SL-1 Mini Project Report

on

AIRLINE MANAGEMENTSYSTEM

A. Y. 2020-21

Submitted by

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Batch — K9 Group ID-4

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ABSTRACT

The current system is manual, this system is slow, time consuming and it is very difficult for each person to book through office agents. Users inquire about the tickets through phones and it is very difficult for the user to remember all the details that they received through phones. It is very difficult to calculate how many peoples registered and how many seats on a particular plane are vacant. This requires quite a lot of time and wastage of money as it requires quite lot of manpower to do. So, our main objective was to automate the process of airline ticket reservation, booking and airline management hence minimize errors resulting from manual system operations. The Airline Management System designed is developed using Java Swing, AWT for Frontend i.e. Graphical User Interface, JDBC for backend connectivity and MySQL as the Database Management system, with all the code written in Java programming language. By virtue of this project, we were able to implement Relational database management concepts, functionalities and applications, as we learn it in the current semester. Also, we got to enrich our knowledge about Java Programming as we design the User Interface of this project. Lastly, we also got to explore about current database management system and study the pro's and con's of it in any Airline company.

ACKNOWLEDGEMENT

We are overwhelmed in all humbleness and gratefulness to acknowledge our sincere gratitude to all those who have helped us put our ideas to perfection and have assigned tasks well above the level of simplicity and into something concrete and unique. We wholeheartedly thank Dr. Emmanuel M. for having faith in us, and for continuously motivating us to do better.

We thank Dr. A. M. Bagade for providing us with the opportunity to work on this project, and for his valuable suggestions. With the help of his brilliant guidance and encouragement, we were able to complete our tasks correctly and were up to the mark in all the assigned tasks.

We are also grateful to our parents and friends for their continuous love, support and care for us. During the process, we got a chance to see the stronger side of our technical and non-technical aspects and strengthen our concepts of Database Management System & explore Java Programming.

CONTENTS

INTRODUCTION

- **Purpose**
  - **The current system is manual, this system is slow, time consuming and it is very difficult for each person to book through office agents. Users inquire about the tickets through phones and it is very difficult for the user to remember all the details that they received through phones. It is very difficult to calculate how many peoples registered and how many seats on a particular plane are vacant. This requires quite a lot of time and wastage of money as it requires quite lot of manpower to do.**
  - **Presence of inability of passengers to select seat(s) for their chosen flight(s) from the existing reservation system. This has ultimately resulted in time being wasted at the check-in counter in assigning seats to passengers before they can board the airplane.**
  - **No access to aircraft maintenance reports to ease passenger fears as regards to air travel and its disasters.**
  - **So, our motive is to automate the process of airline ticket reservation, booking and airline management hence minimize errors resulting from manual system operations.**

