AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)

FACULTY OF SCIENCE & TECHNOLOGY

SOFTWARE ENGINEERING

Spring 2023-2024

Section:H

Project Title: ABC Travel Agency

Supervised By

DR. RAJARSHI ROY CHOWDHURY

Submitted By

Name	ID
SHA MOHAMAD YEAHIA IDRIS	22-46787-1
MD YEASIN NEWAZ	22-46803-1
MD. RIYADH ULLAH	22-47725-2
SHUSMITA ANJUM AZIZ	22-47733-2
MD. MINHAJUN NABI SHIAM	22-47830-2

Date of Submission: 02 May, 2024

Description of Student's Contribution in the Project work

Student Name: SHA MOHAMAD YEAHIA IDRIS
Student ID: 22-46787-1
Contribution in Percentage (20%):
Contribution in the Project:

- Exercise 5-10

_____Idris_____
Signature of the Student

Student Name: MD YEASIN NEWAZ
Student ID: 22-46803-1
Contribution in Percentage (20%):
Contribution in the Project:

- Exercise 5-10

_____Yeasin_____
Signature of the Student

Student Name: MD. RIYADH ULLAH
Student ID: 22-47725-2
Contribution in Percentage (20%):
Contribution in the Project:

- Exercise 5-10

_____Riyadh_____
Signature of the Student

Student Name: SHUSMITA ANJUM AZIZ
Student ID: 22-47733-2
Contribution in Percentage (20%):
Contribution in the Project:

- Exercise 5-10

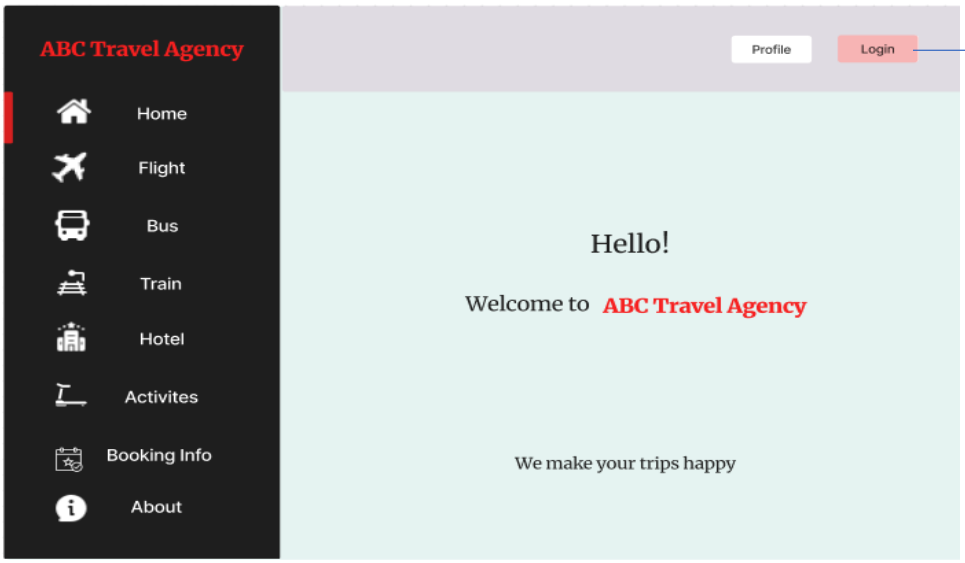
_____Shusmita_____
Signature of the Student

Student Name: MD. MINHAJUN NABI SHIAM
Student ID: 22-47830-2
Contribution in Percentage (20%):
Contribution in the Project:

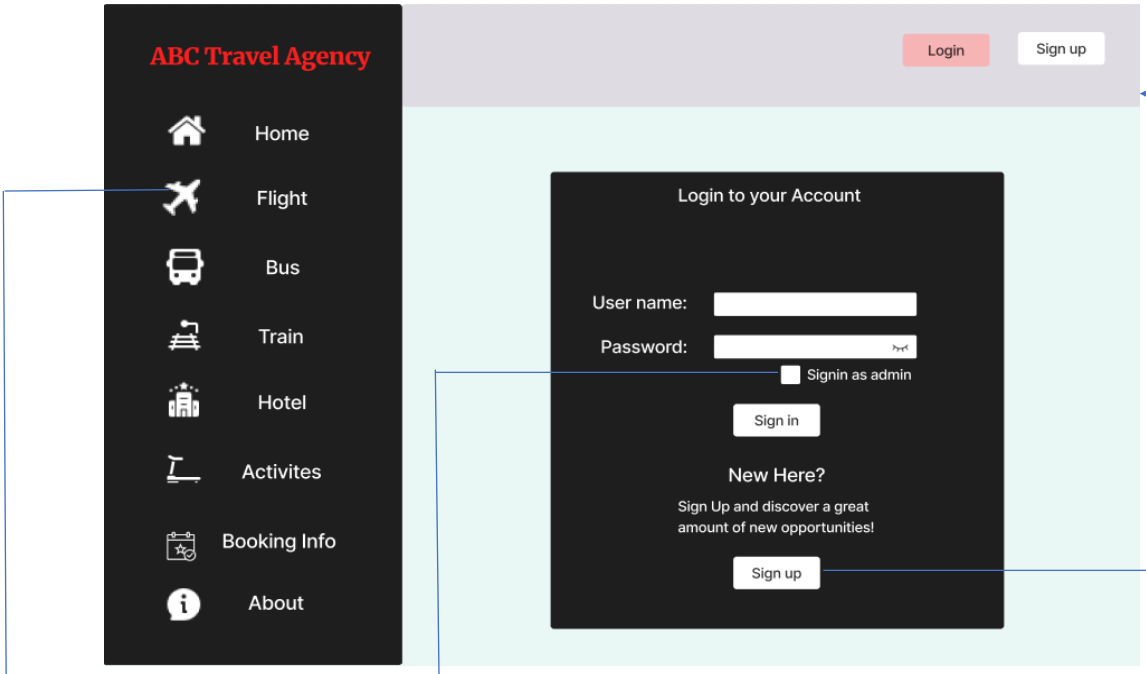
- Exercise 5-10

_____Shiam_____
Signature of the Student

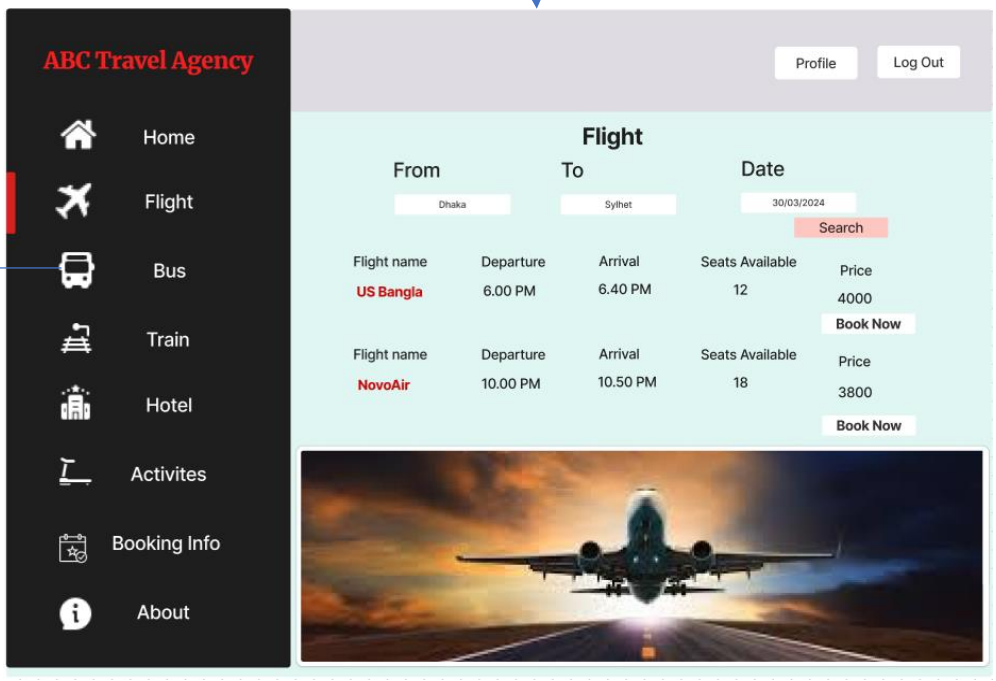
Exercise -5: UI/UX Design



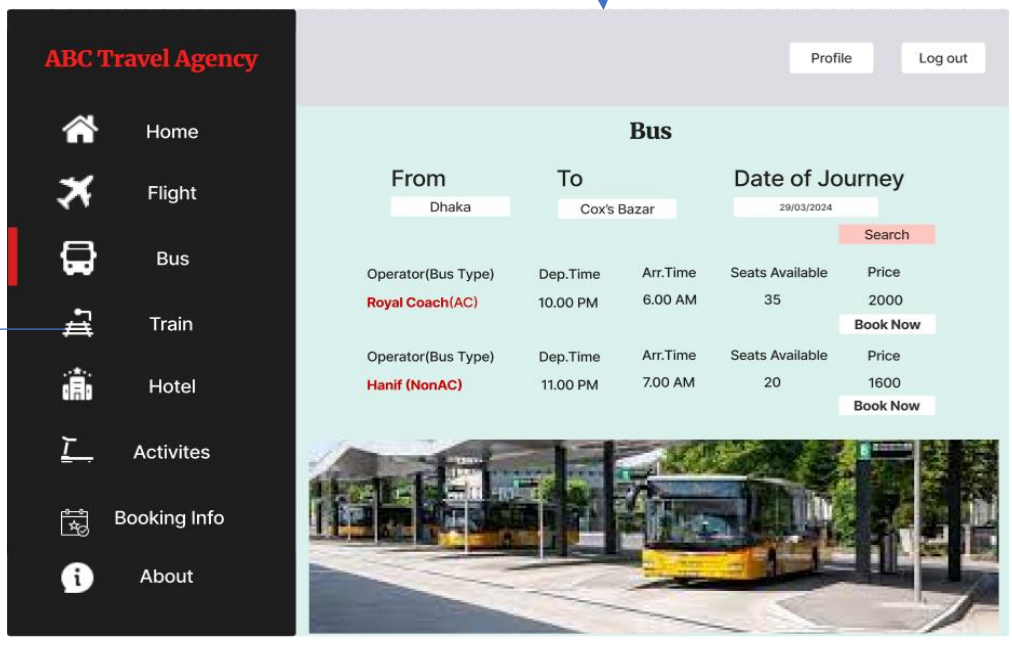
(1)



