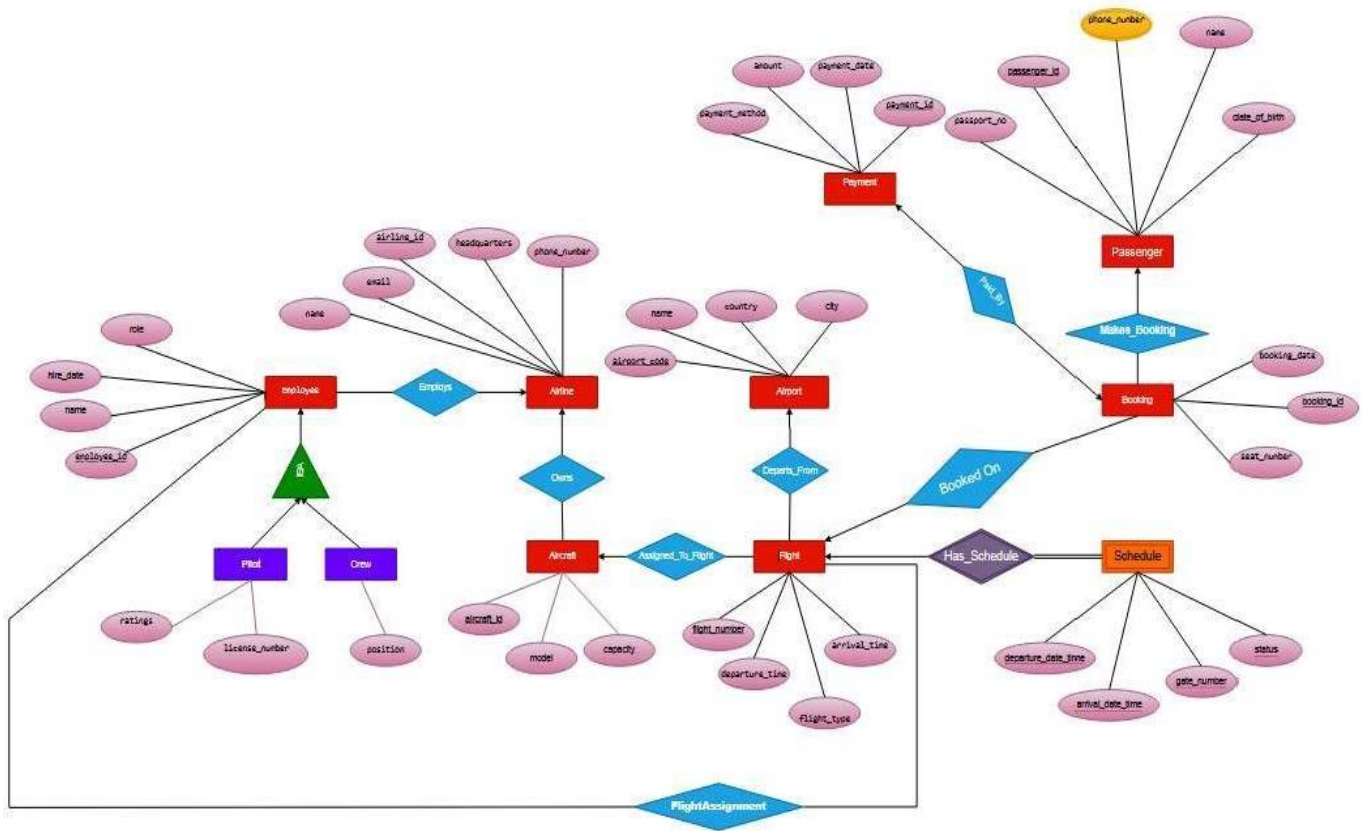