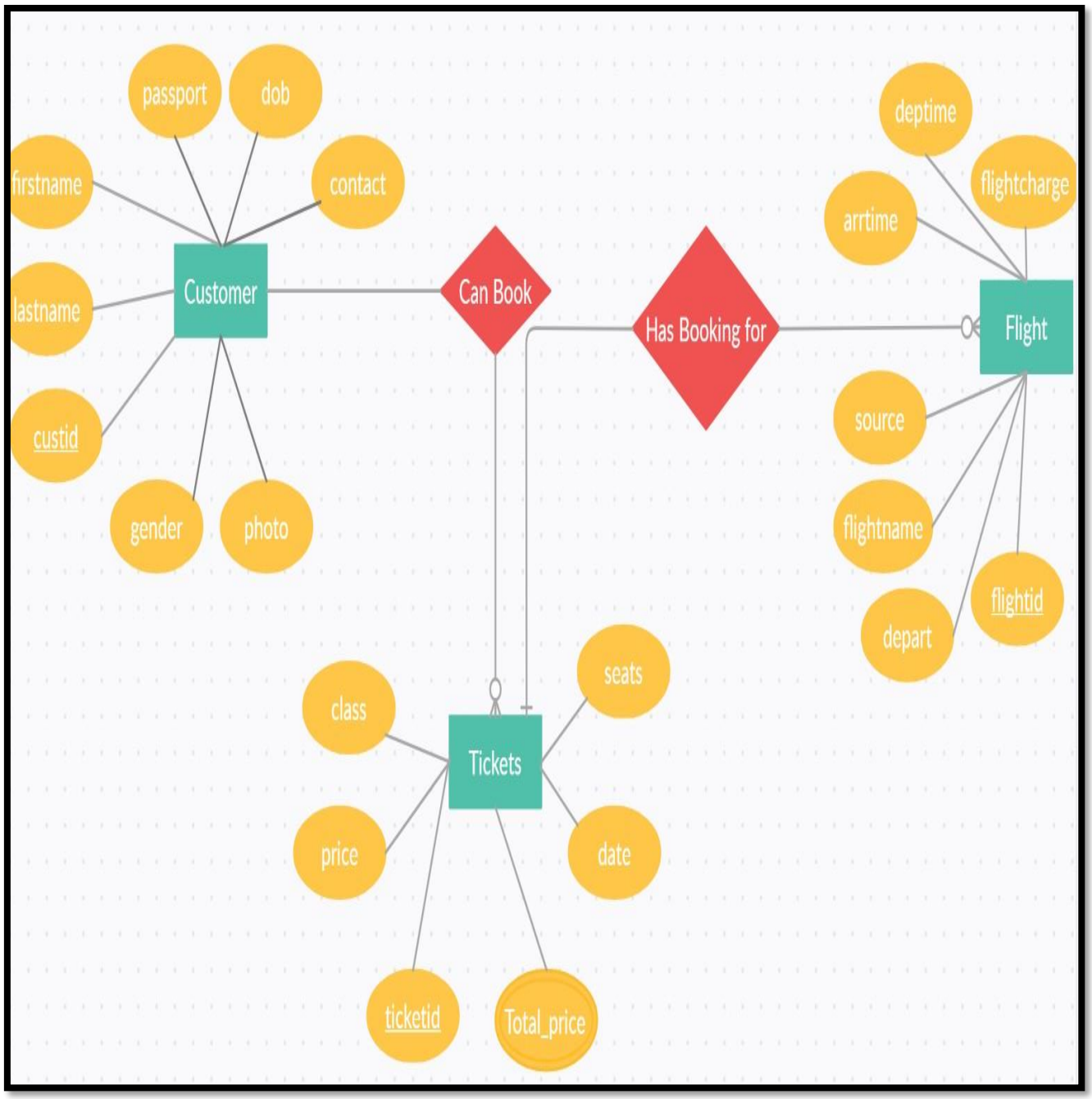
Scope

- **The developed system will facilitate online booking; keep customer records, provides an online menu on flight schedules, flight destinations and their prices, show alternative links to other partner airlines and will have page dedicated to customer queries and replies. The system excludes catering for calculating staff salary and other management issues.**
- **From the viewpoint of the airline, the system will provide among other things the following:**
- **Minimize repetitive work done by the system administrator and reservation clerks. Maintain consistency among different access modes,**
- **e.g. by phone, by web, at the information desk and across different physical locations.**
- **Maintain customer information in case of emergency, e.g. flight cancellation due to inclement weather. Minimize the number of vacant seats on a flight and maximize flight capacity utilization.**
- **Reduce effort and frustration for travelers in scheduling a trip, especially by reducing the search effort for the flight they need to take.**

