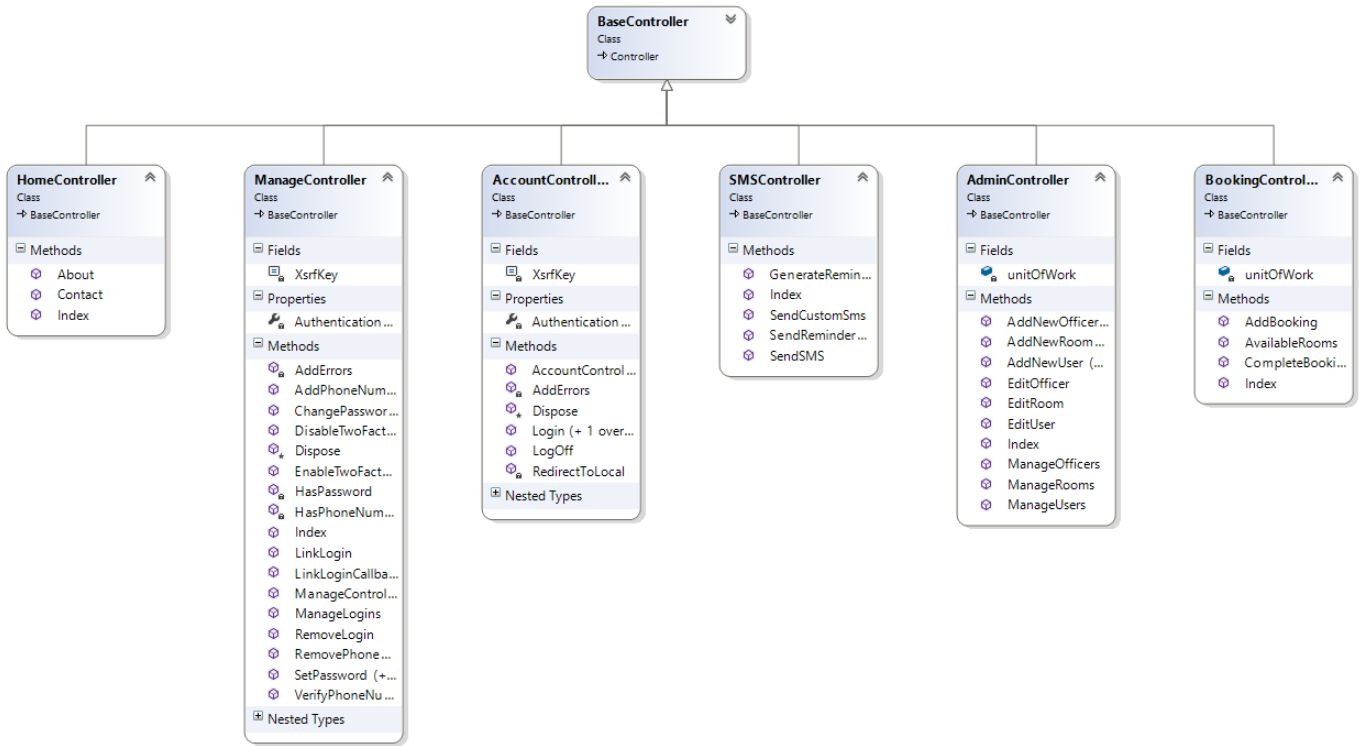


Figure 6 Controller Class Diagram

4.5 Entity Relationship Diagram

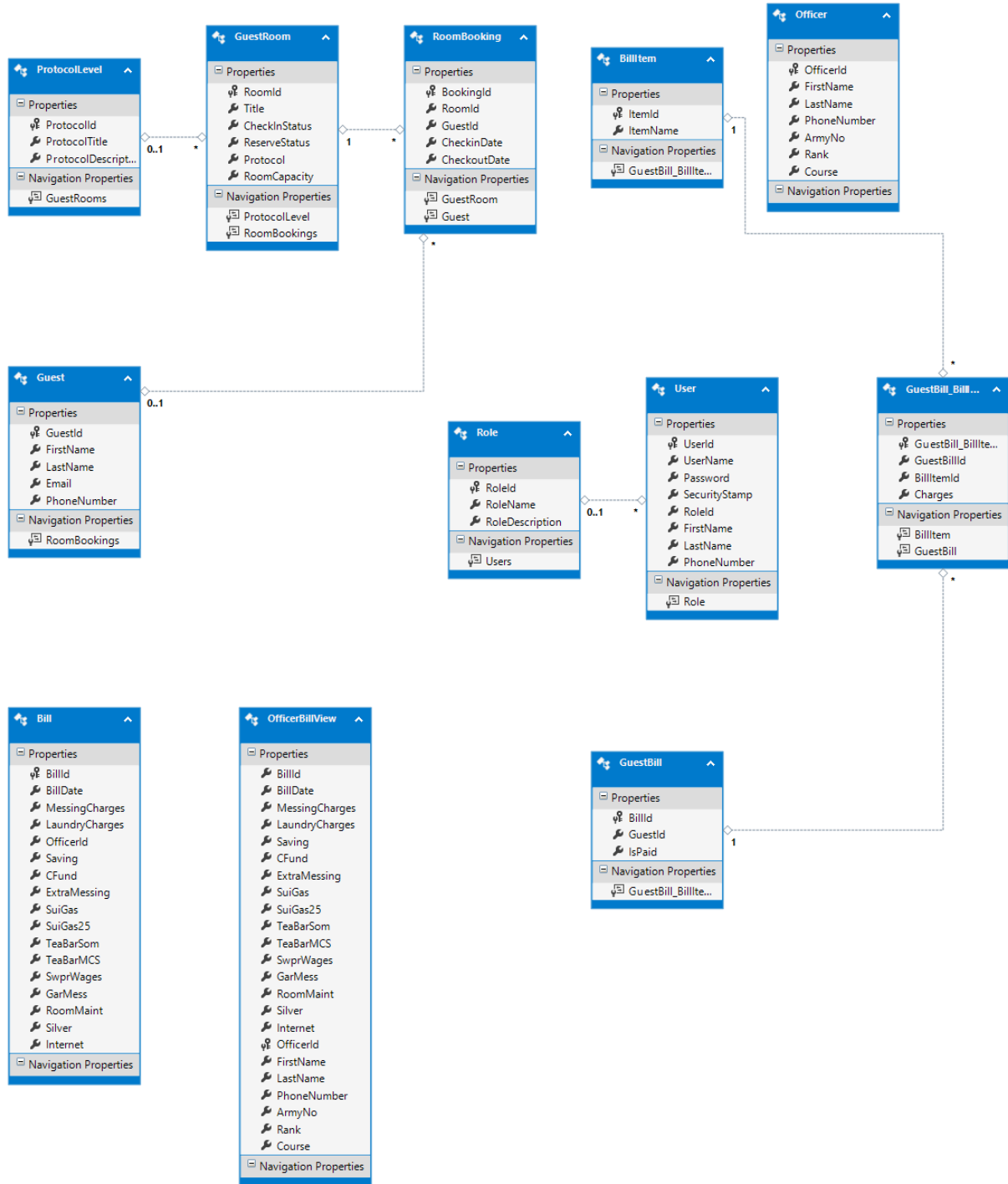


Figure 7 ER Diagram of SOM System

4.8 Package Diagram

The Overall Package Diagram Include Following Packages and Also an Overall System Administrator which is handling these packages.