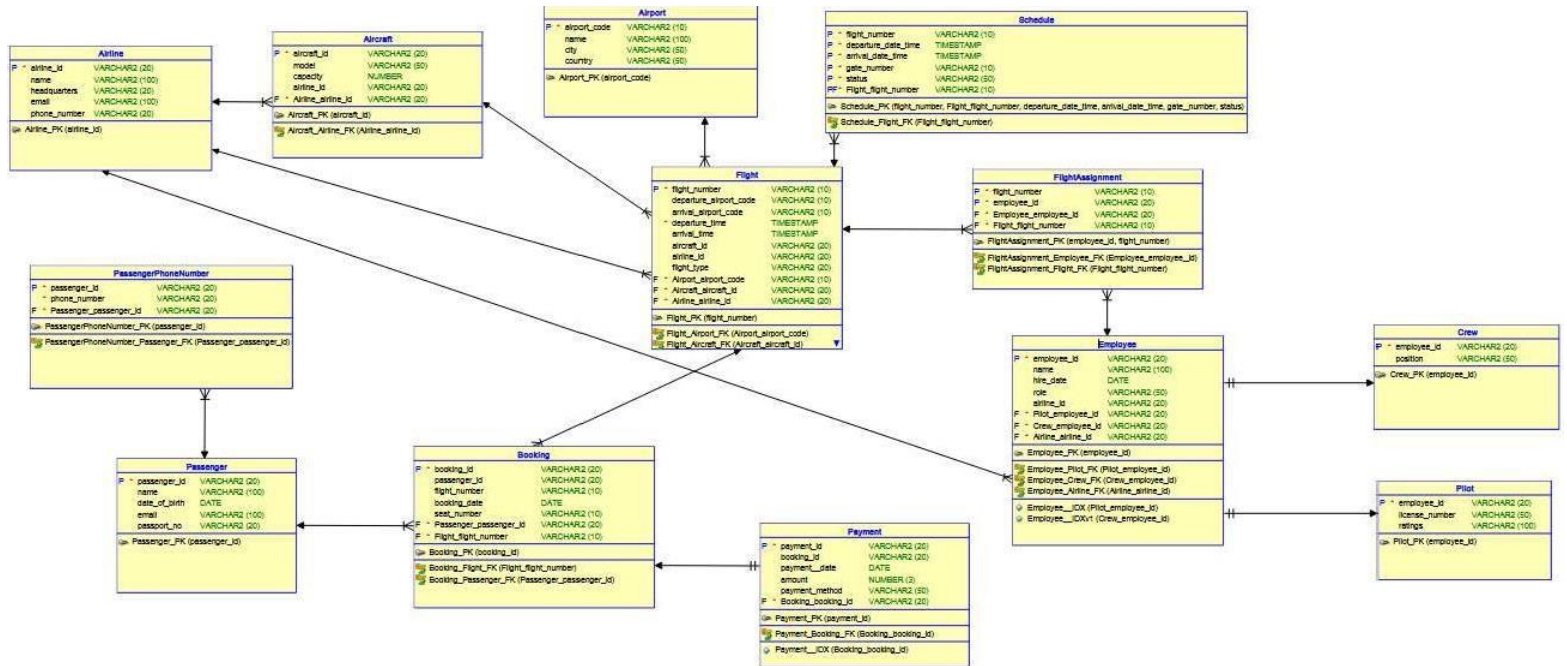