- **Developers' Responsibilities: An Overview**
  - **Researching, designing, implementing, and managing software programs.**
  - **Testing and evaluating the program(s).**
  - **Identifying areas for modification in existing programs and subsequently developing these modifications.**
  - **Writing and implementing efficient code.**
  - **Determining operational practicality.**
  - **Developing quality assurance procedures.**
  - **Deploying software tools, processes, and metrics.**
  - **Maintaining and upgrading existing systems.**
  - **Training users.**
  - **Working closely with other developers, UX designers, business, and systems analysts.**

SYSTEM DESIGN

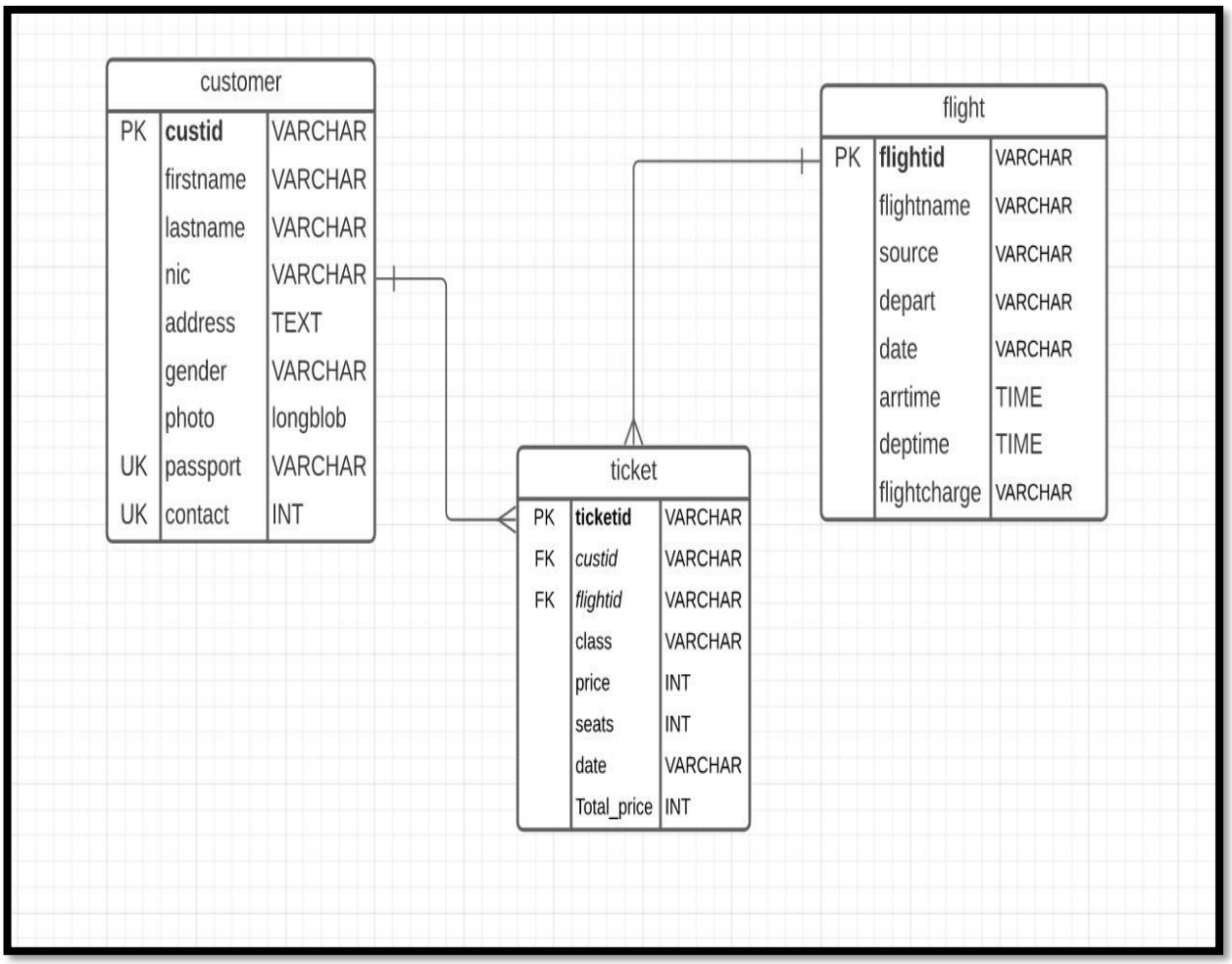
ER Diagram



Schema Description

- **customer (<u>custid</u>, firstname, lastname, photo, passport, contact, gender, nic, address, dob)**
- **flight (<u>flightid</u>, source, depart, date, flightname, flightcharge, arrtime, deptime)**
- **ticket (<u>ticketid</u>, flighted, custid, class, price, seats, date, Total_price)**
- **user (<u>id</u>, firstname, lastname, username, password)**