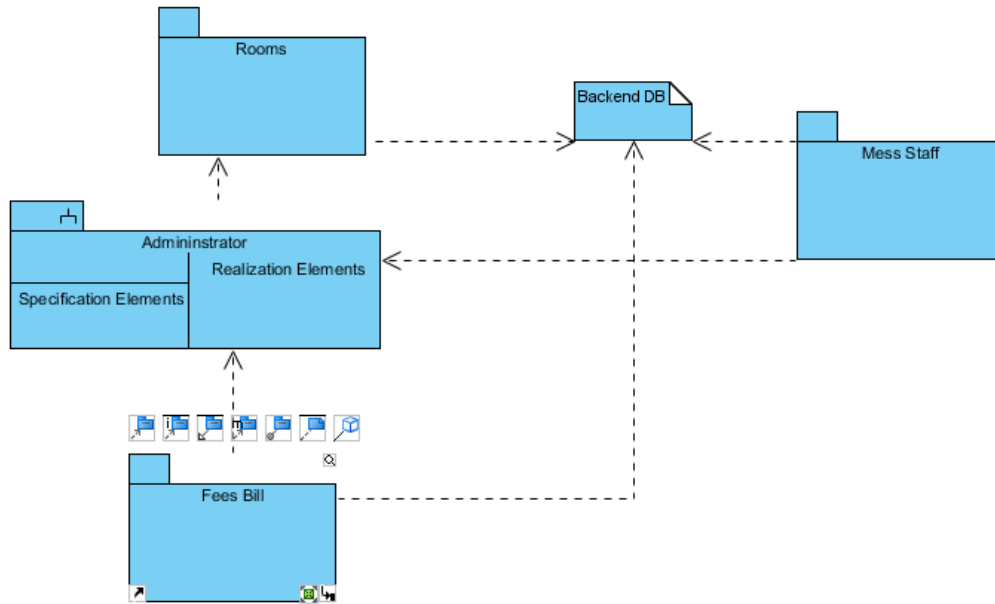


Figure 8 Package Diagram

4.9 Activity Diagram

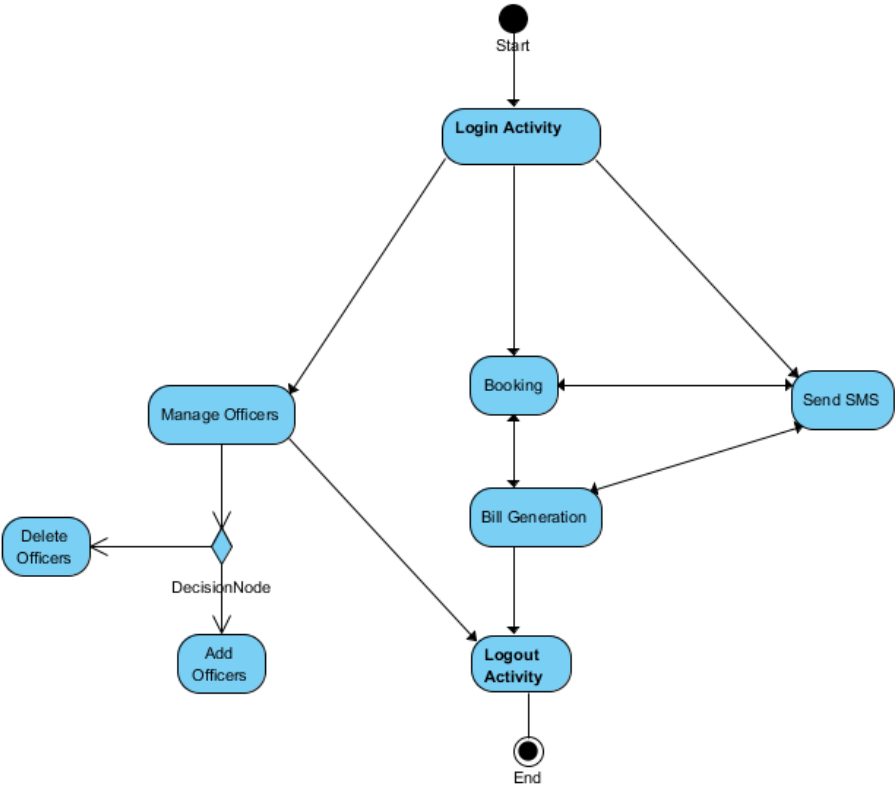


Figure 9 Activity Diagram

4.10 Communication Diagram

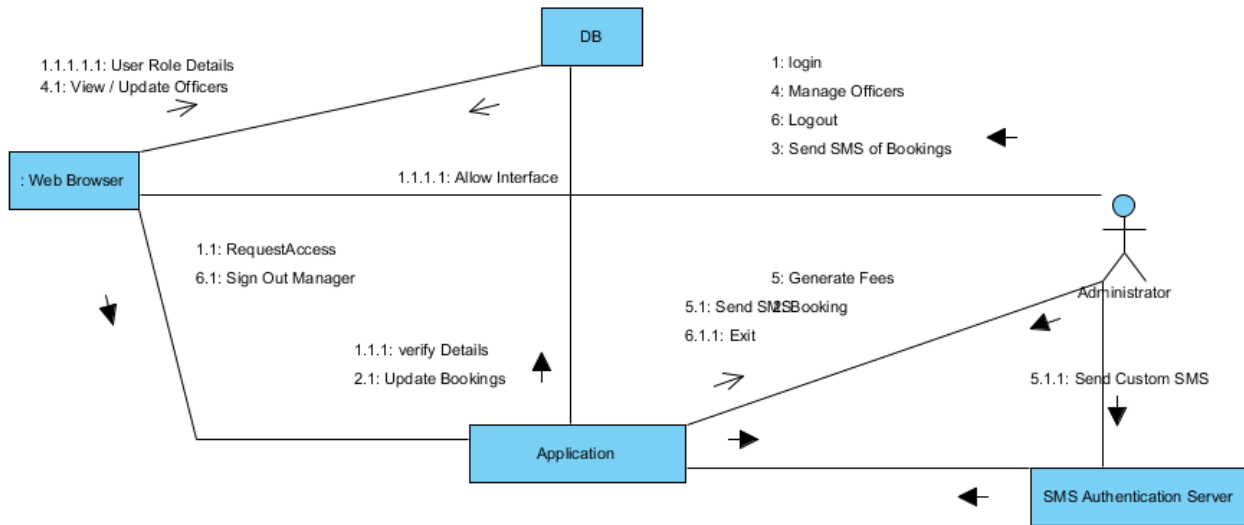


Figure 10 Communication Diagram

4.11 Sequence Diagram

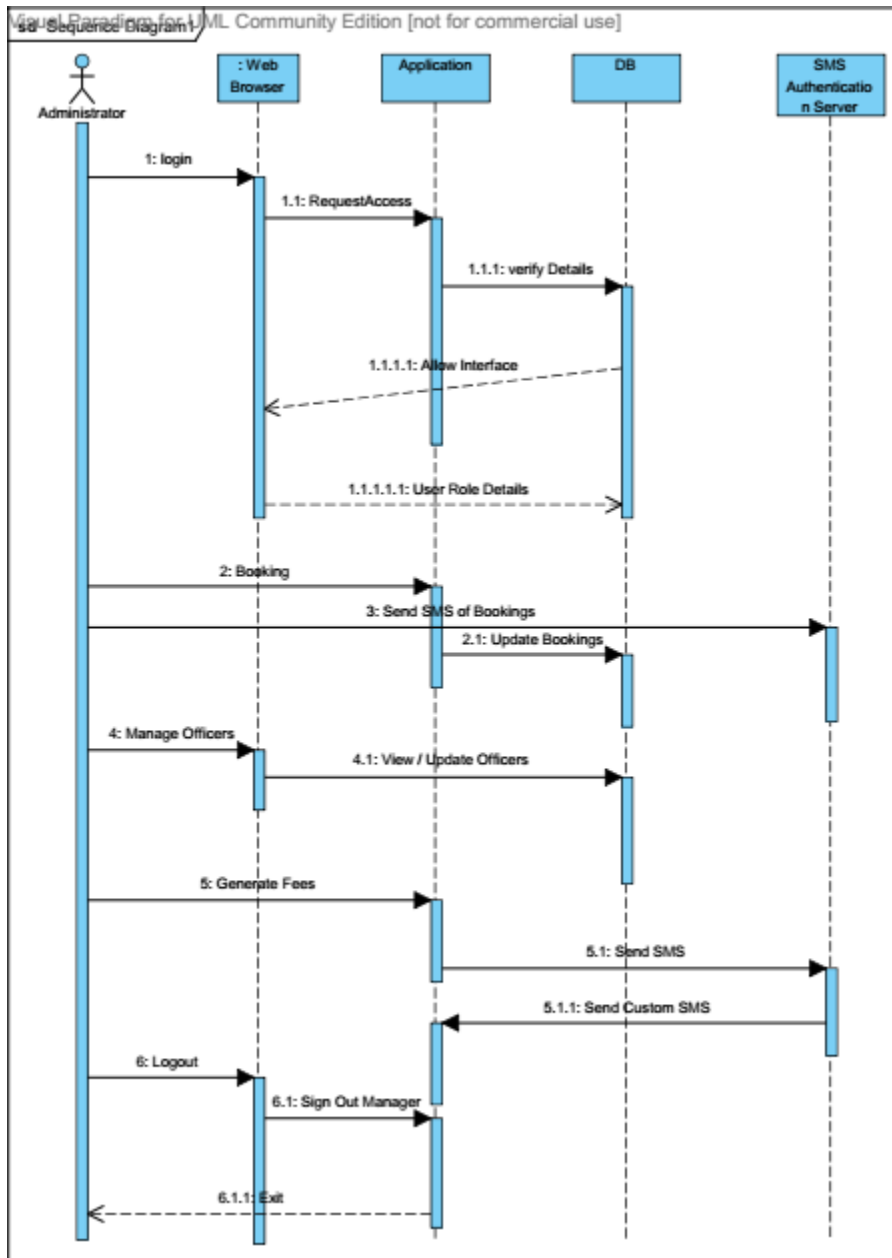


Figure 11 Sequence Diagram

4.7 Responsibilities

4.7.1 C# .NET Controller

This is the business logic component of the web server that utilizes the MVC architectural pattern. It is responsible for managing the user management constraints as well as forwarding the user's job requests to the SQL Server Module.

4.7.2 C# .NET Model

This is the data management component of the web server that utilizes the MVC architectural pattern. It is responsible for providing an interface for the Database to the controller and hiding the lower level detailed queries.

4.7.3 C# .NET View

This is the view and display management component of the web server that utilizes the MVC architectural pattern. It comprises of a set of views that the controller can demand as required and then can be displayed to the user.

4.7.4 Communication module

This module is to allow the C# .NET controller module to send a request to the SQL Server module.

4.7.5 Entity Framework Model Module

The Entity Framework Model module separates the request management details from the SQL server. It allows multiple instances of Communication