1. E-R Model of the Project



2. Schema Design of the Project



3. Implementation Checklist

Included any trigger/other feature which is not taught in class. If yes, please explain briefly.

Yes, I included two custom triggers not taught in class. One trigger prevents overbooking by checking flight capacity before inserting a booking. Another trigger validates that a passenger must be at least 2years old. These ensure data accuracy and enforce real-world

Write the most unique feature/functionality in your application or the page of your application that you are proud of. Explain briefly.	<p>business rules.</p> <p>The most unique functionality in my application is the automatic validation and booking restriction system using database triggers. It makes the application robust and smart.</p> <p>Additionally, I am also proud of my Flight with Full Schedule report page (Page 74), where I used:</p> <ul style="list-style-type: none"> • Multi-table joins to display flight, schedule, crew, and airline info in one place. • Custom CSS styling to make the report transparent over a full-page background image. • Dynamic filtering options to make data navigation easier for users. <p>These features make the application not only technically sound but also visually appealing and user-friendly.</p>
---	---

4. Reports with Forms

Report Page Number and Name	Form Page Number and Name	Table
write your report page number and name here	write your form page number and name here	write the name of the table for which pages are created
2 - Airline Details	3 - Airline Form	AIRLINE
8 - Aircraft Details	9 - Aircraft Form	AIRCRAFT
10 - USER	11 - USER	AIRLINE_USER
12 - Airport Details	13 - Airport Form	AIRPORT
18 - Flight Details	19 - Flight Form	FLIGHT
20 - Passenger Details	21 - Passenger Form	PASSENGER
22 - PassengerPhoneNumber Report	23- PassengerPhoneNumber Form	PASSENGERPHONENUMBER
24 - Booking Details	25 - Booking Form	BOOKING
28 - Payment Details	29 - Payment Form	PAYMENT
30 - Employee Details	31 - Employee Form	EMPLOYEE
34 - Pilot Details	35 - Pilot Form	PILOT
36 - Crew Details	37 - Crew Form	CREW
44 - FlightAssignment Details	45 - FlightAssignment Form	FLIGHTASSIGNMENT
40 - Schedule Details	41 - Schedule Form	SCHEDULE

Attach screenshots of each **report and form page**:

2- Airline Details:

Airline Management System pranay@gmail.com

Airline Details

Search: Go Actions Create

	Airline ID	Name	Headquarters	Email	Phone Number
	A001	SkyJet	New York	contact@skyjet.com	111-222-3333
	A002	OceanAir	Los Angeles	info@oceanair.com	222-333-4444
	A003	StarFly	London	support@starfly.co.uk	333-444-5555
	A004	NimbusAir	Tokyo	hello@nimbusair.jp	444-555-6666
	A005	BlueWings	Paris	contact@bluewings.fr	555-666-7777
	A006	DesertWind	Dubai	info@desertwind.ae	666-777-8888
	A007	AuroraFly	Toronto	support@aurorafly.ca	777-888-9999

1 - 7

Release 1.0

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3-Airline Form:

Airline Form ✕

Airline_id

Name

Headquarters

Email

Phone Number

8 - Aircraft Details:

Aircraft Details

	Aircraft ID	Model	Capacity	Airline
	AC01	Boeing 737	180	A001
	AC02	Airbus A320	160	A002
	AC03	Boeing 777	300	A003
	AC04	Airbus A380	500	A004
	AC05	Embraer E190	100	A005
	AC06	Boeing 787	250	A006
	AC07	Bombardier CRJ900	90	A007

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Release 1.0

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9 - Aircraft Form:

Aircraft Form

10 – USER:

	User ID	Full Name	Email	Phone	Password	User Role	Account Status	Created At	Last Login
	62	Nina Brown	nina@gmail.com	+880123457781	nina20	employee	active	9.2 years ago	
	47	Oscar Grant	oscar@gmail.com	+880123356781	oscar20	employee	active	8.1 years ago	5/30/2025
	46	Linda Lane	linda@gmail.com	+880123456681	linda20	employee	active	13.3 years ago	
	48	Peter James	peter@gmail.com	+880123436781	peter20	employee	active	7 years ago	
	61	Mark Smith	mark@gmail.com	+880133456781	mark20	employee	active	10.2 years ago	
	63	Quincy Adams	quincy@gmail.com	+880153456781	quincy20	employee	active	5.9 years ago	
	1	Hasin Maliha	maliha@gmail.com	+880123456781	maliha123	passenger	active	43 hours ago	5/30/2025
	2	Aniruddha	aniruddha@gmail.com	+880123456782	aniruddha456	admin	active	43 hours ago	5/30/2025
	3	Pranay	pranay@gmail.com	+880123456783	pranay789	admin	active	43 hours ago	5/31/2025
	4	Samiul Karim	samiul.k@gmail.com	+880123456784	samiul321	passenger	inactive	43 hours ago	
	5	Nusrat Jahan	nusratj@gmail.com	+880123456785	nusrat123	employee	active	43 hours ago	
	6	Rafi Ahmed	rafi@gmail.com	+880123456786	rafi999	employee	active	43 hours ago	5/30/2025
	7	Meherab Islam	meherab@gmail.com	+880123456787	meherab12	passenger	active	43 hours ago	
								43 hours ago	