Table Description



SYSTEM IMPLEMENTATION

- **Hardware and Software Platform Description**

  Hardware Platform Description

  - **2 vCPUs**
  - **1 GB RAM**
  - **3 GB HDD**

  Software Platform Description

  - **Hosted via windows 10**
  - **Implemented on NetBeans Java IDE**

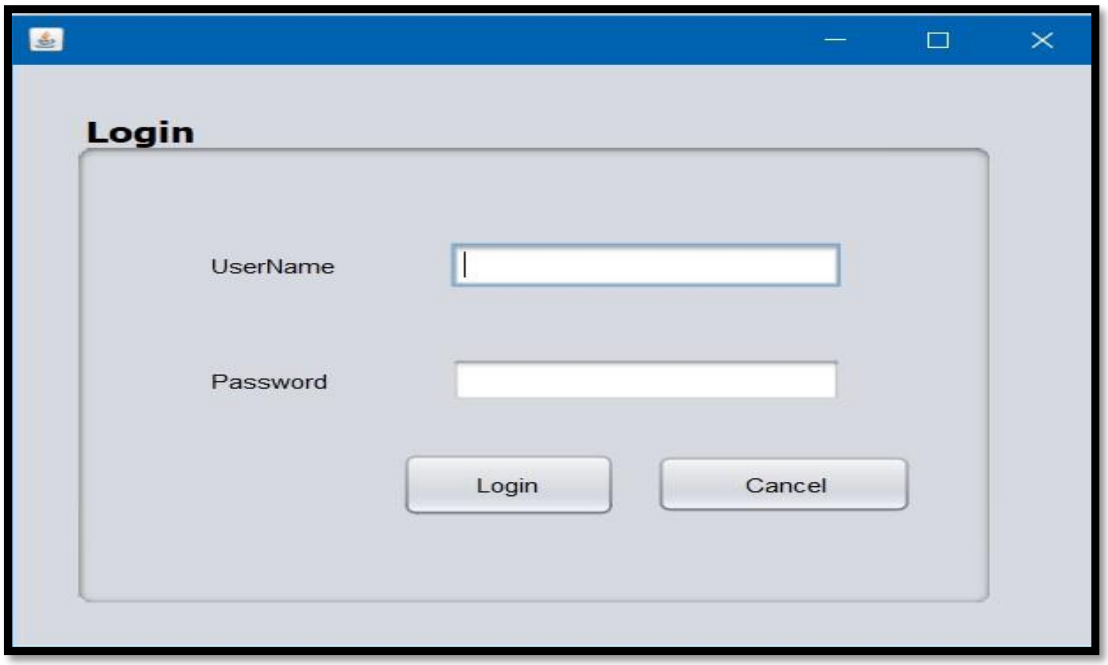
- **Tools Used Front End**
  - **Java Swing/AWT**

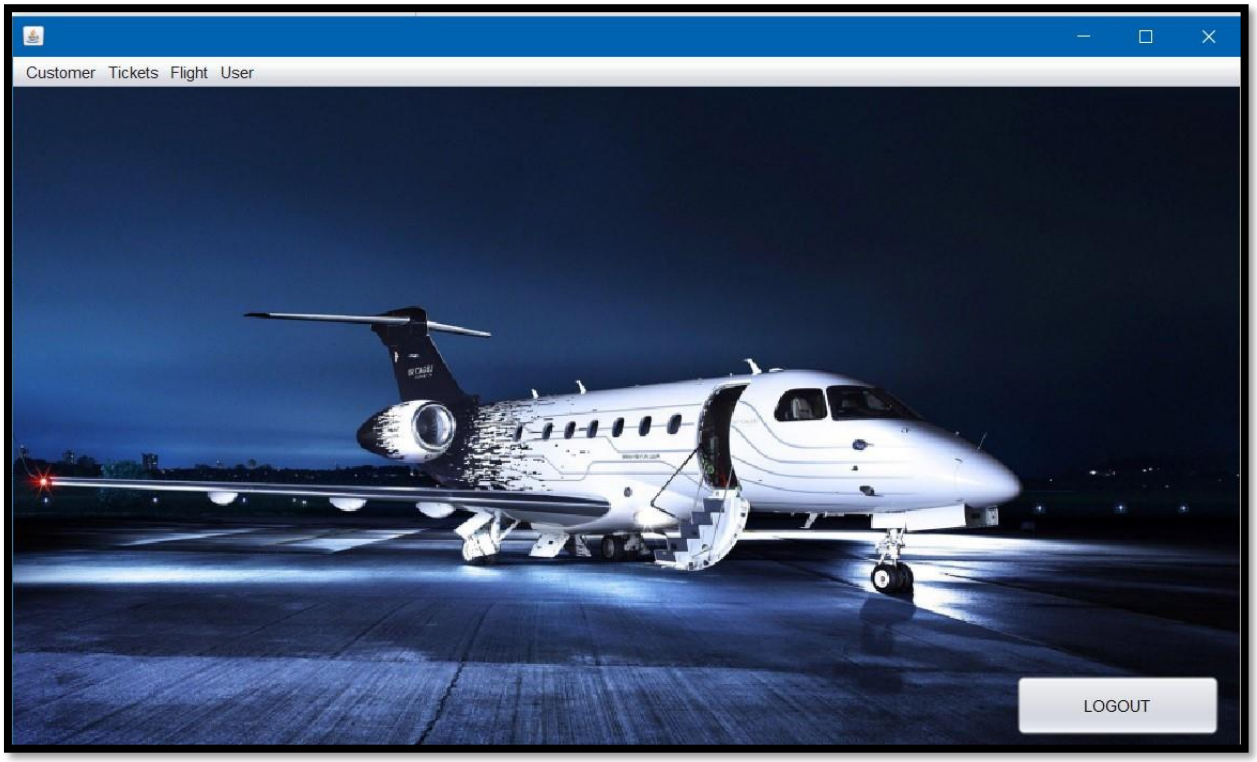
  Back End
  - **JDBC connectivity**
  - **Java**