Module to register themselves. Then registered servers are given requests to execute and return the results.

4.7.6 Twilio Module

It is responsible for executing the SMS requests via gateway through invoking a SMS controller. Also, it must acquire the details of the on-board Officers upon Send SMS and then send a SMS to the particular Officer.

CHAPTER 5
IMPLEMENTATION

5 System Implementation

5.1.1 Programming Language:

C# .NET is used as programming language to develop the System. CSHTML which is an extension of HTML used for web development for Views and for maintaining the database SQL language is used.

We have used MVC Architecture to implement the system.

5.1.2 Development Tools:

Visual Studio 15 Community Version with Entity Framework Model is used for the development of the application and Dreamweaver is used for website development.

5.1.3 Database:

Databases were developed and managed in MS SQL Server Management Studio.

5.1.4 Operating System:

On server side, MS SQL Server is used while the server backend has been tested with windows as an operating environment, while website application is tested on all browsers of Microsoft windows.

5.1.5 Complete System Implementation:

- 1. Generate Bills Module**
- 2. Guest Room Module**
- 3. Add Users/Officers Module**
- 4. SMS Module**

CHAPTER 6
TESTING AND EVALUATION

6 System Testing

6.1 Test Case 1

Test Case Name	Authenticating Roles (Signing in of different Roles)
Test case no	1
Description	This module will authenticate the roles. Different Roles such as Mess NCO, Mess Secy, Guestroom NCO and Administrator can log into the System using login email and password.
Testing Technique Used	Black Box testing
Preconditions	Database should be running
Input Values	Fill the login details such as Email and Password
Steps	<ul style="list-style-type: none">• Fill the Email and Password• Click "Login" button
Expected Output	System will take the User to Homepage of the Web Application
Actual Output	System authenticates each sign in using the Database Entity "Users"
Status	Pass.

Table 3 Test Case 1 Authenticating Roles

6.2 Test Case 2

Test Case Name	Generate Bill
Test case no	2
Description	This module will let the Mess NCO and Guest Room NCO generates Billing of Officers. We have shown a Data Grid to Input the Bills into each field.
Testing Technique Used	White box testing
Preconditions	Roles of Mess NCO and Guest Room NCO is signed in to the System
Input Values	All the Officers Data such as Ranks, Name and Courses will be shown in the first three columns and other columns need to be filled in.
Steps	All the required fields (Columns of Bill) are filled
Expected Output	Data will be entered into the database against each Officer which might later on use for Printing and Sending SMS.
Actual Output	Bills are generated each against the Officer
Status	Pass.