11 – USER:

USER

USER_ID

Full Name

Email

Phone

Password

User Role

Account Status

Created At








Create

Debug Quick Edit Customize

Create

12 - Airport Details:

Airport Details








	Airport Code	Name	City	Country
	JFK	John F. Kennedy International	New York	USA
	LAX	Los Angeles International	Los Angeles	USA
	LHR	Heathrow	London	UK
	NRT	Narita	Tokyo	Japan
	CDG	Charles de Gaulle	Paris	France
	DXB	Dubai International	Dubai	UAE
	YYZ	Toronto Pearson	Toronto	Canada

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13 - Airport Form:

Airport Form

18 - Flight Details:

Flight Details								
	Flight Number	Departure Airport Code	Arrival Airport Code	Departure Time	Arrival Time	Aircraft	Airline	Flight Type
	FL100	John F. Kennedy International	Los Angeles International	5/29/2025	5/29/2025	Boeing 737	SkyJet	Domestic
	FL101	Los Angeles International	Narita	5/29/2025	5/29/2025	Airbus A320	OceanAir	International
	FL102	Heathrow	Dubai International	5/29/2025	5/29/2025	Boeing 777	StarFly	International
	FL103	Charles de Gaulle	Toronto Pearson	5/29/2025	5/29/2025	Airbus A380	NimbusAir	International
	FL104	Toronto Pearson	John F. Kennedy International	5/29/2025	5/29/2025	Embraer E190	BlueWings	Domestic
	FL105	Dubai International	Heathrow	5/29/2025	5/29/2025	Boeing 787	DesertWind	International
	FL106	Narita	Charles de Gaulle	5/29/2025	5/29/2025	Bombardier CRJ900	AuroraFly	International
1 - 7								

19 - Flight Form:

Flight Form

Flight_number

Departure Airport Code

Arrival Airport Code

Departure Time

Arrival Time

Aircraft Id

Airline Id

Flight Type

Debug

Quick Edit

Customize

Info

Settings

Create

20 - Passenger Details:

Passenger Details					
Q		Go	Actions	Create	
	Passenger ID	Name	Date of Birth	Email	Passport No
	P001	Alice Smith	1/1/1980	alice@gmail.com	A1234567
	P002	Bob Johnson	2/2/1990	bob@gmail.com	B2345678
	P003	Charlie Brown	3/3/1985	charlie@gmail.com	C3456789
	P004	Diana Prince	4/4/1995	diana@gmail.com	D4567890
	P005	Ethan Hunt	5/5/1975	ethan@gmail.com	E5678901
	P006	Fiona Glenanne	6/6/1982	fiona@gmail.com	F6789012
	P007	George Miller	7/7/1993	george@gmail.com	G7890123
	P008	Milenia	1/7/1998	milenia@gmail.com	278
					1 - 8

21 - Passenger Form:

Passenger Form

Passenger_id

Name

Date Of Birth

Email

Passport No

22 - PassengerPhoneNumber Report:

PassengerPhoneNumber Details		
Q	Go	Actions
Create		
	Phone Number	Passenger
	123-456-7890	P001
	234-567-8901	P002
	345-678-9012	P003
	456-789-0123	P004
	567-890-1234	P005
	678-901-2345	P006
	789-012-3456	P007
1 - 7		

23-PassengerPhoneNumber Form:

PassengerPhoneNumber Form

Passenger_id

Phone_number

24 - Booking Details:

Booking Details

	Booking ID	Passenger	Flight Number	Booking Date	Seat Number
	B001	Alice Smith	JFK	5/29/2025	12A
	B002	Bob Johnson	LAX	5/29/2025	14C
	B003	Charlie Brown	LHR	5/29/2025	15D
	B004	Diana Prince	CDG	5/29/2025	16B
	B005	Ethan Hunt	YYZ	5/29/2025	10F
	B006	Fiona Glenanne	DXB	5/29/2025	22A
	B007	George Miller	NRT	5/29/2025	7B

1 - 7

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25 - Booking Form:

Booking Form

28 - Payment Details:

Payment Details					
<div><div>Q</div><div></div><div>Go</div><div>Actions</div><div>Create</div></div>					
	Payment ID	Booking	Payment Date	Amount	Payment Method
	PAY001	P001	5/29/2025	500	Credit Card
	PAY002	P002	5/29/2025	800	Debit Card
	PAY003	P003	5/29/2025	900	UPI
	PAY004	P004	5/29/2025	750	PayPal
	PAY005	P005	5/29/2025	300	Net Banking
	PAY006	P006	5/29/2025	950	Cash
	PAY007	P007	5/29/2025	700	Credit Card
					1 - 7
Release 1.0					

29 - Payment Form:

Payment Form

X

Payment_id

Booking Id

B001

Payment Date

Amount

Payment Method

30 - Employee Details:

Employee Details					
Q		Go	Actions	Create	
	Employee ID	Name	Hire Date	Role	Airline
	E001	James Cameron	1/1/2010	Pilot	SkyJet
	E002	Linda Lane	2/1/2012	Pilot	OceanAir
	E003	Mark Smith	3/1/2015	Crew	StarFly
	E004	Nina Brown	4/1/2016	Crew	NimbusAir
	E005	Oscar Grant	5/1/2017	Crew	BlueWings
	E006	Peter James	6/1/2018	Pilot	DesertWind
	E007	Quincy Adams	7/1/2019	Pilot	AuroraFly
1 - 7					

31 - Employee Form:

Employee Form

Employee_id

Name

Hire Date

Role

Airline Id

34 - Pilot Details:

Pilot Details

	Employee	License Number	Ratings
	E001	L123	Boeing 737, Airbus A320
	E002	L234	Airbus A380, Boeing 777
	E006	L345	Boeing 787
	E007	L456	Bombardier CRJ900

1 - 4

35 - Pilot Form:

Pilot Form

36-Crew Details:

Crew Details

Go

Actions

Create

	Employee	Position
	E003	Cabin Attendant
	E004	Cabin Supervisor
	E005	Ground Staff

1 - 3

37 - Crew Form:








Crew Form

X

Employee_id

Position

44 - FlightAssignment Details:

FlightAssignment Details		
Q ▾	Go	Actions ▾
	Employee	Flight Number
	E001	FL100
	E002	FL101
	E003	FL102
	E004	FL103
	E005	FL104
	E006	FL105
	E007	FL106
		1 - 7














45 - FlightAssignment Form:

FlightAssignment Form

Flight_number

Employee_id

40 - Schedule Details:

Schedule details					
Q ▾		Go	Actions ▾	Create	
	Flight Number	Departure Date Time	Arrival Date Time	Gate Number	Status
	FL100	5/29/2025	5/29/2025	G1	On Time
	FL100	5/29/2025	5/29/2025	G1	On Time
	FL101	5/29/2025	5/29/2025	G2	Delayed
	FL101	5/29/2025	5/30/2025	G2	Delayed
	FL102	5/29/2025	5/29/2025	G3	On Time
	FL102	5/29/2025	5/29/2025	G3	On Time
	FL103	5/29/2025	5/29/2025	G4	Cancelled
	FL103	5/29/2025	5/29/2025	G4	Cancelled
	FL104	5/29/2025	5/29/2025	G5	On Time
	FL104	5/29/2025	5/29/2025	G5	On Time
	FL105	5/29/2025	5/29/2025	G6	Boarding
	FL105	5/29/2025	5/29/2025	G6	Boarding
					On Time