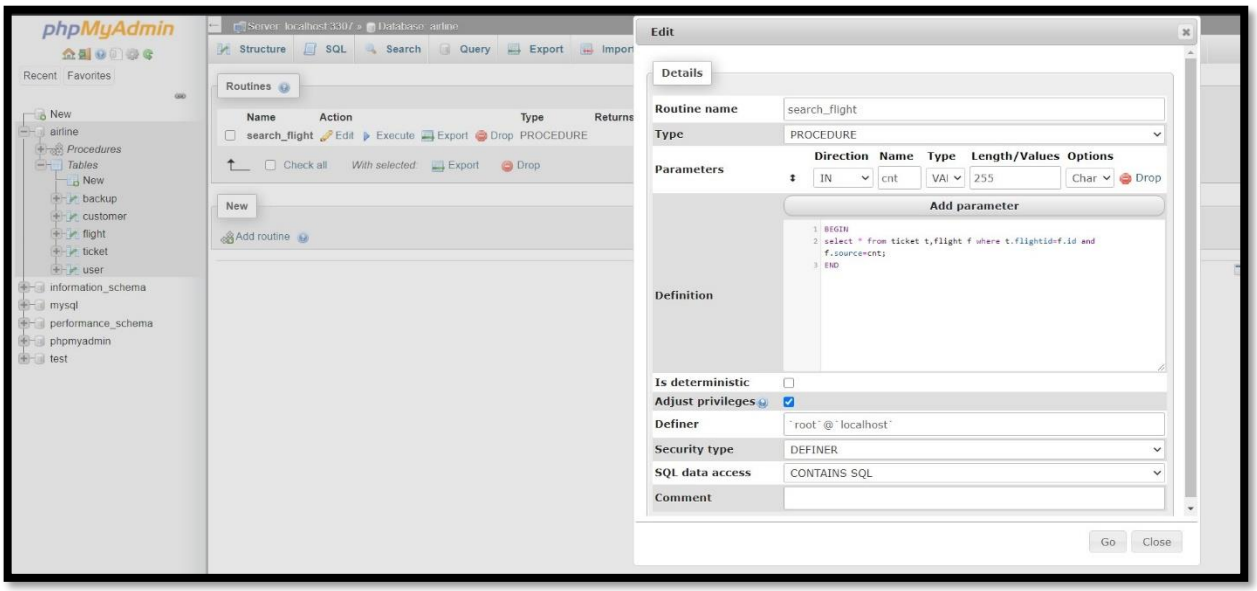
  Database
  - **MySQL on XAMPP**

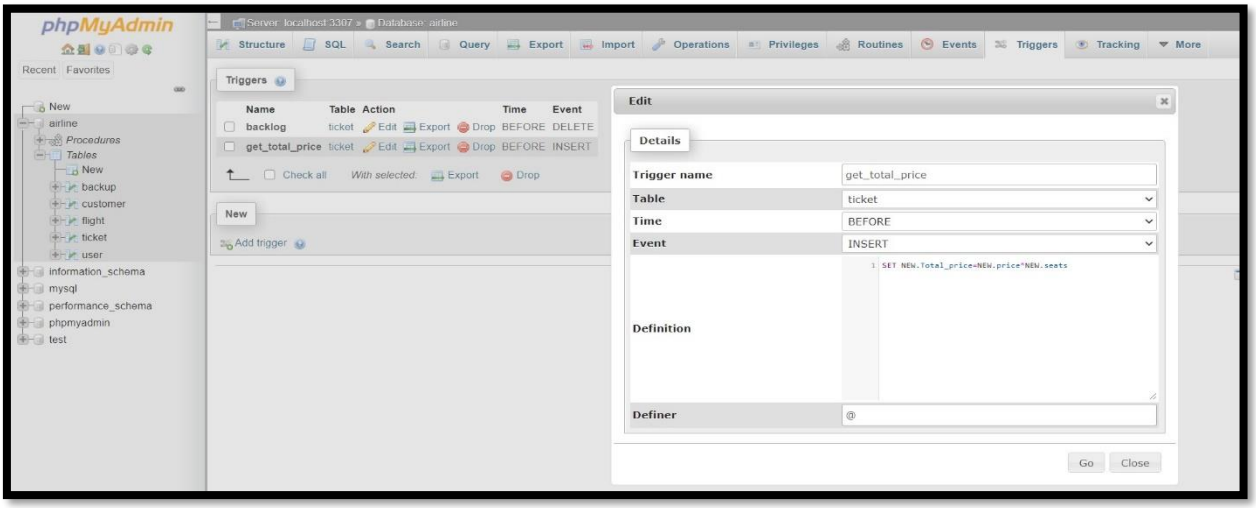
PROJECT DEMONSTRATION

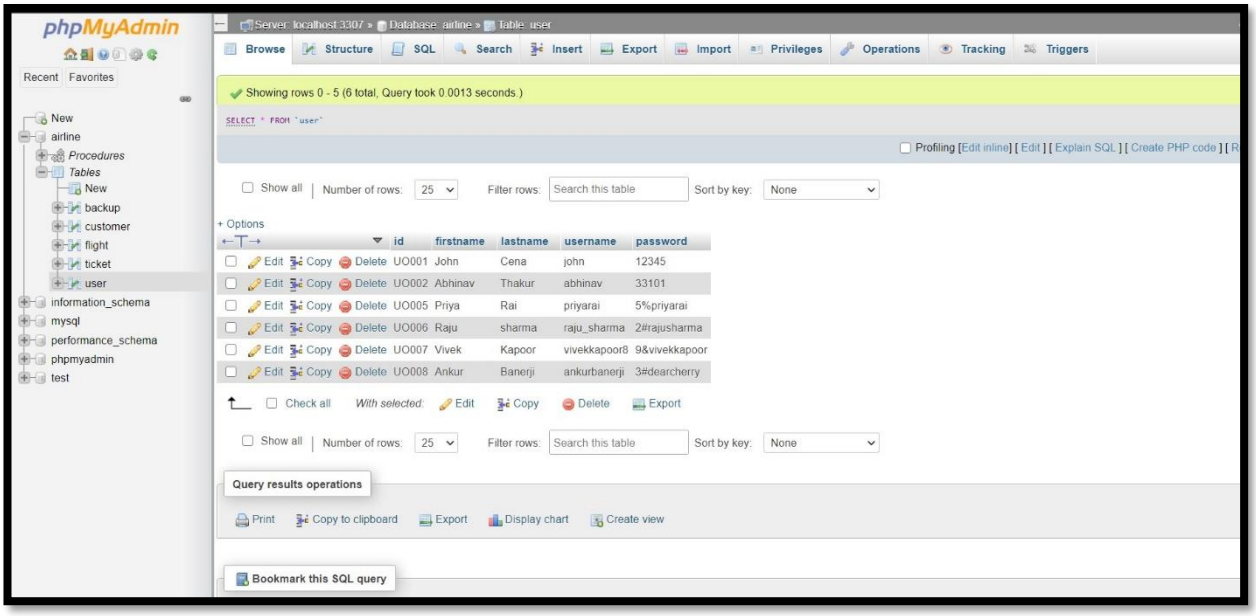
(SCREEN SHOTS)