Table 4 Test Case 2 Generate Bills

6.3 Test Case 3

Test Case Name	Print Bills
Test case no	3
Description	This module will get the Bills generated against each officer and then by clicking on Print Bill It will print the Bill in the format.
Testing Technique Used	Black Box testing
Preconditions	Data should be present in the database to be printed
Input Values	Filled Values in the Column of Bills.
Steps	Click Print Button
Expected Output	Getting a Print Sheet which is dispatched to the printer to get print.
Actual Output	Print Sheet is printed through the printer.
Status	Pass.

Table 5 Test Case 3 Print Bills

6.4 Test Case 4

Test Case Name	Edit Users, Guests and Officers Data
Test case no	4
Description	This module will be selected when an Administrator is logged in and Administrator can edit the Users and define their Roles, along with that Administrator can also edit Guest rooms and Add Officers to the System.
Testing Technique Used	Black Box testing
Preconditions	Data should be present in the database
Input Values	Users fields, Guests Data and Officers Data
Steps	Click on Edit Officers, Edit Guest Room and Edit Users.
Expected Output	Data will be edited in the Database and the System itself.
Actual Output	Data is edited in the table.
Status	Pass

Table 6 Test Case 4 Edit Users/Guests/Officers

6.5 Test Case 5

Test Case Name	Search for Guest Rooms
Test case no	5
Description	This feature allows searching the database through guest rooms and returning a list of rooms which are available.
Testing Technique Used	Black Box testing
Preconditions	Data should be present in the database
Input Values	Enter Capacity and duration of your stay.
Steps	Select Guest Room Booking. Enter Capacity and Check in and Check out date.
Expected Output	Data will be filtered through the database according to the selected filter/s the guest rooms will be returned on the view.
Actual Output	Data is filtered through the database according to the selected filter/s and the guest rooms list will be shown.
Status	Pass.

Table 7 Test Case 5 Search Guest Room

6.6 Test Case 6

Test Case Name	Book a Guest Room
Test case no	6
Description	This feature allows the user to select any guest room and Add the Booking to the particular guest room. After that the status of the Room is changed to Reserved and next time it will not be shown after the search guest room.
Testing Technique Used	Black Box testing
Preconditions	Data should be present in the database
Input Values	Select any guest room according to your need from a list of guest rooms available being shown to the Guest Room NCO.
Steps	After getting Lists of Guest Rooms. Select any guest room according to your need. Click on "Add Booking" Enter Your Details.
Expected Output	Booking will be added to that particular Guest Room.
Actual Output	Booking was added.
Status	Pass.

Table 8 Test Case 6 Book Guest Room

6.7 Test Case 7

Test Case Name	SMS
Test case no	7
Description	This feature allows the user to select any user and send the SMS in a particular content of fees.
Testing Technique Used	Black Box testing
Preconditions	Fees Data should be present in the database
Input Values	Select Any officer and send him an SMS with a pre-defined fees content or a reminder having a custom sms.
Steps	After Entering Data of Fees from the Table. Select any officer according to your need. Click on "Send SMS"
Expected Output	SMS will be sent to any officer having a Valid Phone.
Actual Output	SMS was sent.
Status	Pass.

Table 9 Test Case 7 Send SMS

CHAPTER 7

CONCLUSION AND FUTURE WORK

7 Future Work Conclusion

In Future, we can add different modules to the system and our Automation system will not just be bound to the Signal Officer Mess but it's scope can be increased to another level such as other Army Mess can use such automation system.

Also, this project will get live on the Signal Officer Mess so, adding another helpful module such as actual fees gathering module and sending or Auto Call Feature can be implemented. Right now, it being done with the Twilio SMS Authentication and service but later on it can be extended to the GSM Module which will come as a cheap solution for the army.

APPENDIX A-1
USER MANUAL

1. Reading Instructions

This user manual will describe the way in which SOM Automation System can be used.

It contains the instructions needed to utilize this software.

This system provides a user-friendly interface which allows you to efficiently interact with the system.

This Manual should be read in the order given.

2. Installation

The front end of this software is a website. Therefore, no particular Operating System is required.

Internet Explorer 9 or above, Mozilla Firefox or Google Chrome are required for the Website to work properly.

3. How to use the system

3.1 Hardware

SOM Automation System does not require its users to use specific hardware. System with an Internet connection is enough to carry out the job.