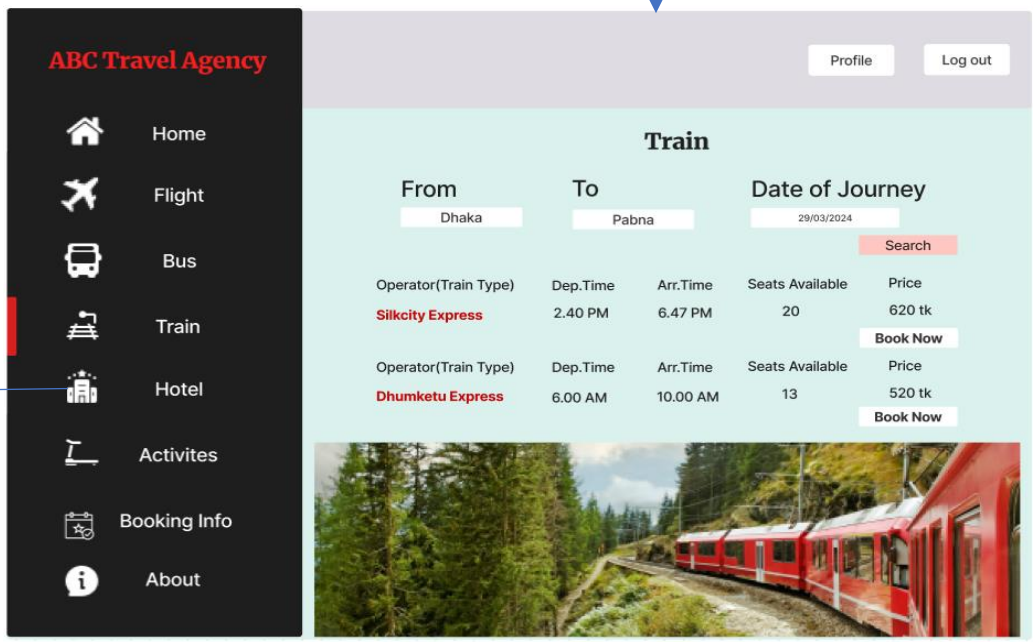
(2)


ABC Travel Agency
Home
Flight
Bus
Train
Hotel
Activites
Booking Info
About
Profile
Log Out
Flight
From
To
Date
Dhaka
Sylhet
30/03/2024
Search
Flight name
Departure
Arrival
Seats Available
Price
US Bangla
6.00 PM
6.40 PM
12
4000
Book Now
Flight name
Departure
Arrival
Seats Available
Price
NovoAir
10.00 PM
10.50 PM
18
3800
Book Now

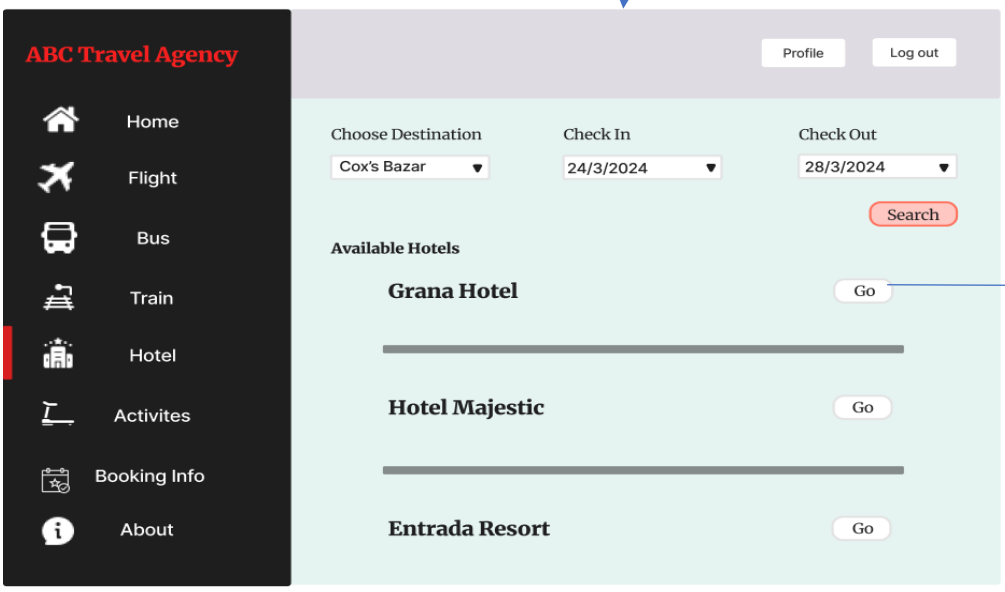
(3)


ABC Travel Agency
Home
Flight
Bus
Train
Hotel
Activites
Booking Info
About
Profile
Log out
Bus
From
To
Date of Journey
Dhaka
Cox's Bazar
29/03/2024
Search
Operator(Bus Type)
Dep.Time
Arr.Time
Seats Available
Price
Royal Coach(AC)
10.00 PM
6.00 AM
35
2000
Book Now
Operator(Bus Type)
Dep.Time
Arr.Time
Seats Available
Price
Hanif (NonAC)
11.00 PM
7.00 AM
20
1600
Book Now

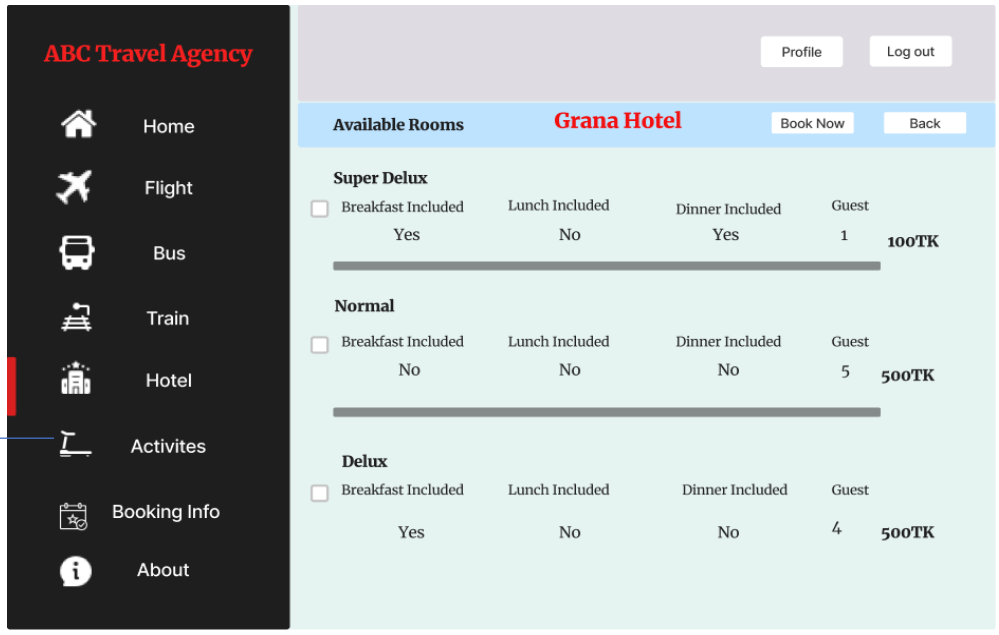
(4)


ABC Travel Agency
Home
Flight
Bus
Train
Hotel
Activites
Booking Info
About
Profile
Log out
Train
From
Dhaka
To
Pabna
Date of Journey
29/03/2024
Search
Operator(Train Type)
Dep.Time
Arr.Time
Seats Available
Price
Silkcity Express
2.40 PM
6.47 PM
20
620 tk
Book Now
Operator(Train Type)
Dep.Time
Arr.Time
Seats Available
Price
Dhumketu Express
6.00 AM
10.00 AM
13
520 tk
Book Now

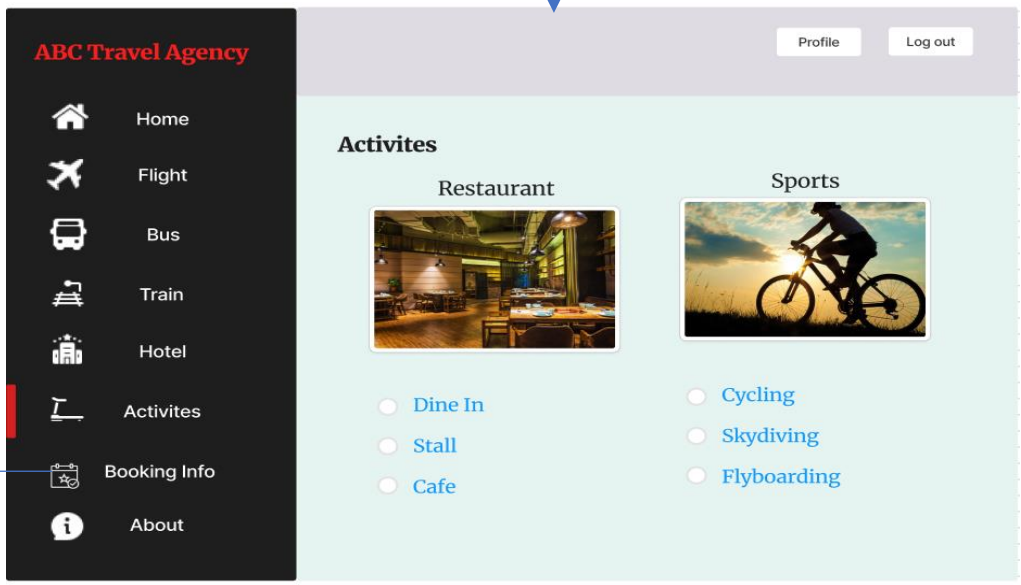
(5)