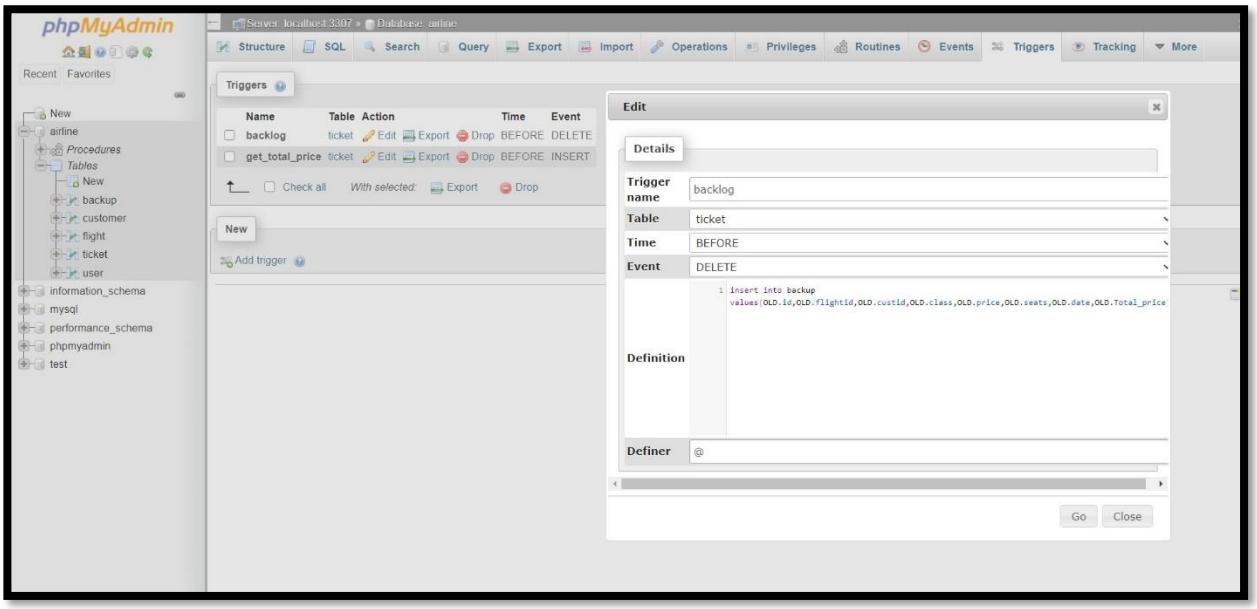


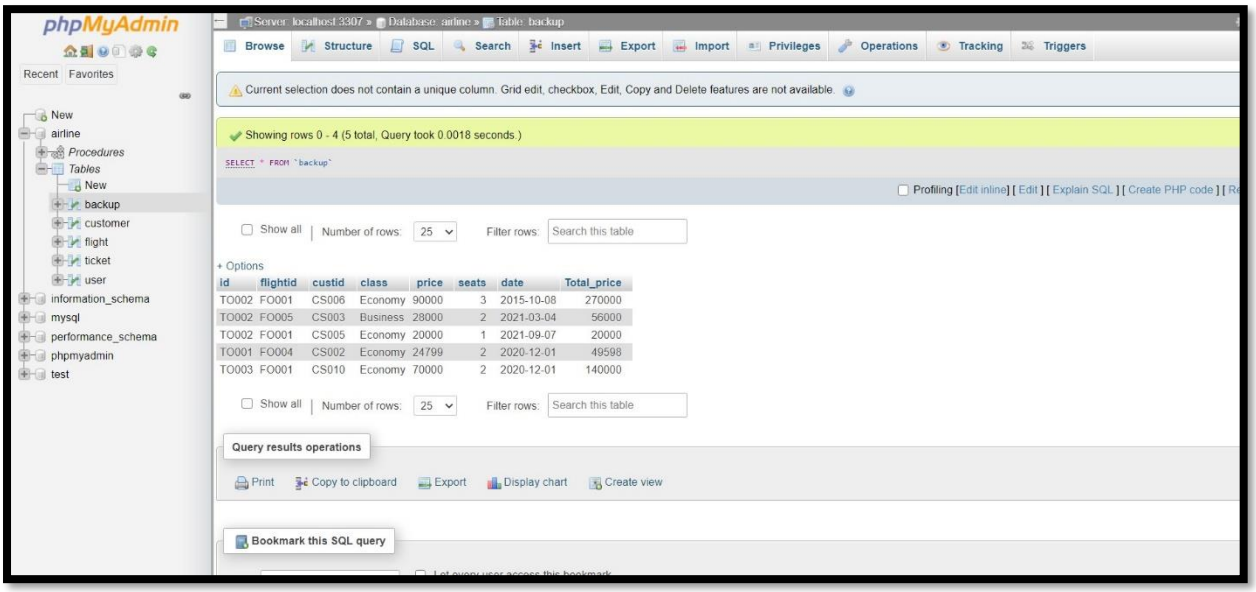

Customer
Tickets
Flight
User
LOGOUT

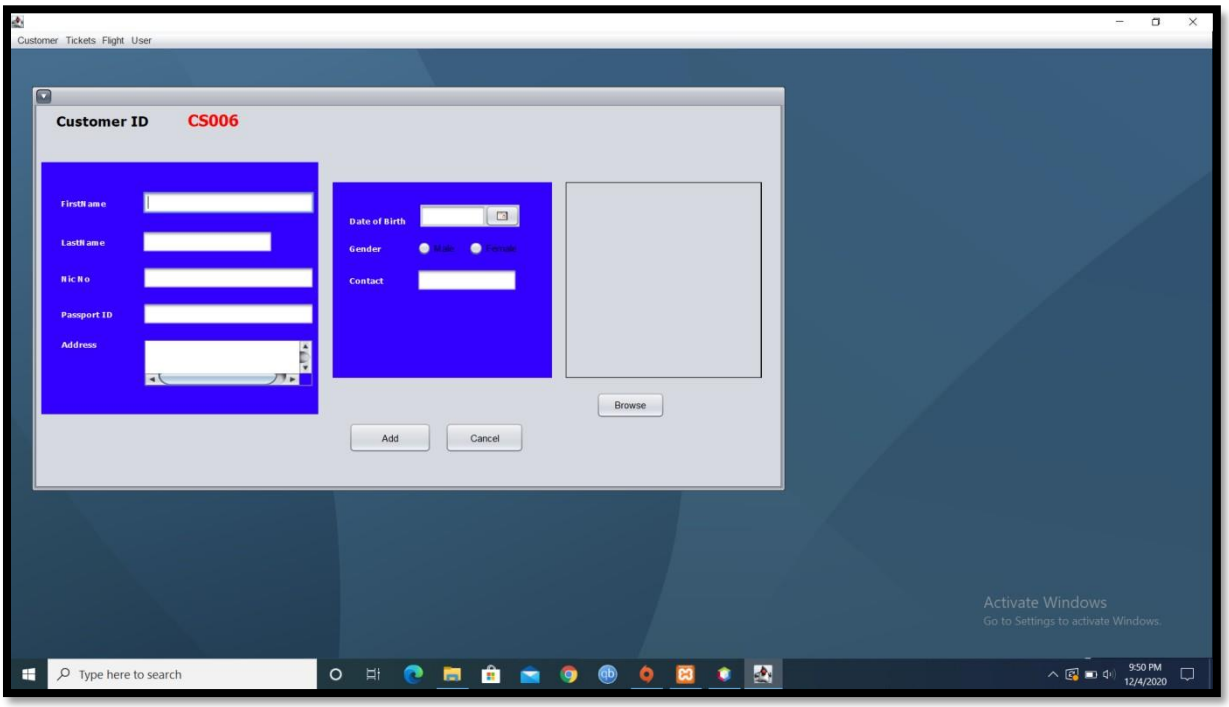

phpMyAdmin
Edit
Details
Routine name
search_flight
Type
PROCEDURE
Parameters
Direction
Name
Type
Length/Values
Options
Add parameter
Definition
Is deterministic
Adjust privileges
Definer
Security type
DEFINER
SQL data access
CONTAINS SQL
Comment
Go
Close