3.2 Dashboard

Operation of Dashboard of SOM Automation System comprises of following steps:

1. User Login

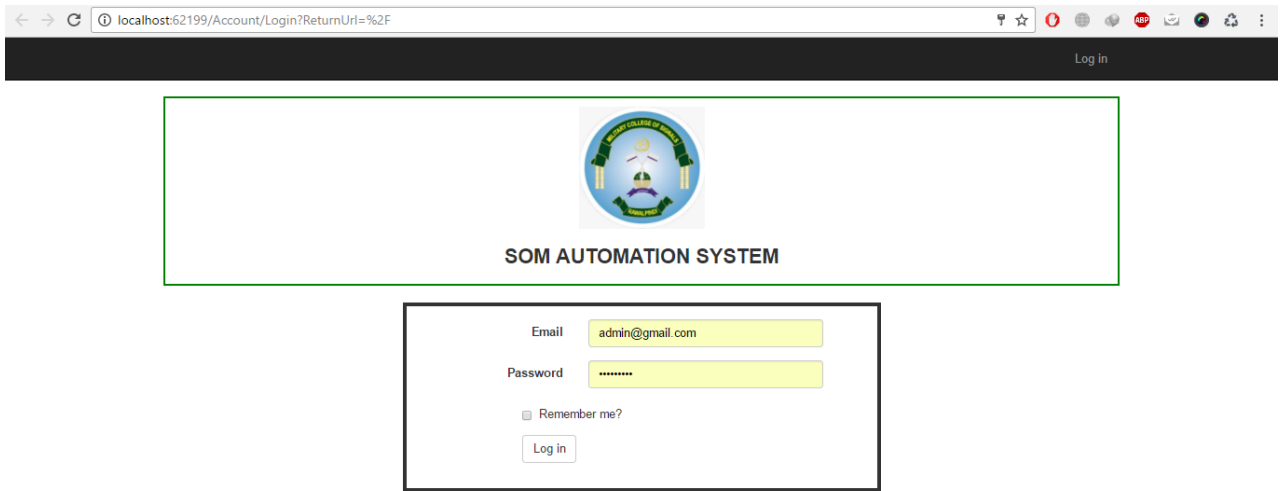



Figure 12 User Login Page

2. Generate Bills

Home Booking SMS Billing Admin Hello admin@gmail.com! Log off



SOM AUTOMATION SYSTEM

Billing																				
Army no	Rank	Name	Course	Saving	C/Fund	Messing	E/Messing	Sui Gas 20,25%	Sui G	Tea Bar	SC	Tea Bar	MC	Swpr	Laundry	Gar Mess	Room Main	Silver	Internet	
42639	Maj	Zeeshan	BESE-20																	
40416	Maj	Musharaf	BESE-20																	
47490	Capt	Haris	BESE-19																	
47371	Capt	Hafiz Muhar	BESE-19																	
47337	Capt	Saeed ur	BESE-19																	
46995	Capt	Azam	BESE-19																	
46926	Capt	Mohsin	BESE-19																	
46710	Capt	Saad	BESE-19																	
46348	Capt	Noman	BESE-19																	
45924	Capt	Hammad	BESE-19																	
45590	Capt	Zeeshan	BESE-19																	
45481	Capt	Haris	BESE-19																	
45430	Capt	Hafiz	BESE-19																	
45017	Capt	Haseeb	BESE-19																	
44855	Capt	Syed Waqar	BESE-19																	
44603	Capt	Faraz Salee	BESE-19																	
43551	Capt	Umer	BESE-19																	
42790	Maj	Kalim	BESE-19																	
42421	Maj	Ahmed	BESE-19																	
41706	Maj	Muhammad	BESE-19																	

Page 1 of 2 View 1 - 20 of 38

Print Single
Print All
Acknowledge

Figure 13 Generate Bills

3. Add Any Officer, or Roles to the System

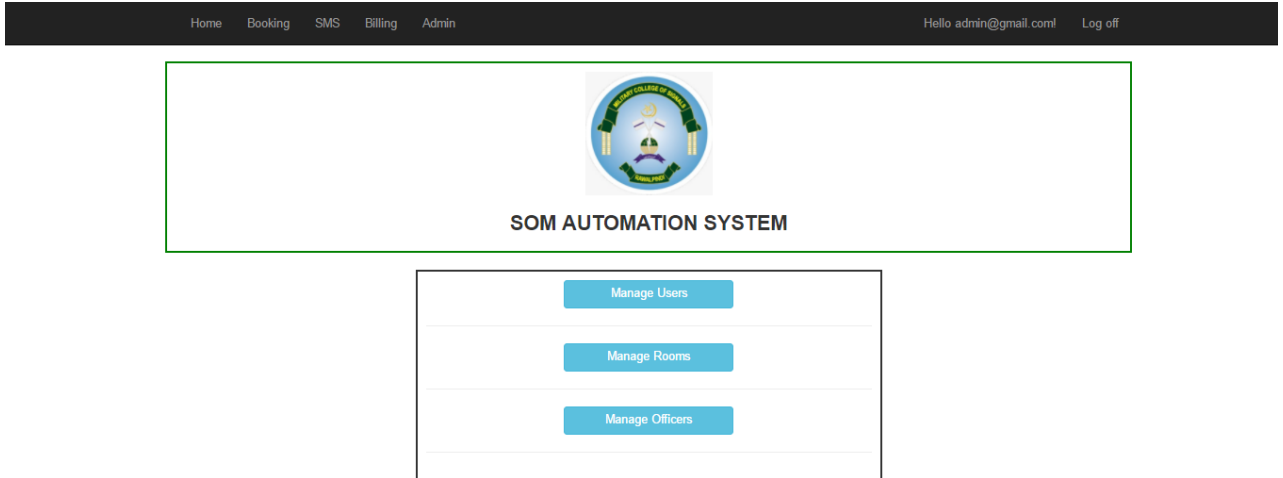



Figure 14 Add and Manage Officers Page

4. Manage Officers

Home Booking SMS Billing AdminHello admin@gmail.com Log off



SOM AUTOMATION SYSTEM

Manage Officers [Add Officer](#)