ABC Travel Agency
Home
Flight
Bus
Train
Hotel
Activites
Booking Info
About
Profile
Log out
Choose Destination
Cox's Bazar
Check In
24/3/2024
Check Out
28/3/2024
Search
Available Hotels
Grana Hotel
Go
Hotel Majestic
Go
Entrada Resort
Go

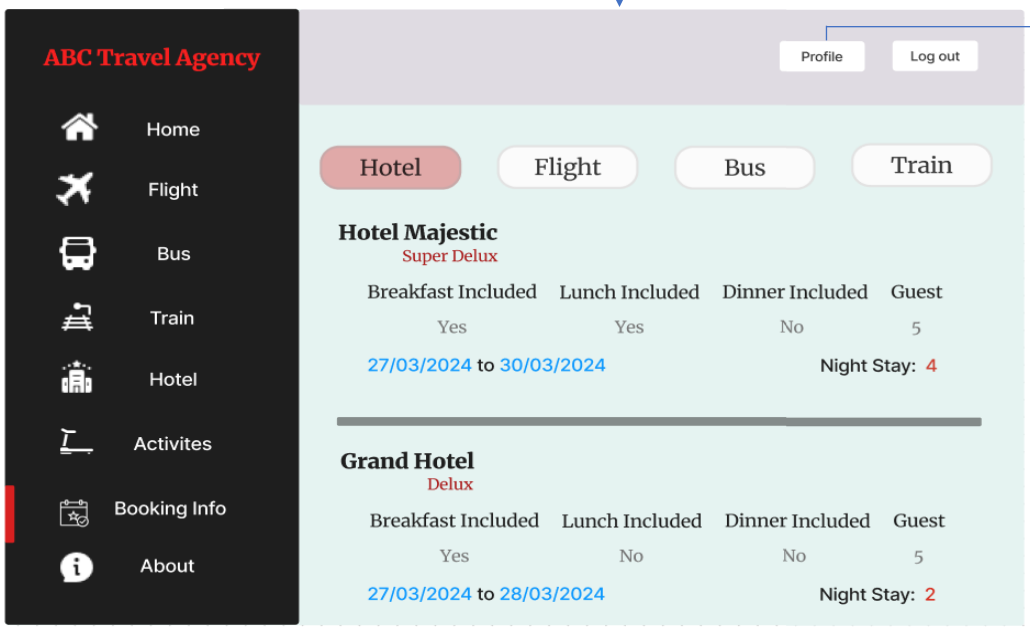
(6)


ABC Travel Agency
Home
Flight
Bus
Train
Hotel
Activites
Booking Info
About
Profile
Log out
Available Rooms
Grana Hotel
Book Now
Back
Super Delux
Breakfast Included
Lunch Included
Dinner Included
Guest
Yes
No
Yes
1
100TK
Normal
Breakfast Included
Lunch Included
Dinner Included
Guest
No
No
No
5
500TK
Delux
Breakfast Included
Lunch Included
Dinner Included
Guest
Yes
No
No
4
500TK

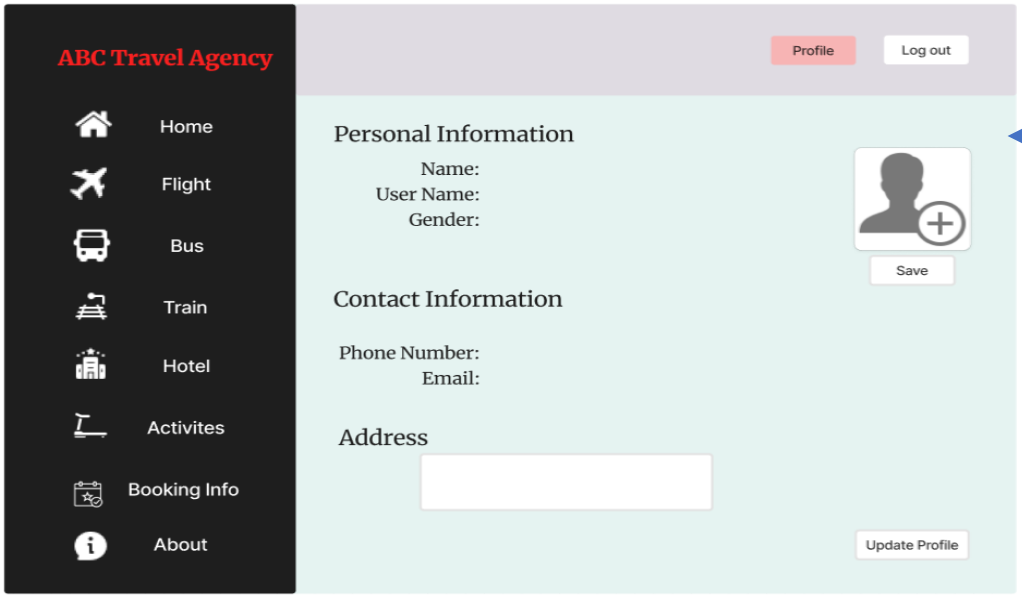
(7)


ABC Travel Agency
Home
Flight
Bus
Train
Hotel
Activites
Booking Info
About
Profile
Log out
Activites
Restaurant
Sports
Dine In
Stall
Cafe
Cycling
Skydiving
Flyboarding

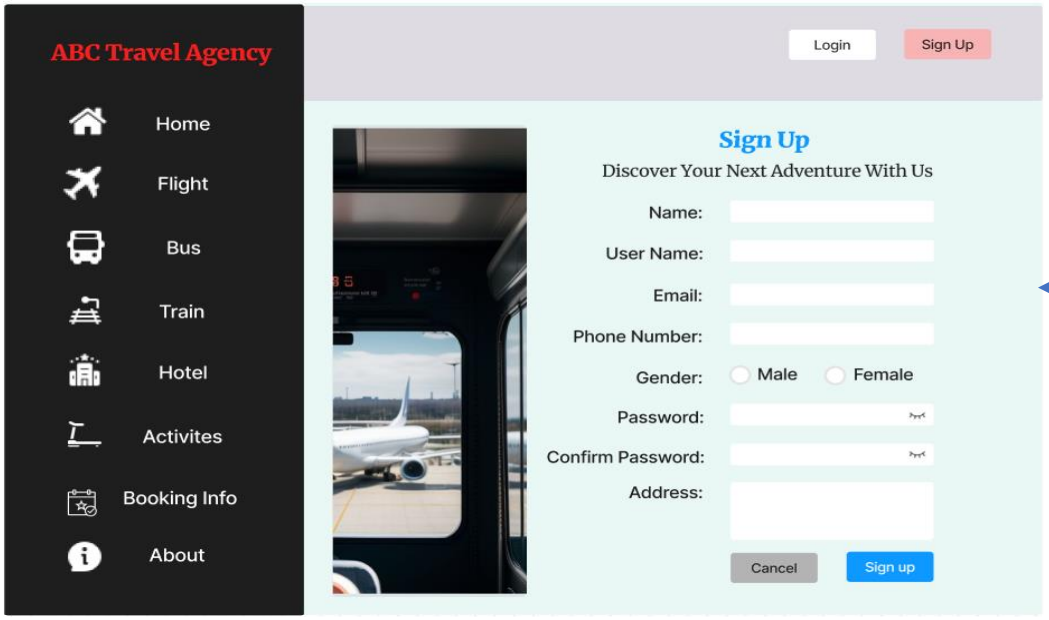
(8)


ABC Travel Agency
Home
Flight
Bus
Train
Hotel
Activites
Booking Info
About
Profile
Log out
Hotel
Flight
Bus
Train
Hotel Majestic
Super Delux
Breakfast Included
Lunch Included
Dinner Included
Guest
Yes
Yes
No
5
27/03/2024 to 30/03/2024
Night Stay: 4
Grand Hotel
Delux
Breakfast Included
Lunch Included
Dinner Included
Guest
Yes
No
No
5
27/03/2024 to 28/03/2024
Night Stay: 2

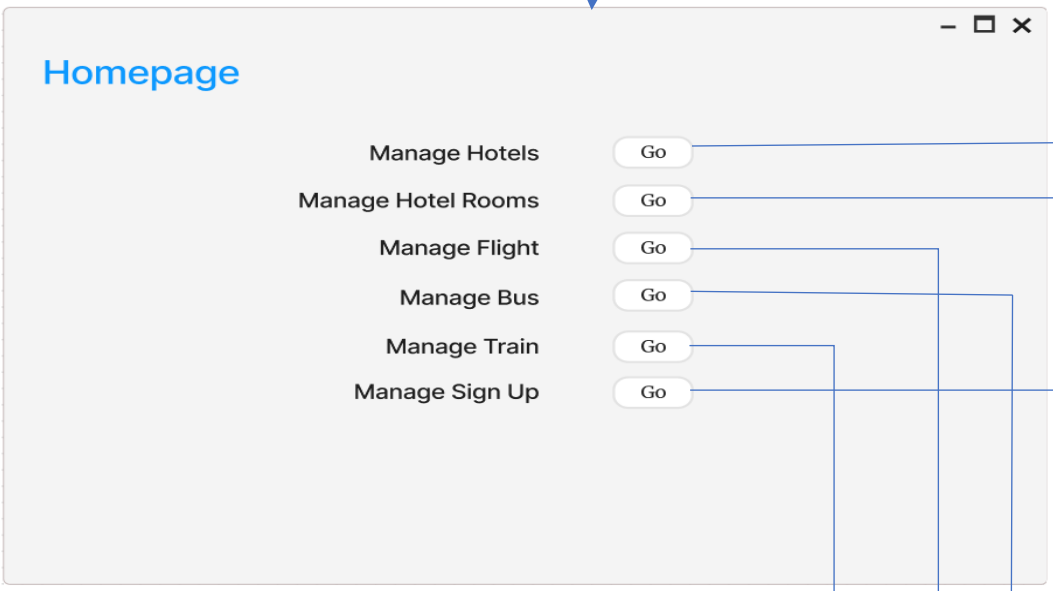
(9)