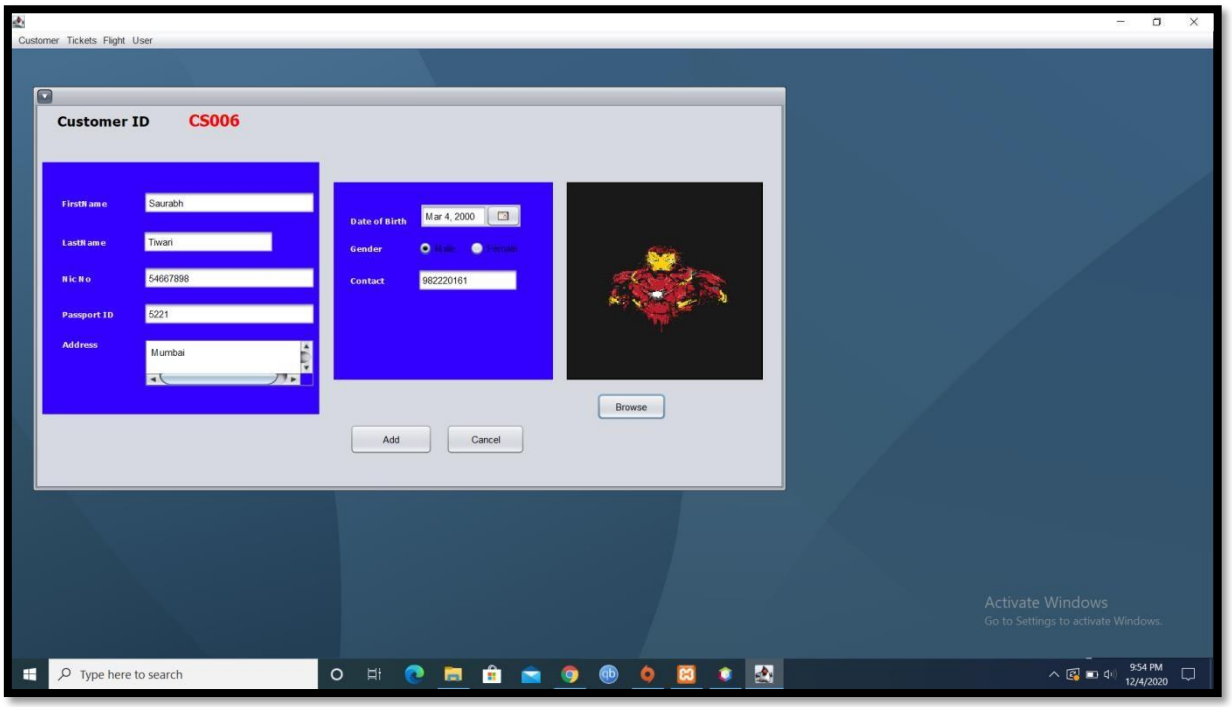

phpMyAdmin
Triggers
Edit
Details
Trigger name
get_total_price
Table
ticket
Time
BEFORE
Event
INSERT
Definition
Definer
Go
Close


phpMyAdmin
Server: localhost:3307 » Database: airline » Table: user
Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers
Showing rows 0 - 5 (6 total, Query took 0.0013 seconds.)
SELECT * FROM `user`
id firstname lastname username password
UO001 John Cena john 12345
UO002 Abhinav Thakur abhinav 33101
UO005 Priya Rai priyarai 5%priyarai
UO006 Raju sharma raju_sharma 2#rajusharma
UO007 Vivek Kapoor vivekkapoor8 9&vivekkapoor
UO008 Ankur Banerji ankurbanerji 3#dearcherry
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query


phpMyAdmin
Server: localhost:3307 » Database: airline
Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking More
Triggers
backlog ticket BEFORE DELETE
get_total_price ticket BEFORE INSERT
Edit
Details
Trigger name backlog
Table ticket
Time BEFORE
Event DELETE
Definition
insert into backup
values(OLD.id,OLD.flightid,OLD.custid,OLD.class,OLD.price,OLD.seats,OLD.date,OLD.Total_price
Definer
Go Close


phpMyAdmin
Server: localhost:3307 » Database: airline » Table: backup
Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers
Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available.
Showing rows 0 - 4 (5 total, Query took 0.0018 seconds.)
SELECT * FROM `backup`
id flightid custid class price seats date Total_price
TO002 FO001 CS006 Economy 90000 3 2015-10-08 270000
TO002 FO005 CS003 Business 28000 2 2021-03-04 56000
TO002 FO001 CS005 Economy 20000 1 2021-09-07 20000
TO001 FO004 CS002 Economy 24799 2 2020-12-01 49598
TO003 FO001 CS010 Economy 70000 2 2020-12-01 140000
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query


Customer Tickets Flight User
Customer ID
CS006
FirstName
LastName
Nic No
Passport ID
Address
Date of Birth
Gender
Contact
Browse
Add
Cancel
Activate Windows
Go to Settings to activate Windows.
Type here to search
9:50 PM
12/4/2020