First Name	Last Name	Army No	Rank	Course	Phone Number	
Sardar Muhammad	Ali	41605	Maj	BESE-19	03028980138	Edit Officer
Muhammad Kashif	Majeed	41706	Maj	BESE-19	03212515226	Edit Officer
Ahmed	Ali	42421	Maj	BESE-19	03367088941	Edit Officer
Kalim	Ullah	42790	Maj	BESE-19	03466212184	Edit Officer
Umer	Riaz	43551	Capt	BESE-19	03335166349	Edit Officer
Faraz Saleem	Rafai	44603	Capt	BESE-19	03335284628	Edit Officer
Syed Waqar	Hassan	44855	Capt	BESE-19	03214931429	Edit Officer
Haseeb	Ahmed	45017	Capt	BESE-19	03336887251	Edit Officer
Hafiz	Asad	45430	Capt	BESE-19	03455370183	Edit Officer
Haris	Sohail	45461	Capt	BESE-19	03244068455	Edit Officer
Zeeshan	Ahmed	45590	Capt	BESE-19	03335718567	Edit Officer
Hammad	Hassan	45924	Capt	BESE-19	03325339665	Edit Officer
Noman	Jamil	46348	Capt	BESE-19	03435703593	Edit Officer
Saad	Rehman	46710	Capt	BESE-19	03215353668	Edit Officer
Mohsin	Ali	46926	Capt	BESE-19	03320414703	Edit Officer
Azam	Saeed	46995	Capt	BESE-19	03339665578	Edit Officer
Saeed ur	Rehman	47337	Capt	BESE-19	03006057843	Edit Officer
Hafiz Muhammad	Bilal	47371	Capt	BESE-19	03332494541	Edit Officer
Haris	Javaid	47460	Capt	BESE-19	03323015242	Edit Officer
Musharaf	Aslam	40416	Maj	BESE-20	03215959005	Edit Officer

1 2 »

Figure 15 Manage Officers Data

5. Manage Rooms.

Home Booking SMS Billing Admin Hello admin@gmail.com! Log off



SOM AUTOMATION SYSTEM

Manage Rooms [Add Room](#)

Room Number	Capacity	Protocol	Checked Id	
100	2	Regular	False	Edit Room
104	1	Regular	False	Edit Room
341	3	VIP	False	Edit Room

Figure 16 Manage Rooms Page

6. Send SMS



SOM AUTOMATION SYSTEM

Officers

Army No	First Name	Last Name	Rank	Course	Phone Number			
5	41605	Sardar Muhammad	Ali	Maj	BESE-19	03028980138	Send Custom Sms	Send Reminder Sms
6	41706	Muhammad Kashif	Majeed	Maj	BESE-19	03212515226	Send Custom Sms	Send Reminder Sms
7	42421	Ahmed	Ali	Maj	BESE-19	03367088941	Send Custom Sms	Send Reminder Sms
8	42790	Kalim	Ullah	Maj	BESE-19	03466212184	Send Custom Sms	Send Reminder Sms
9	43551	Umer	Riaz	Capt	BESE-19	03335166349	Send Custom Sms	Send Reminder Sms
10	44603	Faraz Saleem	Rafai	Capt	BESE-19	03335284628	Send Custom Sms	Send Reminder Sms
11	44855	Syed Waqar	Hassan	Capt	BESE-19	03214931429	Send Custom Sms	Send Reminder Sms
12	45017	Haseeb	Ahmed	Capt	BESE-19	03336887251	Send Custom Sms	Send Reminder Sms
13	45430	Hafiz	Asad	Capt	BESE-19	03455370183	Send Custom Sms	Send Reminder Sms
14	45461	Haris	Sohail	Capt	BESE-19	03244068455	Send Custom Sms	Send Reminder Sms
15	45590	Zeeshan	Ahmed	Capt	BESE-19	03335718567	Send Custom Sms	Send Reminder Sms
16	45924	Hammad	Hassan	Capt	BESE-19	03325339665	Send Custom Sms	Send Reminder Sms
17	46348	Noman	Jamil	Capt	BESE-19	03435703593	Send Custom Sms	Send Reminder Sms
18	46710	Saad	Rehman	Capt	BESE-19	03215353668	Send Custom Sms	Send Reminder Sms
19	46926	Mohsin	Ali	Capt	BESE-19	03320414703	Send Custom Sms	Send Reminder Sms
20	46995	Azam	Saeed	Capt	BESE-19	03339665578	Send Custom Sms	Send Reminder Sms
21	47337	Saeed ur	Rehman	Capt	BESE-19	03006057843	Send Custom Sms	Send Reminder Sms
22	47371	Hafiz Muhammad	Bilal	Capt	BESE-19	03332494541	Send Custom Sms	Send Reminder Sms
23	47460	Haris	Javaid	Capt	BESE-19	03323015242	Send Custom Sms	Send Reminder Sms
24	40416	Musharaf	Aslam	Maj	BESE-20	03215959005	Send Custom Sms	Send Reminder Sms