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41 - Schedule Form:

Schedule Form

Flight_number

Departure_date_time

Arrival_date_time

Gate_number

Status

6.Reports based on Multi-Table and Aggregate Queries

Page Number and Name	Query Type	Report description
write your report page number and name here	Multi-table/Aggregate	write the description of the report in a simple sentence such as this report shows the total number of instructors per department.
6 - All Flights with Airline Info	Multi-table/Aggregate	This report shows flight details along with airline information by joining flights and airlines tables.
14 – Passenger Booking Details	Multi-table/Aggregate	This report displays passenger booking information combining passenger and booking tables.
16–Flight Schedule Status	Aggregate	This report shows the current status of flight schedules with counts per status category.
32 – Pilot With License Info	Multi-table	This report lists pilots along with their license information by joining pilot and license tables.
38–Crew Member with Position	Multi-table	This report shows crew members and their assigned positions on flights.
42 –Payment Summary	Aggregate	This report summarizes payments made grouped by payment methods or periods.
50–Flight Per Airport	Aggregate	This report shows the total number of flights departing or arriving at each airport.
52 - Aircraft and Airline Info	Multi-table	This report provides information on aircrafts along with their respective airlines.
54–Employees Assigned per Flight	Multi-table	This report lists employees assigned to each flight by joining employees and flight assignment tables.
60 –Passenger Contacts	Multi-table	This report shows contact details of passengers associated with their bookings.
62 –International Flights	Aggregate	This report shows counts and details of international flights per route.
66 -Recent Booking	Aggregate	This report shows recently made bookings with summary statistics.
68 - Crew Assigned per Flight	Multi-table	This report lists crew members assigned to each flight with their roles.
72–Payment by Method	Aggregate	This report displays payment totals grouped by different payment methods.
74–Flight with Full Schedule	Multi-table	This report combines flight details with full schedule information from multiple tables.
76 - Employee Count Per Airline	Aggregate	This report shows the number of employees working for each airline.

Attach screenshots of each **Page Number and Name**:

6 - All Flights with Airline Info:

All Flights with Airline Info

Flight Number	Departure Time	Arrival Time	Airline Name
FL100	5/29/2025	5/29/2025	SkyJet
FL101	5/29/2025	5/29/2025	OceanAir
FL102	5/29/2025	5/29/2025	StarFly
FL103	5/29/2025	5/29/2025	NimbusAir
FL104	5/29/2025	5/29/2025	BlueWings
FL105	5/29/2025	5/29/2025	DesertWind
FL106	5/29/2025	5/29/2025	AuroraFly

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14 – Passenger Booking Details:

Passenger Booking Details

Passenger Name	Booking Id	Flight Number	Seat Number
Alice Smith	B001	FL100	12A
Bob Johnson	B002	FL101	14C
Charlie Brown	B003	FL102	15D
Diana Prince	B004	FL103	16B
Ethan Hunt	B005	FL104	10F
Fiona Glenanne	B006	FL105	22A
George Miller	B007	FL106	7B

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16 – Flight Schedule Status

Flight Schedule Status				
Flight Number	Departure Date Time	Arrival Date Time	Gate Number	Status
FL100	5/29/2025	5/29/2025	G1	On Time
FL100	5/29/2025	5/29/2025	G1	On Time
FL101	5/29/2025	5/29/2025	G2	Delayed
FL101	5/29/2025	5/30/2025	G2	Delayed
FL102	5/29/2025	5/29/2025	G3	On Time
FL102	5/29/2025	5/29/2025	G3	On Time
FL103	5/29/2025	5/29/2025	G4	Cancelled
FL103	5/29/2025	5/29/2025	G4	Cancelled
FL104	5/29/2025	5/29/2025	G5	On Time
FL104	5/29/2025	5/29/2025	G5	On Time
FL105	5/29/2025	5/29/2025	G6	Boarding
FL105	5/29/2025	5/29/2025	G6	Boarding
FL106	5/29/2025	5/29/2025	G7	On Time
FL106	5/29/2025	5/30/2025	G7	On Time