ABC Travel Agency
Home
Flight
Bus
Train
Hotel
Activites
Booking Info
About
Profile
Log out
Personal Information
Name:
User Name:
Gender:
Save
Contact Information
Phone Number:
Email:
Address
Update Profile

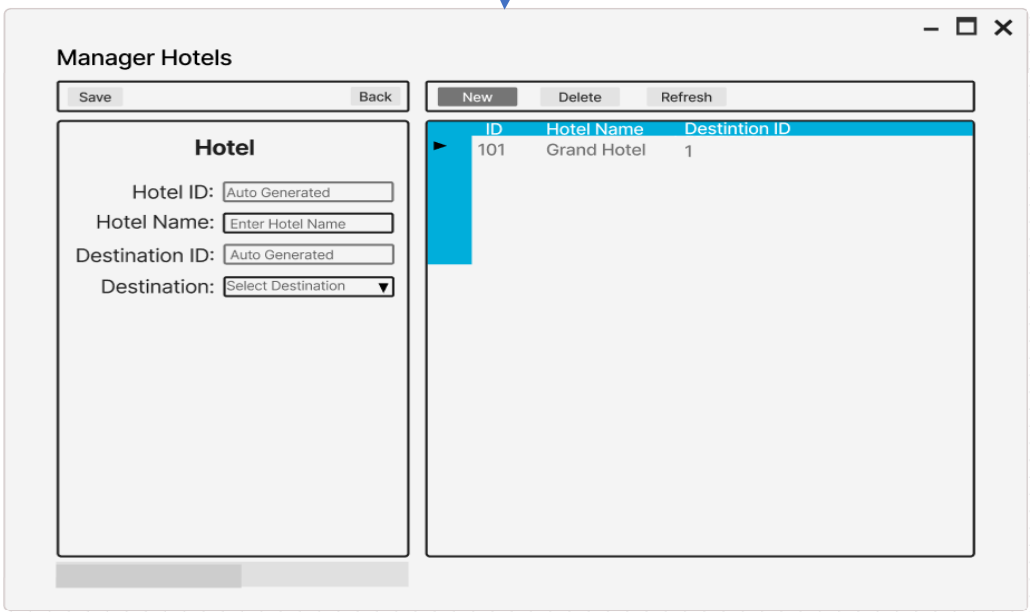
(10)


ABC Travel Agency
Home
Flight
Bus
Train
Hotel
Activites
Booking Info
About
Login
Sign Up
Sign Up
Discover Your Next Adventure With Us
Name:
User Name:
Email:
Phone Number:
Gender:
Male
Female
Password:
Confirm Password:
Address:
Cancel
Sign up

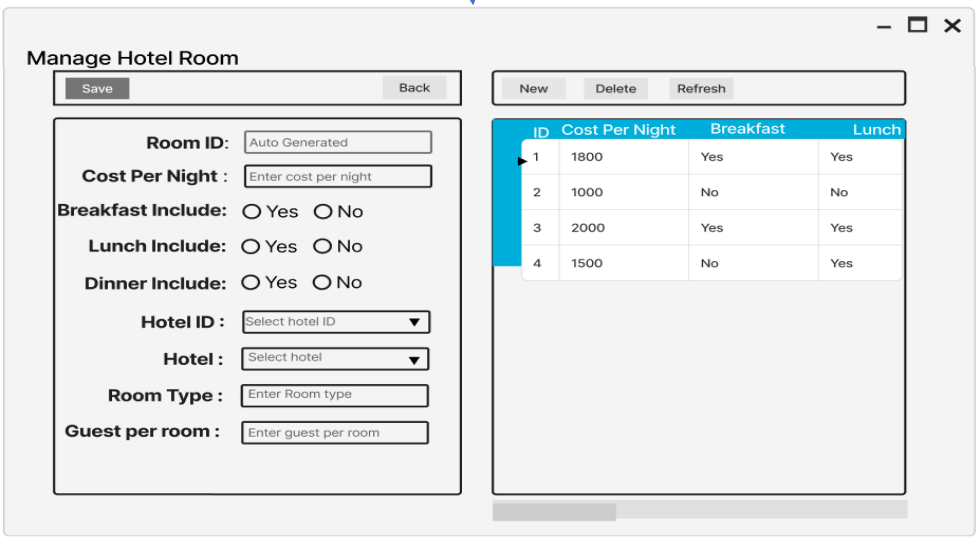
(11)


Homepage
Manage Hotels
Go
Manage Hotel Rooms
Go
Manage Flight
Go
Manage Bus
Go
Manage Train
Go
Manage Sign Up
Go

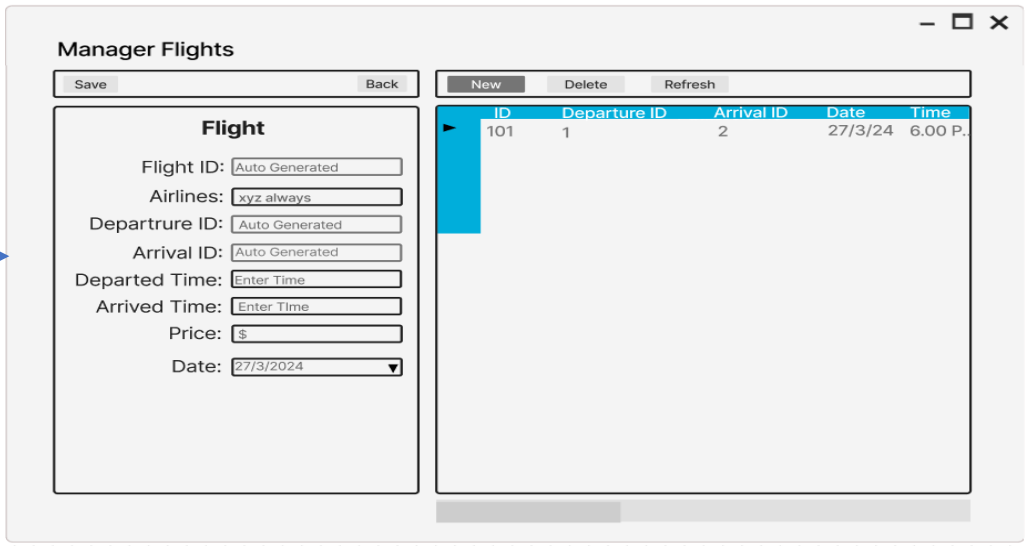
(12)


Manager Hotels
Save
Back
Hotel
Hotel ID:
Auto Generated
Hotel Name:
Enter Hotel Name
Destination ID:
Auto Generated
Destination:
Select Destination
New
Delete
Refresh
ID
Hotel Name
Destintion ID
101
Grand Hotel
1

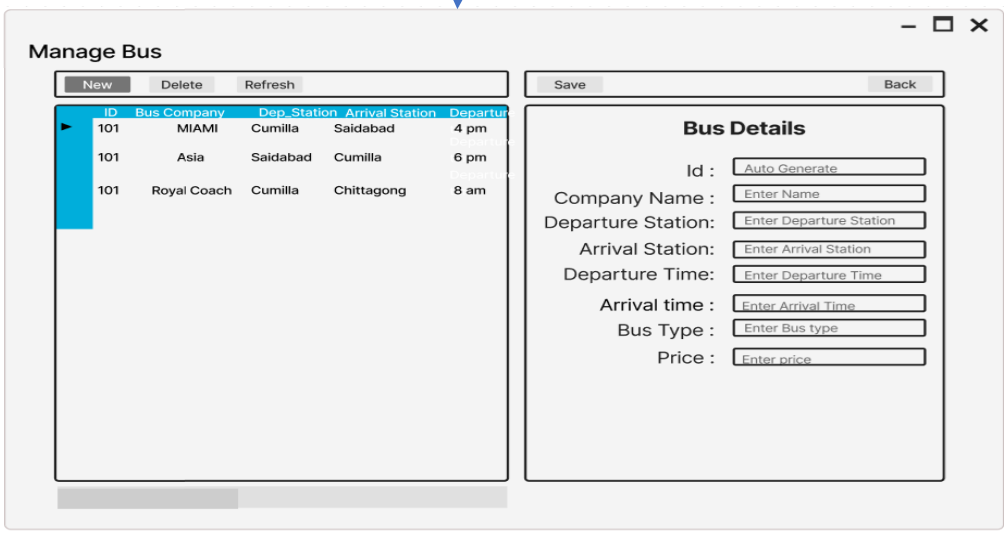
(13)


Manage Hotel Room
Save
Back
Room ID:
Auto Generated
Cost Per Night :
Enter cost per night
Breakfast Include:
Yes
No
Lunch Include:
Yes
No
Dinner Include:
Yes
No
Hotel ID :
Select hotel ID
Hotel :
Select hotel
Room Type :
Enter Room type
Guest per room :
Enter guest per room
New
Delete
Refresh
ID
Cost Per Night
Breakfast
Lunch
1
1800
Yes
Yes
2
1000
No
No
3
2000
Yes
Yes
4
1500
No
Yes