Figure 17 Send SMS Page

7. Send Reminder SMS

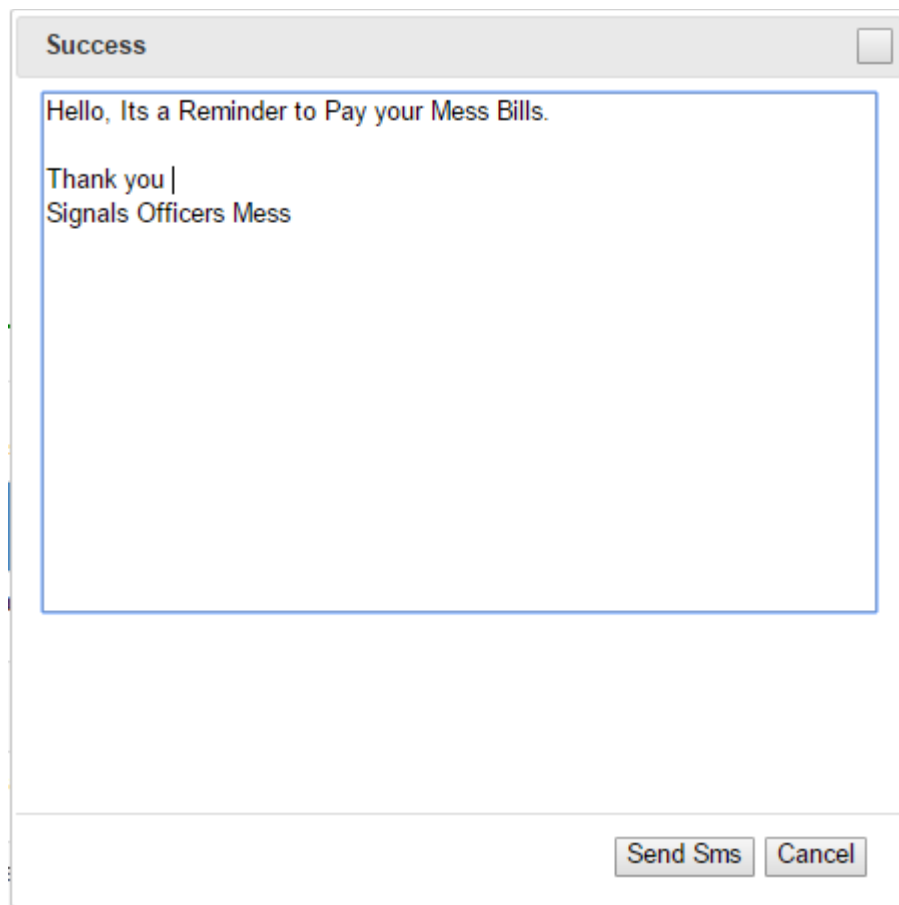


Figure 18 Custom SMS Popup Box

8. Send Automatic Generated Fee Bill Message

The image shows a software dialog box titled "Success" with a close button in the top right corner. The main area of the dialog contains a list of fee items and personal information. At the bottom right, there are two buttons: "Send Sms" and "Cancel".

Success


- SuiGas25: 0
- TeaBarSom: 0
- TeaBarMCS: 0
- SwprWages: 0
- GarMess: 0
- RoomMaint: 0
- Silver: 0
- Internet: 0
- FirstName: Sardar Muhammad
- LastName: Ali
- PhoneNumber: 03028980138
- ArmyNo: 41605
- Rank: Maj
- Course: BESE-19

Send Sms Cancel

Figure 19 Autogenerated SMS Popup Box

9. Booking Main Page

Home Booking SMS Billing Admin Hello admin@gmail.com Log off



SOM AUTOMATION SYSTEM

No Of Guestrooms


Checkin Date

Checkout Date

Figure 20 Booking Main Page

10. Search Rooms

Home Booking SMS Billing Admin Hello admin@gmail.com Log off



SOM AUTOMATION SYSTEM

Available Rooms

Room No	Capacity	Protocol	
100	2	Regular	Add Booking
104	1	Regular	Add Booking
341	3	VIP	Add Booking

Figure 21 Search Guestroom Page

11. Guest Details Room Book Checkout

The screenshot shows a web application interface for 'SOM AUTOMATION SYSTEM'. At the top, there is a dark navigation bar with links for 'Home', 'Booking', 'SMS', 'Billing', and 'Admin'. On the right side of this bar, it displays 'Hello admin@gmail.com!' and a 'Log off' link. Below the navigation bar, a green-bordered box contains the system's logo, which features a circular emblem with a crescent moon and star, and the text 'SOM COLLEGE OF BUSINESS' and 'SOM 1999'. Below the logo, the text 'SOM AUTOMATION SYSTEM' is centered. Underneath, it says 'Booking for Room No : 100'. The check-in and check-out dates are both listed as '4/30/2017 12:00:00 AM'. A form box contains four input fields: 'First Name', 'Last Name', 'Email', and 'Phone Number'. A 'Complete Booking' button is located at the bottom of the form box.

Figure 22 Guest Details Room Page

These steps are in order and they encapsulate the application logic.