32 – Pilot With License Info

Pilot with License Info			
<div><input type="text" value="Q"/> <input type="button" value="Go"/> <input type="button" value="Actions"/></div>			
Name	Role	License Number	Ratings
James Cameron	Pilot	L123	Boeing 737, Airbus A320
Linda Lane	Pilot	L234	Airbus A380, Boeing 777
Peter James	Pilot	L345	Boeing 787
Quincy Adams	Pilot	L456	Bombardier CRJ900
			1 - 4

38 – Crew Member with Position

Crew Members with Position		
<div><input type="text" value="Q"/> <input type="button" value="Go"/> <input type="button" value="Actions"/></div>		
Name	Role	Position
Mark Smith	Crew	Cabin Attendant
Nina Brown	Crew	Cabin Supervisor
Oscar Grant	Crew	Ground Staff
		1 - 3

42 – Payment Summary

Payment Summary			
<div><input type="text" value="Q"/> <input type="button" value="Go"/> <input type="button" value="Actions"/></div>			
Payment Id	Booking Id	Amount	Payment Method
PAY001	B001	500	Credit Card
PAY002	B002	800	Debit Card
PAY003	B003	900	UPI
PAY004	B004	750	PayPal
PAY005	B005	300	Net Banking
PAY006	B006	950	Cash
PAY007	B007	700	Credit Card
			1 - 7

50 – Flight Per Airport

Flights per Airport			
Airport Name	Flight Number	Departure Time	Arrival Time
John F. Kennedy International	FL100	5/29/2025	5/29/2025
Los Angeles International	FL100	5/29/2025	5/29/2025
Los Angeles International	FL101	5/29/2025	5/29/2025
Narita	FL101	5/29/2025	5/29/2025
Heathrow	FL102	5/29/2025	5/29/2025
Dubai International	FL102	5/29/2025	5/29/2025
Charles de Gaulle	FL103	5/29/2025	5/29/2025
Toronto Pearson	FL103	5/29/2025	5/29/2025
John F. Kennedy International	FL104	5/29/2025	5/29/2025
Toronto Pearson	FL104	5/29/2025	5/29/2025
Heathrow	FL105	5/29/2025	5/29/2025
Dubai International	FL105	5/29/2025	5/29/2025
Narita	FL106	5/29/2025	5/29/2025
Charles de Gaulle	FL106	5/29/2025	5/29/2025

52 - Aircraft and Airline Info

Aircraft and Airline Info			
<div><input type="text" value="Q"/> <input type="button" value="Go"/> <input type="button" value="Actions"/></div>			
Aircraft Id	Model	Capacity	Airline
AC01	Boeing 737	180	Skylet
AC02	Airbus A320	160	OceanAir
AC03	Boeing 777	300	StarFly
AC04	Airbus A380	500	NimbusAir
AC05	Embraer E190	100	BlueWings
AC06	Boeing 787	250	DesertWind
AC07	Bombardier CRJ900	90	AuroraFly
			1 - 7

54 – Employees Assigned per Flight

Employees Assigned to Flights		
<div><input type="text" value="Q"/> <input type="button" value="Go"/> <input type="button" value="Actions"/></div>		
Flight Number	Name	Role
FL100	James Cameron	Pilot
FL101	Linda Lane	Pilot
FL102	Mark Smith	Crew
FL103	Nina Brown	Crew
FL104	Oscar Grant	Crew
FL105	Peter James	Pilot
FL106	Quincy Adams	Pilot
		1 - 7