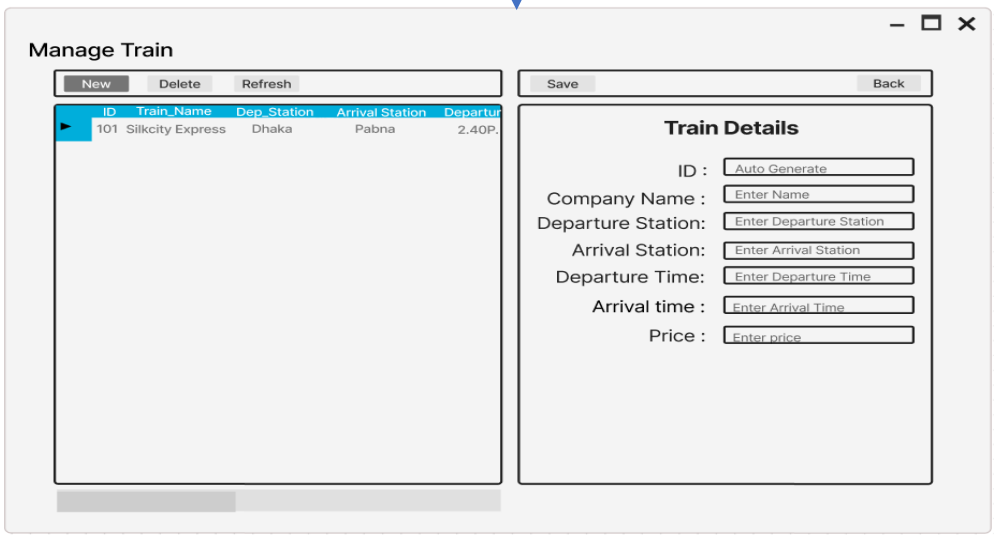
(14)


Manager Flights
Save
Back
New
Delete
Refresh
Flight
Flight ID:
Auto Generated
Airlines:
xyz always
Departrure ID:
Auto Generated
Arrival ID:
Auto Generated
Departed Time:
Enter Time
Arrived Time:
Enter Time
Price:
$
Date:
27/3/2024
ID
Departure ID
Arrival ID
Date
Time
101
1
2
27/3/24
6.00 P..

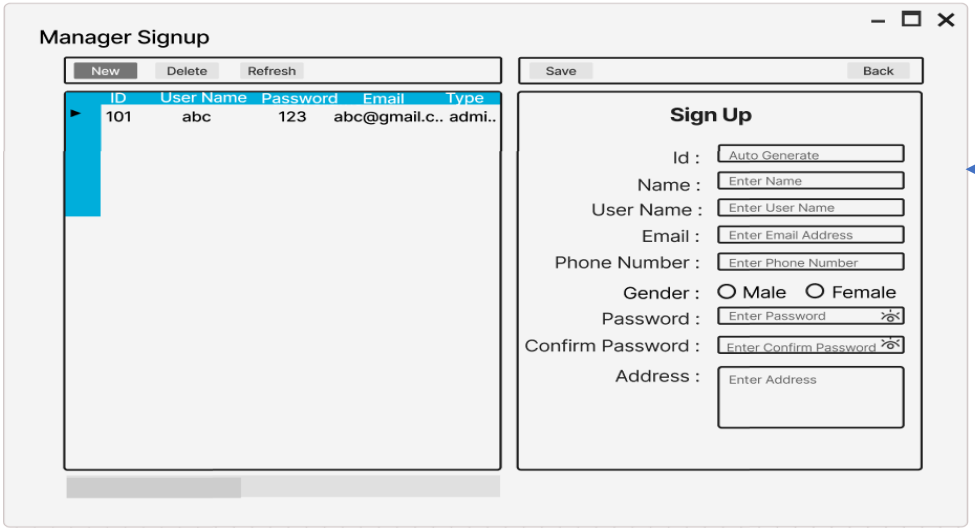
(15)


Manage Bus
New
Delete
Refresh
Save
Back
ID
Bus Company
Dep. Station
Arrival Station
101
MIAMI
Cumilla
Saidabad
4 pm
101
Asia
Saidabad
Cumilla
6 pm
101
Royal Coach
Cumilla
Chittagong
8 am
Bus Details
Id :
Auto Generate
Company Name :
Enter Name
Departure Station:
Enter Departure Station
Arrival Station:
Enter Arrival Station
Departure Time:
Enter Departure Time
Arrival time :
Enter Arrival Time
Bus Type :
Enter Bus type
Price :
Enter price

(16)


Manage Train
New
Delete
Refresh
Save
Back
ID
Train_Name
Dep_Station
Arrival Station
Departur
101
Silkcity Express
Dhaka
Pabna
2.40P.
Train Details
ID :
Auto Generate
Company Name :
Enter Name
Departure Station:
Enter Departure Station
Arrival Station:
Enter Arrival Station
Departure Time:
Enter Departure Time
Arrival time :
Enter Arrival Time
Price :
Enter price

(17)


Manager Signup
New
Delete
Refresh
Save
Back
ID
User Name
Password
Email
Type
101
abc
123
abc@gmail.c..
admi..
Sign Up
Id :
Auto Generate
Name :
Enter Name
User Name :
Enter User Name
Email :
Enter Email Address
Phone Number :
Enter Phone Number
Gender :
Male
Female
Password :
Enter Password
Confirm Password :
Enter Confirm Password
Address :
Enter Address

(18)

Description:

- "ABC Travel Agency" software is a desktop application for a travel management system.

- After opening the app, the **Home page** will be shown, which is prototype (1). After clicking **Login** Button, the Login page will open which is prototype (2).

- After filling valid username and password in related textboxes, the user can press **sign in** button which will open the homepage, designed as prototype (1). If the customer does not have an account, he/she can press **sign up** button which will take to sign up page, which belongs to prototype (11), and the bar **Home** will become selected.

- If the option in the sidebar named **Flight** is selected, the transportation page for viewing and selecting flights will be shown, which is designed as prototype (3).

- If the option in the sidebar named **Bus** is selected, the transportation page for viewing and selecting buses will be shown, which is designed as prototype (4).

- If the option in the sidebar named **Train** is selected, the transportation page for viewing and selecting train will be shown, which is designed as prototype (5).

- If the option in the sidebar named **Hotel** is selected, the page for viewing and selecting hotels will be shown, which is designed as prototype (6).

- Pressing the **Go** button beside every hotel name on the page of viewing and selecting hotels will lead to showing the page of details information of the specific hotel designed in prototype (7).

- If the option in the sidebar named **Activities** is selected, the page for viewing and selecting activities will be shown, which is designed as prototype (8).

- Selecting the option **Booking Info** in the sidebar will view the details of booking info page. This page is designed in prototype (9).

- Pressing the **profile** button which is available in prototype (1), (2), (3), (4), (5), (6), (7), (8), and (9) will lead to open the page of profile details, which designed in prototype (10).

- For admin login, an admin needs to login through the login page which is designed in prototype (1). An admin needs to fill the textboxes of username and password with valid information. Also, He/she needs to select the **sign in as admin** option. After pressing the **sign in** button, the **Homepage** of "manager view" where all kinds of information can be managed will open. This page is designed in prototype (12).

- Pressing the Go button beside “Manage Hotels” will lead to opening the **Manage Hotels** page. This page is designed in prototype (13).

- Pressing the Go button beside “manage Hotel Rooms” will lead to opening the **Manage Hotel Rooms** page. This page is designed in prototype (14).

- Pressing the Go button beside “Manage Flights” will lead to opening the **Manage Flights** page. This page is designed in prototype (15).

- Pressing the Go button beside “Manage Buses” will lead to opening the **Manage Buses** page. This page is designed in prototype (16).

- Pressing the Go button beside “Manage Trains” will lead to opening the **Manage Trains** page. This page is designed in prototype (17).

- Pressing the Go button beside “Manage Sign Up” will lead to opening the **Manage Sign Up** page. This page is designed in prototype (18).

- Pressing the **log out** button can be used to exit the desktop application.

Exercise – 6: Project Test Planning

<table>
<tr><td colspan="3">Project Name: ABC Travel Agency</td><td colspan="2">Test Designed by: Shusmita Anjum Aziz</td></tr>
<tr><td colspan="3">Test Case ID: ABC_login101</td><td colspan="2">Test Designed date: 28-03-2024</td></tr>
<tr><td colspan="3">Test Priority (Low, Medium, High): High</td><td colspan="2">Test Executed by:</td></tr>
<tr><td colspan="3">Module Name: Login Session</td><td colspan="2">Test Execution date:</td></tr>
<tr><td colspan="5">Test Title: verify login with valid username and password</td></tr>
<tr><td colspan="5">Description: Test application login page</td></tr>
<tr><td colspan="5">Precondition (If any): User must have valid username and password</td></tr>
<tr><td>Test Steps</td><td>Test Data</td><td>Expected Results</td><td>Actual Results</td><td>Status (Pass/Fail)</td></tr>
<tr><td rowspan="2">1. Go to the application
2. Enter username
3. Enter password
4. Click Sign in</td><td>Username: shusmita11
Password: @1347509oi5</td><td>User should login into the application, username and password have been matched</td><td></td><td></td></tr>
<tr><td>Username: shusmita11
Password: @13475</td><td>User will not be able to login into the application because username and password did not match</td><td></td><td></td></tr>
<tr><td colspan="5">Post Condition: User is validated with database and successfully login to account. The account session details are logged in the database.</td></tr>
</table>

Project Name: ABC Travel Agency		Test Designed by: Sha Mohammad Yeahia Idris		
Test Case ID: ABC_Signup101		Test Designed date: 28/3/2024		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Sign up Session		Test Execution date:		
Test Title: Verify signup information				
Description: Test application Sign up page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the application 2. Go to Sign up page 3. Enter sign up information 4. Click Signup	Name: Idris Username: Idris98 Email: idris32@gmail.com Number: 017***** Gender: Male Password: abc@12 C Password: abc@12 Address: Kuril, Dhaka.	User successfully create an account.		
	Name: Idris Username: Idris98 Email: idris32gmail.com Number: 017***** Gender: Male Password: abc@12 C Password: abc@1 Address: Kuril, Dhaka.	User will not be able to create account. Invalid email address. Password and confirm password are not match.		
Post Condition: User successfully create an new account. Sign up information are store in database.				