60 – Passenger Contacts

Passenger Contacts		
<div><input type="text" value="Q"/> <input type="button" value="Go"/> <input type="button" value="Actions"/></div>		
Name	Email	Phone Number
Alice Smith	alice@gmail.com	123-456-7890
Bob Johnson	bob@gmail.com	234-567-8901
Charlie Brown	charlie@gmail.com	345-678-9012
Diana Prince	diana@gmail.com	456-789-0123
Ethan Hunt	ethan@gmail.com	567-890-1234
Fiona Glenanne	fiona@gmail.com	678-901-2345
George Miller	george@gmail.com	789-012-3456
		1 - 7

62 – International Flights

International Flights		
Q	Go	Actions
Flight Number	Departure Time	Arrival Time
FL101	5/29/2025	5/29/2025
FL102	5/29/2025	5/29/2025
FL103	5/29/2025	5/29/2025
FL105	5/29/2025	5/29/2025
FL106	5/29/2025	5/29/2025
1 - 5		

66 -Recent Booking

Recent Bookings			
Q	Go	Actions	
Booking Id	Passenger Id	Flight Number	Booking Date
B001	P001	FL100	5/29/2025
B002	P002	FL101	5/29/2025
B003	P003	FL102	5/29/2025
B004	P004	FL103	5/29/2025
B005	P005	FL104	5/29/2025
B006	P006	FL105	5/29/2025
B007	P007	FL106	5/29/2025
1 - 7			

68 - Crew Assigned per Flight

Crew Assigned Per Flight		
Q	Go	Actions
Flight Number	Name	Position
FL102	Mark Smith	Cabin Attendant
FL103	Nina Brown	Cabin Supervisor
FL104	Oscar Grant	Ground Staff
1 - 3		

72 – Payment by Method

Payment by Method		
Q	Go	Actions
Payment Method	Total Payments	Total Amount
Debit Card	1	800
PayPal	1	750
Cash	1	950
Credit Card	2	1200
UPI	1	900
Net Banking	1	300
		1 - 6

74 – Flight with Full Schedule

Flights with Full Schedule				
Flight Number	Departure Time	Arrival Time	Gate Number	Status
FL100	5/29/2025	5/29/2025	G1	On Time
FL100	5/29/2025	5/29/2025	G1	On Time
FL101	5/29/2025	5/29/2025	G2	Delayed
FL101	5/29/2025	5/29/2025	G2	Delayed
FL102	5/29/2025	5/29/2025	G3	On Time
FL102	5/29/2025	5/29/2025	G3	On Time
FL103	5/29/2025	5/29/2025	G4	Cancelled
FL103	5/29/2025	5/29/2025	G4	Cancelled
FL104	5/29/2025	5/29/2025	G5	On Time
FL104	5/29/2025	5/29/2025	G5	On Time
FL105	5/29/2025	5/29/2025	G6	Boarding
FL105	5/29/2025	5/29/2025	G6	Boarding
FL106	5/29/2025	5/29/2025	G7	On Time
FL106	5/29/2025	5/29/2025	G7	On Time

76 - Employee Count Per Airline

Employee Count per Airline	
<div><div>Q</div><div></div><div>Go</div><div>Actions</div></div>	
Airline Name	Total Employee
AuroraFly	1
OceanAir	1
StarFly	1
BlueWings	1
DesertWind	1
SkyJet	1
NimbusAir	1
1 - 7	

7. Concluding Remarks

Developing the **Airline Management System** was a challenging yet rewarding experience. At first, understanding how to design a normalized schema that connects all the airline operations—flights, passengers, bookings, and staff—felt overwhelming. But as we progressed, we gained hands-on experience with Oracle APEX, and it helped us realize how database applications work in the real world.

We faced several technical issues, especially with foreign key constraints, user authentication, and building multi-table reports, but solving them gave us confidence in our problem-solving skills. Collaborating as a team also taught us the value of dividing work based on strengths and keeping communication clear.

We are proud of how the final system turned out. From form-based data input to complex reports and user roles, it truly feels like a working airline management portal. The best part was seeing the data flow across tables and making sense visually through reports.

Thank you for guiding us throughout this course—it has given us a strong foundation in databases that we'll carry forward into our careers.