Project Name: ABC Travel Agency			Test Designed by: Md Yeasin Newaz	
Test Case ID: ABC_Update101			Test Designed date: 28/03/2024	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Update Session			Test Execution date:	
Test Title: Access to a profile page displaying their personal information				
Description: Test application update page				
Precondition (If any): User must have login first				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Log in 2. Go to profile 3. Edit profile details 4. Click Update Profile	Change Phone Number: 01864456324 Change Email:yeasin100@gmail.com Password: Abc@1264	User successfully updated information		
	Change Phone Number: 01864456aa Change Email:YEasin100gmail.com Password: Abc@1264	User will not able to updated the information because user inserted invalid phone number and email		
Post Condition: Change to the profile will update the database and user interface.				

Project Name: ABC Travel Agency		Test Designed by: Md. Riyadh Ullah		
Test Case ID: ABC_Logout101		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): Low		Test Executed by:		
Module Name: Logout Session		Test Execution date:		
Test Title: Verify logout confirmation				
Description: Test application logout button				
Precondition (If any): User needs to login first				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Log in 2. Click Logout button	Username: riyadh1 Password: @1347509oi5	User successfully has been logged out.		
Post Condition: The account session details are logged out from the database. Change to user interface and the functionalities will be limited.				

Project Name: ABC Travel Agency		Test Designed by: Md. Minhajun Nabi Shiam		
Test Case ID: ABC_Homepage101		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Homepage Session		Test Execution date:		
Test Title: Verify navigation of Homepage				
Description: Test application Homepage				
Precondition (If any): User has the access to the homepage				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application		Homepage appeared to the user		
Post Condition: User can navigate to the pages related to booking and can view information.				

Project Name: ABC Travel Agency		Test Designed by: Shusmita Anjum Aziz		
Test Case ID: ABC_Transportation101		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): Medium		Test Executed by:		
Module Name: Search Session in Transportation Pages (Flight, Bus, Train)		Test Execution date:		
Test Title: verify search in transportation pages (Flight, Bus, Train)				
Description: Test application Transportation Pages (Flight, Bus, Train)				
Precondition (If any): User has the access to the homepage				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application to view homepage 2. Select a specific transportation option through sidebar. 3. Select information available in combo box 4. Click search button	From: Dhaka To: Shylet Date: 04/04/2024	Show available transportation.		
	From: Dhaka To: Date: 04/04/2024	Show error message.		
Post Condition: Details of available transportations will be selected from the database and will be visible in user interface.				

Project Name: ABC Travel Agency		Test Designed by: Sha Mohammad Yeahia Idris		
Test Case ID: ABC_Hotel101		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): Medium		Test Executed by:		
Module Name: Search Session in Hotel page		Test Execution date:		
Test Title: Verify Search in Hotel Page				
Description: Test application Hotel Page				
Precondition (If any): User has the access to the homepage				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application to view homepage 2. Select hotel option through sidebar 3. Select information available in combo box 4. Click search button	Choose Destination: Cox's Bazar Check In: 05/04/2024 Check Out: 08/04/2024	Show available hotels.		
	Choose Destination: Cox's Bazar Check In: 05/04/2024 Check Out: 04/04/2024	Show error message.		
Post Condition: List of available hotel will be selected from the database and will be visible in user interface.				

Project Name: ABC Travel Agency		Test Designed by: Sha Mohammad Yeahia Idris		
Test Case ID: ABC_Hotel102		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): Medium		Test Executed by:		
Module Name: View Details Session of Hotel		Test Execution date:		
Test Title: Verify Go button in Hotel page				
Description: Test application Hotel page				
Precondition (If any): User has the access to the homepage				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application to view homepage 2. Select hotel option through sidebar 3. Select information available in combo box 4. Click Search button 5. Click Go button	Choose Destination: Cox's Bazar Check In: 05/04/2024 Check Out: 08/04/2024	Show details of a hotel.		
Post Condition: Details of a available hotel will be selected from the database will be visible in user interface.				

Project Name: ABC Travel Agency		Test Designed by: Md Yeasin Newaz		
Test Case ID: ABC_Activites101		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): Low		Test Executed by:		
Module Name: Activity Selecting Session		Test Execution date:		
Test Title: Verify activity selection				
Description: Test application Activity selection				
Precondition (If any): User has the access to the homepage				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application to view Homepage 2. Select Activities option through Sidebar. 3. Select information available in combo box	Location: Cox's Bazar Date: 05/04/2024 Category: Sports	Show available activites.		
Post Condition: Details of available activity will be selected from the database and will be visible in user interface.				

Project Name: ABC Travel Agency		Test Designed by: Md. Riyadh Ullah		
Test Case ID: ABC_BookNow101		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Book now Session		Test Execution date:		
Test Title: Verify booking in Transportation pages (flight, bus, train) and Hotel pages				
Description: Test application of Book Now button				
Precondition (If any): User needs to login first				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application to view Homepage 2. Log in 3. Select a specific option through Sidebar. 4. Select information available in combo box 5. Click Search button 6. Click Book Now button	Choose Destination: Cox's Bazar Check In: 05/04/2024 Check Out: 08/04/2024	Booking Info page appeared to the user		
Post Condition: Store booking information in database.				

Project Name: ABC Travel Agency		Test Designed by: Md. Minhajun Nabi Shiam		
Test Case ID: ABC_BookingInfo101		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: View Booking Info Session		Test Execution date:		
Test Title: Verify accessibility of Booking Info page				
Description: Test application Booking Info page				
Precondition (If any): User needs to login first				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application to view homepage 2. Log in 3. Select booking info option through sidebar		Booking details history will be showed.		
Post Condition: Extract booking information from database.				

Project Name: ABC Travel Agency		Test Designed by: Md. Riyadh Ullah		
Test Case ID: ABC_Wallet101		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: View Wallet Session		Test Execution date:		
Test Title: Verify accessibility of Wallet				
Description: Test application of Wallet				
Precondition (If any): User needs to login first				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application to view Homepage 2. Log in 3. Select a specific option through Sidebar. 4. Select information available in combo box 5. Click Search button 6. Click Book Now button 7. Click Wallet button	Payment Method: Cash	Show payment successful message.		
	Payment Method: Online	System will ask for credit card information		
Post Condition: Booking will be successful and store all the information into database.				

Project Name: ABC Travel Agency		Test Designed by: Shusmita Anjum Aziz		
Test Case ID: ABC_Manager_View101		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Insert and Update Session in Manager View		Test Execution date:		
Test Title: verify manager view functionalities (insert and update)				
Description: Test application Manager View pages				
Precondition (If any): Need to Log in as admin				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application 2. Log in as admin to view Homepage 3. Click Go button beside a specific manager view 4. Insert or update data 5. Click Save button	Hotel ID: Auto Generated Hotel Name: Grana Hotel Destination ID: Auto generated Destination: Cox's Bazar	Data inserted successfully.		
	Hotel ID: Auto Generated Hotel Name: Grana Hotel Destination ID: Auto generated Destination:	Error message will be shown.		
Post Condition: Inserted or updated data will be stored in the database .				

Project Name: ABC Travel Agency		Test Designed by: Md. Minhajun Nabi Shiam		
Test Case ID: ABC_Manager_View102		Test Designed date: 04/04/2024		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Delete Session in Manager View		Test Execution date:		
Test Title: Verify Manager view functionalities (delete)				
Description: Test application Manager View pages				
Precondition (If any): Need to Log in as admin				
Test Steps	Test Data	Expected Results	Actual Result	Status(Pass/Fail)
1. Open application 2. Log in as admin to view Homepage 3. Click Go button beside a specific manager view 4. Select the Information to delete 5. Click Delete button	Select from Data Table	Data has been deleted successfully.		
		Error message will be shown.		
Post Condition: Selected data will be deleted from the database.				

EXERCISE - 7: WBS and Effort Estimation

Effort Estimation:

Function points $=\ 200$

Approximate lines of code per function point $=\ 50$

$LOC(Lines\ of\ Code) = 50\ \times 200 = 10000$

Special skills factor $(B) = 2$

Productivity parameter $(P) = 1.5$

Project Duration $(t) = 5\ weeks = 1.25\ months$

$$E = \left[LOC\ \times \frac{B^{0.333}}{P}\right]^3 \times \frac{1}{t^4}$$

$$E = \left[10000\ \times \frac{(2)^{0.333}}{1.5}\right]^3 \times \frac{1}{(1.25)^4}$$

$$E\ \approx (8397.5332)^3 \times (0.4096)$$

$$E\ \approx\ 2.43 \times 10^{11}\ person - years$$

So, the required estimated effort for this project is approximately 2.43 person-years.

COCOMO (COSTRUCTIVE COST MODEL):

Software Project Type	Coefficient <Effort Factor>	P	T
Organic	2.4	1.05	0.38
Semi-Detached	3.0	1.12	0.35
Embedded	3.6	1.20	0.32

Effort Estimation: $a \times (\frac{SLOC}{1000})^b$

As the project is organic, $a = 2.4, b = 1.05$

Here, $SLOC = 10000$

Effort $= 2.4 \times \left(\frac{10000}{1000}\right)^{1.05}$

$\approx 2.4 \times (10)^{1.05}$

$\approx 26.93\ person - months$

Development Time: $c \times (Effort)^d$

Here, $c = 2.5, d = 0.38\ [organic]$

Development Time $= 2.5 \times (26.93)^{0.38}$

$\approx 2.5 \times 3.5$

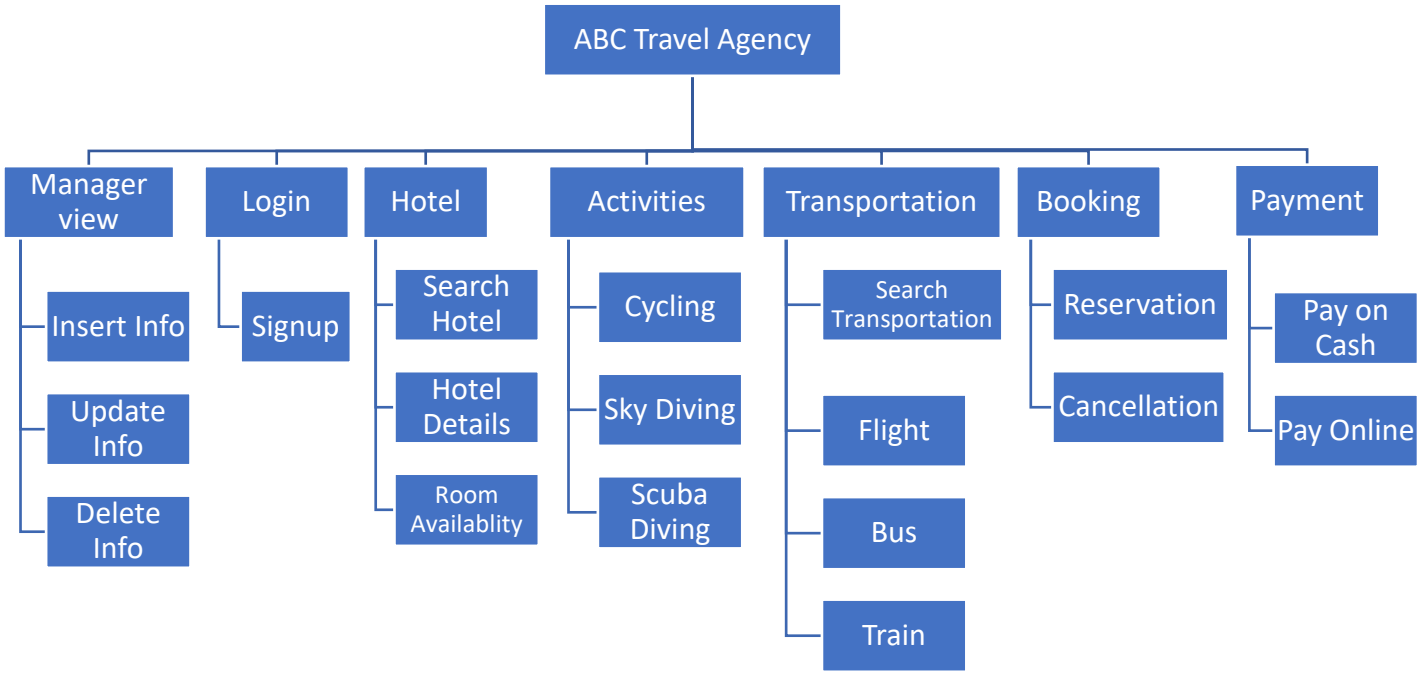
$\approx 8.75 months$

Number of People Required: $\frac{Effort}{Development\ Time}$

Number of People $= \frac{26.93}{8.75}$

$\approx 3.08\ people$

WBS:

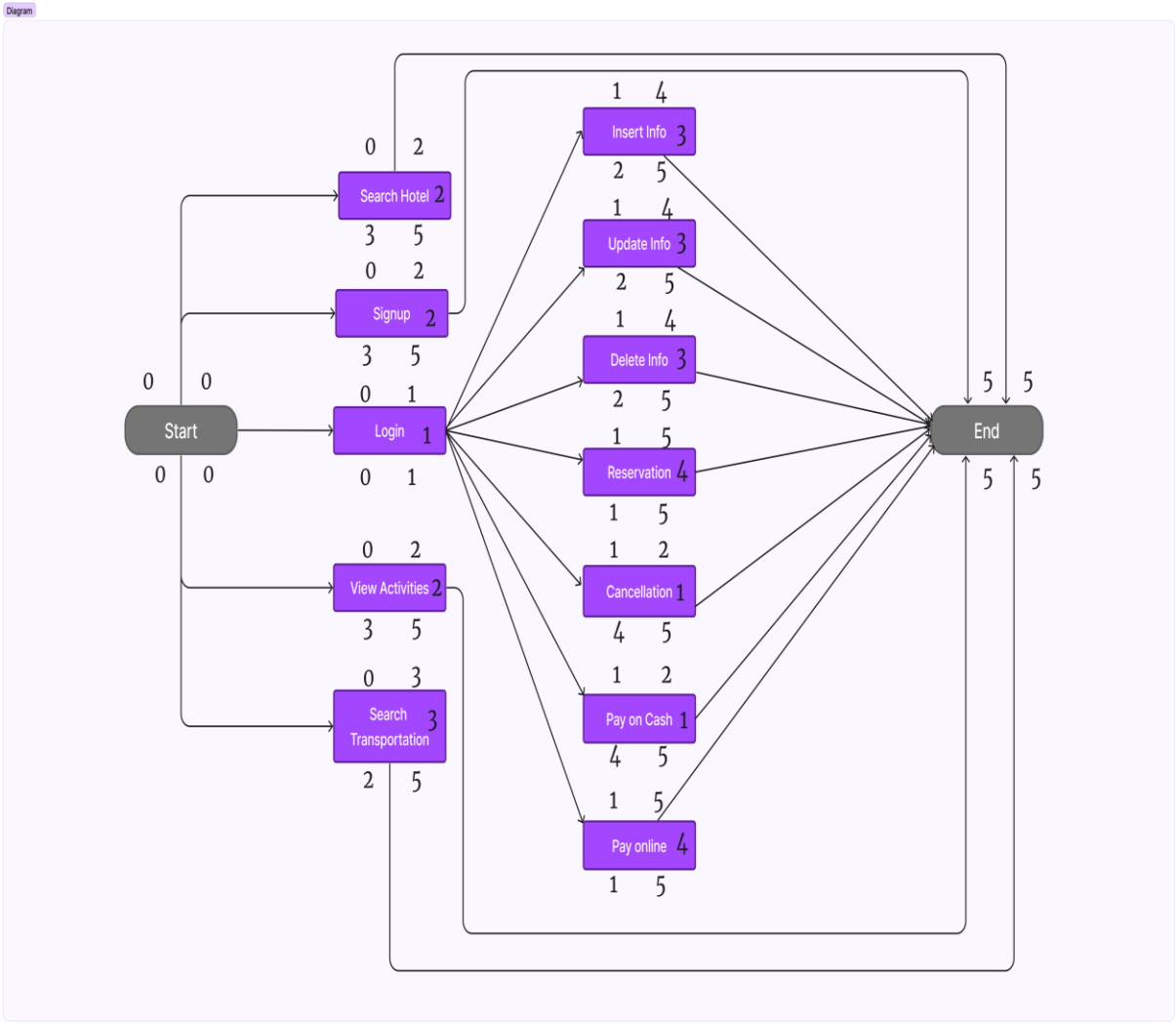


Dependency Table:

Activity	Description	Predecessors	Duration(Weeks)
1	Login	--	1
2	Insert Info	1	3
3	Update Info	1	3
4	Delete Info	1	3
5	Signup	--	1
6	Search Hotel	--	2
7	View Activities	--	2
8	Search Transportation	--	3
9	Reservation	1	4
10	Cancellation	1, 11	1
11	Pay on Cash	1, 11	1
12	Pay Online	1, 11	4

EXERCISE - 8: Activity Scheduling and Resource Allocation

Network Diagram



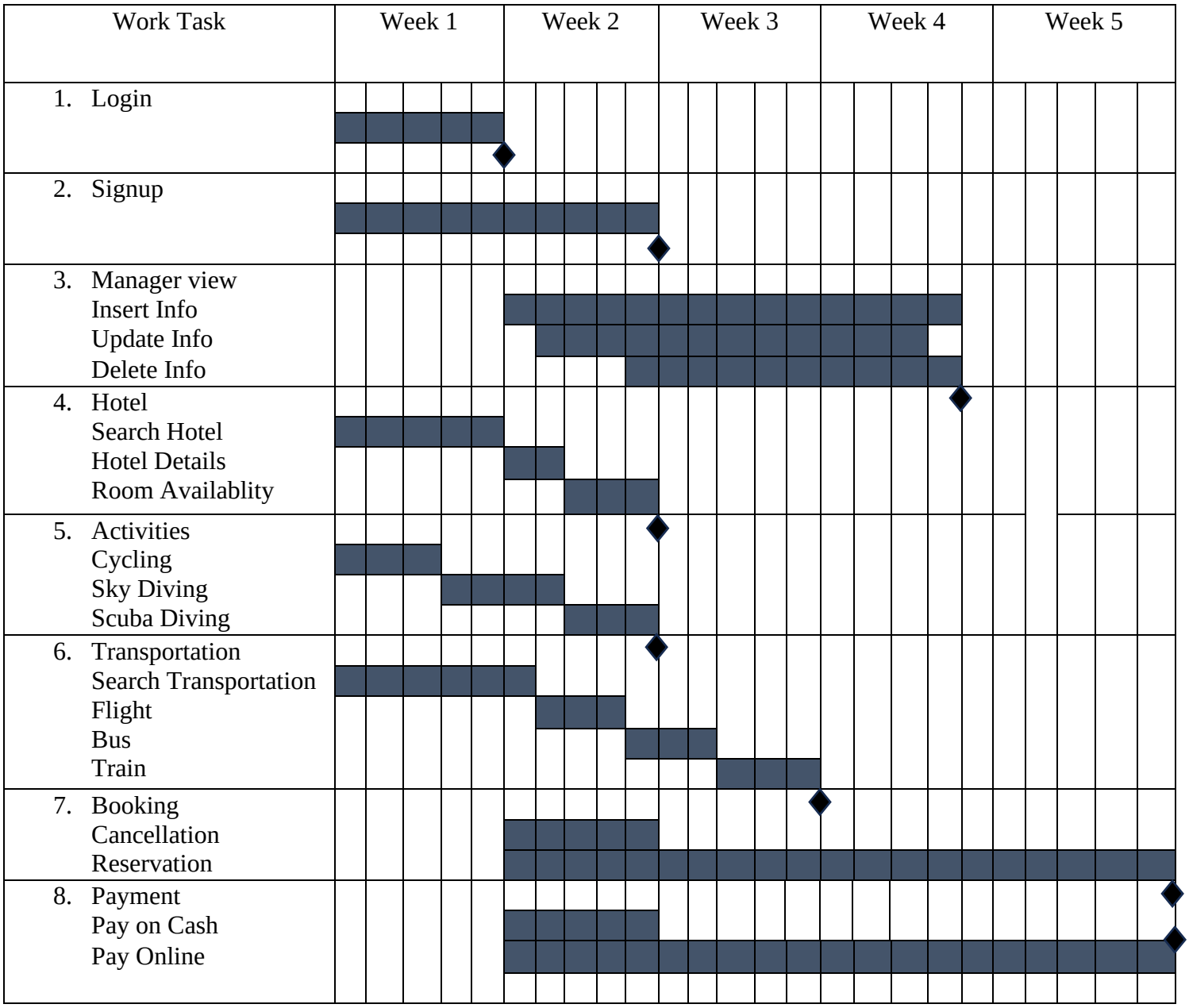
TimeLine Table-1

Weeks / Task: / Person	1	2	3	4	5
A: Shusmita					
B: Shusmita					
C: Shiam					
D: Shiam					
E: Shiam					
F: Riyadh					
G: Riyadh					
H: Idis					
I: Idris					
J: Idris					
K: Yeasin					
L: Yeasin					

Activity Key:

A. Login
B. Signup
C. Insert Info
D. Update Info
E. Delete Info
F. Search Hotel
G. View Activities
H. Search Transportation
I. Reservation
J. Cancellation
K. Pay on Cash
L. Pay Online

TimeLine Table-2



EXERCISE – 9 : Risk Analysis

Risk Check List:

Risks	Category	Probability	Impact	RMMM
Integration of multiple modules	PS	70%	2	Implement modular development to manage complexity effectively
Inclusion of extensive features	PS	50%	2	Prioritize features based on user needs and feasibility assessments
Incorporating complex algorithms for itinerary optimization	PS	30%	3	Conduct thorough algorithm testing and optimization cycles during development
Fluctuating market demand	BU	60%	1	Maintain a contingency fund
Competitor actions disrupting market dynamics	BU	40%	2	Regularly monitor competitor strategies and adjust project plans accordingly
Changing regulatory requirements	BU	20%	4	Establish a compliance team to stay updated on regulatory changes and adapt the system accordingly.
Customers expecting advanced features	CU	60%	3	Conduct user research to understand customer expectations and preferences.
Customers from diverse cultural backgrounds	CU	20%	3	Hire multilingual staff or utilize translation services for effective communication.
Managing time zone differences	CU	30%	4	Implement asynchronous communication tools and establish clear response time expectations.
Lack of adherence to defined Agile practices	PR	70%	2	Provide regular Agile training sessions and conduct frequent process audits.

Inadequate documentation	PR	40%	3	Implement a robust documentation management system and enforce documentation standards.
Resistance to change	PR	50%	3	Facilitate change management workshops and provide ongoing support to teams.
Limited availability of travel-specific development tools	DE	60%	2	Invest in tool procurement and consider custom tool development.
Incompatibility issues between different software components	DE	80%	2	Conduct thorough compatibility testing.
Insufficient infrastructure for testing	DE	60%	1	Scale up testing infrastructure
Integration of emerging technologies like AI	TE	40%	3	Collaborate with AI experts
Implementing blockchain for secure transactions and data integrity.	TE	20%	4	Engage blockchain specialists
Incorporating IoT for real-time tracking of travel assets.	TE	30%	4	Conduct extensive feasibility studies and establish protocols
Limited availability of experienced developers	ST	70%	2	Provide industry-specific training to existing staff.
High turnover rate	ST	40%	2	Implement knowledge transfer sessions and mentorship programs

EXERCISE – 10: Progress of Project Execution

Earned Value Analysis(EVA):

Total duration = 5 week

Activity	Description	Predecessors	Duration(Weeks)	Cost (tk)
1	Login	--	1	50000
2	Insert Info	1	3	100000
3	Update Info	1	3	100000
4	Delete Info	1	3	100000
5	Signup	--	2	125000
6	Search Hotel	--	2	80000
7	View Activities	--	2	20000
8	Search Transportation	--	3	100000
9	Reservation	1	4	150000
10	Cancellation	1, 11	1	70000
11	Pay on Cash	1, 11	1	10000
12	Pay Online	1, 11	4	25000

After 1 week of work:

Activity	Description	Predecessors	Duration(Weeks)	Cost (tk)	Work Completed	Money Spent (tk)
1	Login	--	1	50000	75%	40000
5	Sign Up	--	2	125000	40%	70000
6	Search Hotel	--	2	80000	20%	25000
7	View Activities	--	2	20000	30%	12000
8	Search Transportation	--	3	100000	25%	60000

Login:

Scheduled work = 100%(1w/1w)

Actual Work = 75% (0.75w/1w)

Budgeted Cost = 50000 tk

Planned Value = $100\% \times 50000 = 50000$

Earned Value $= 75\% \times 50000 = 37500$

Actual Cost $= 40000$

Scheduled Performance Index(SPI) = Earned Value/Planned Value = 75%

Cost Performance Index(CPI) = Earned Value/ Actual Cost = 94%

Signup:

Scheduled work = 50%(1w/2w)

Actual Work = 40% (0.8w/2w)

Budgeted Cost = 125000 tk

Planned Value = $50\% \times 125000 = 62500$

Earned Value $= 40\% \times 125000 = 50000$

Actual Cost $= 70000$

Scheduled Performance Index(SPI) = Earned Value/Planned Value = 80%

Cost Performance Index(CPI) = Earned Value/ Actual Cost = 71%

Search Hotel:

Scheduled work = 50%(1w/2w)

Actual Work = 20% (0.4w/2w)

Budgeted Cost = 80000 tk

Planned Value = $50\% \times 80000 = 40000$

Earned Value $= 20\% \times 80000 = 16000$

Actual Cost $= 25000$

Scheduled Performance Index(SPI) = Earned Value/Planned Value = 40%

Cost Performance Index(CPI) = Earned Value/ Actual Cost = 64%

View Activites:

Scheduled work = 50%(1w/2w)

Actual Work = 30% (0.6w/2w)

Budgeted Cost = 20000 tk

Planned Value = $50\% \times 20000 = 10000$

Earned Value $= 30\% \times 20000 = 6000$

Actual Cost $= 12000$

Scheduled Performance Index(SPI) = Earned Value/Planned Value = 60%

Cost Performance Index(CPI) = Earned Value/ Actual Cost = 50%

Search Transportation:

Scheduled work = 33%(1w/2w)

Actual Work = 25% (0.4w/2w)

Budgeted Cost = 100000 tk

Planned Value = $33\% \times 100000 = 33000$

Earned Value $= 25\% \times 100000 = 25000$

Actual Cost $= 60000$

Scheduled Performance Index(SPI) = Earned Value/Planned Value = 76%

Cost Performance Index(CPI) = Earned Value/ Actual Cost = 42%

Task Name	Planned Value - PV (BCWS)	Earned Value- EV (BCWP)	AC(ACWP)	SV	CV	CPI	SPI
Project	**195500**	**89500**	**207000**	**61000**	**72500**	**0.43**	**0.46**
Login	50000	37500	40000	-12500	-2500	0.94	0.75
Insert Info	0	0	0	0	0	0	0
Update Info	0	0	0	0	0	0	0
Delete Info	0	0	0	0	0	0	0
Signup	62500	50000	70000	-12500	-20000	0.71	0.8
Search Hotel	40000	16000	25000	-24000	-9000	0.64	0.4
View Activities	10000	6000	12000	-4000	-6000	0.5	0.6
Search Transportation	33000	25000	60000	-8000	-35000	0.42	0.76
Reservation	0	0	0	0	0	0	0
Cancellation	0	0	0	0	0	0	0
Pay on Cash	0	0	0	0	0	0	0
Pay Online	0	0	0	0	0	0	0

EVA Exercise:

Total Task = 19

Effort Estimated = 100 Person Day

After 2 weeks, the project schedule indicates that 12 tasks should be completed.

Task	Planned Effort	Actual Effort
1	5.0	5.5
2	10.0	13.0
3	7.5	8.5
4	2.0	1.5
5	6.0	8.0
6	4.5	6.0
7	4.0	3.0
8	3.0	4.0
9	9.0	14.0
10	9.0	-
11	7.5	-
12	2.5	-

BCWP = 51

BCWS = 70

ACWP = 63.5

BAC = 100 person-day

SPI = BCWP/BCWS = 51/70 = 0.7286

SV = BCWP-BCWS = 51-70 = -19 person-day

CPI = BCWP/ACWP = 51/63.5 = 0.8031

CV = BCWP-ACWP = 51-63.5 = -12.5 person-day