Customer Tickets Flight User
Customer ID
CS006
FirstName
Saurabh
LastName
Tiwari
Nic No
54667898
Passport ID
5221
Address
Mumbai
Date of Birth
Mar 4, 2000
Gender
Contact
982220161
Browse
Add
Cancel
Activate Windows
Go to Settings to activate Windows.
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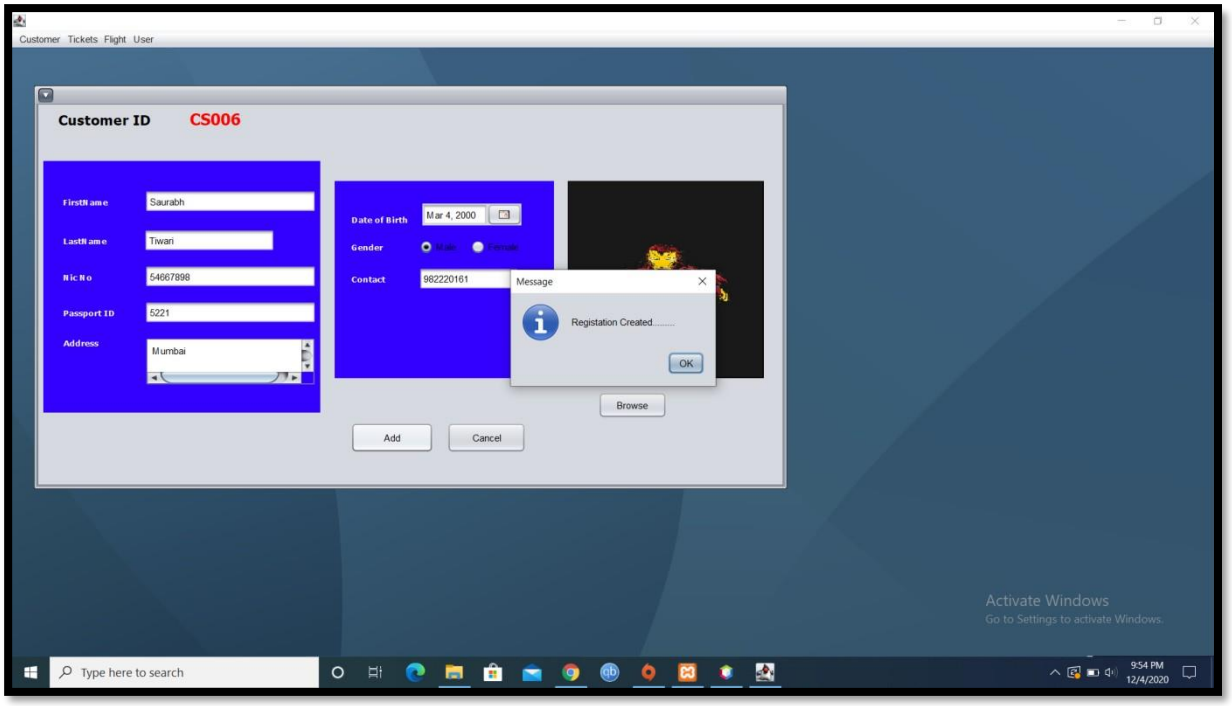
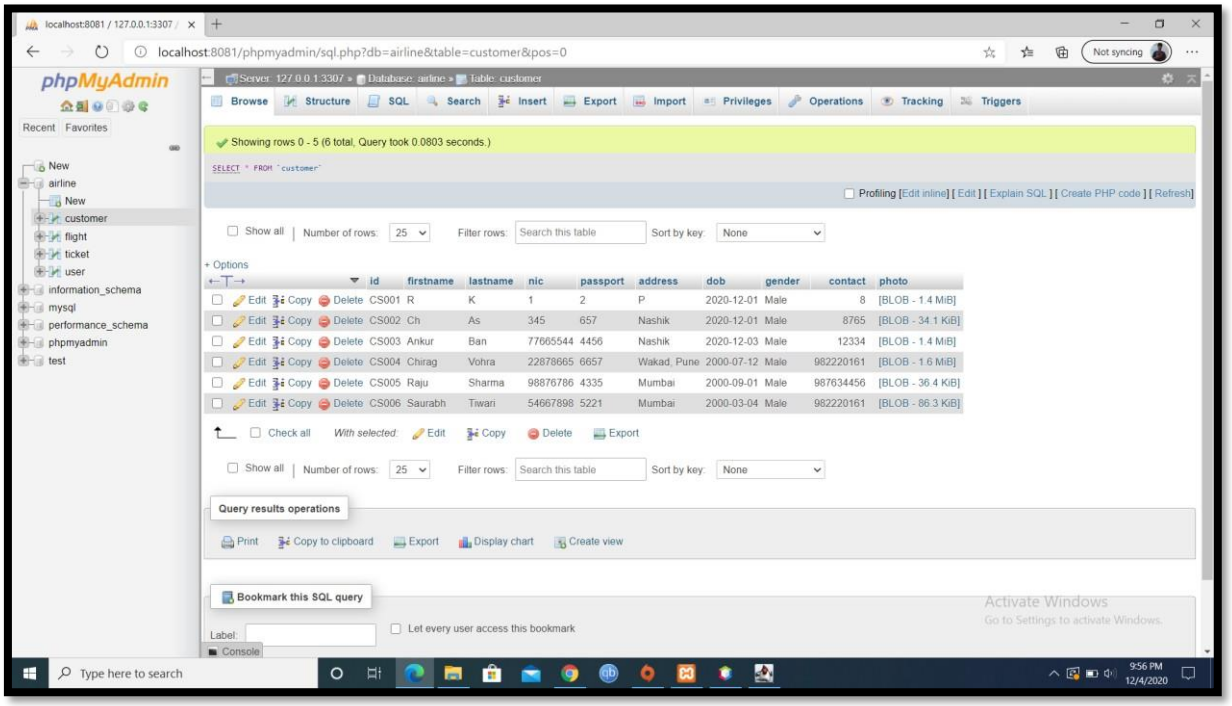
12/4/2020


Customer Tickets Flight User
Customer ID
CS006
FirstName
Saurabh
LastName
Tiwari
Nic No
54667898
Passport ID
5221
Address
Mumbai
Date of Birth
Mar 4, 2000
Gender
Contact
982220161
Message
Registation Created.....
OK
Browse
Add
Cancel
Activate Windows
Go to Settings to activate Windows.
Type here to search
9:54 PM
12/4/2020


localhost:8081 / 127.0.0.1:3307
localhost:8081/phpmyadmin/sql.php?db=airline&table=customer&pos=0
phpMyAdmin
Recent Favorites
New
airline
New
customer
flight
ticket
user
information_schema
mysql
performance_schema
phpmyadmin
test
Server: 127.0.0.1:3307 » Database: airline » Table: customer
Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers
Showing rows 0 - 5 (6 total, Query took 0.0803 seconds.)
SELECT * FROM `customer`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None
+ Options
id firstname lastname nic passport address dob gender contact photo
Edit Copy Delete CS001 R K 1 2 P 2020-12-01 Male 8 [BLOB - 1.4 MiB]
Edit Copy Delete CS002 Ch As 345 657 Nashik 2020-12-01 Male 8765 [BLOB - 34.1 KiB]
Edit Copy Delete CS003 Ankur Ban 77665544 4456 Nashik 2020-12-03 Male 12334 [BLOB - 1.4 MiB]
Edit Copy Delete CS004 Chirag Vohra 22878665 6657 Wakad, Pune 2000-07-12 Male 982220161 [BLOB - 1.6 MiB]
Edit Copy Delete CS005 Raju Sharma 98876786 4335 Mumbai 2000-09-01 Male 987634456 [BLOB - 36.4 KiB]
Edit Copy Delete CS006 Saurabh Tiwari 54667898 5221 Mumbai 2000-03-04 Male 982220161 [BLOB - 86.3 KiB]
Check all With selected: Edit Copy Delete Export
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query
Label:
Let every user access this bookmark
Console
Activate Windows
Go to Settings to activate Windows.
Type here to search
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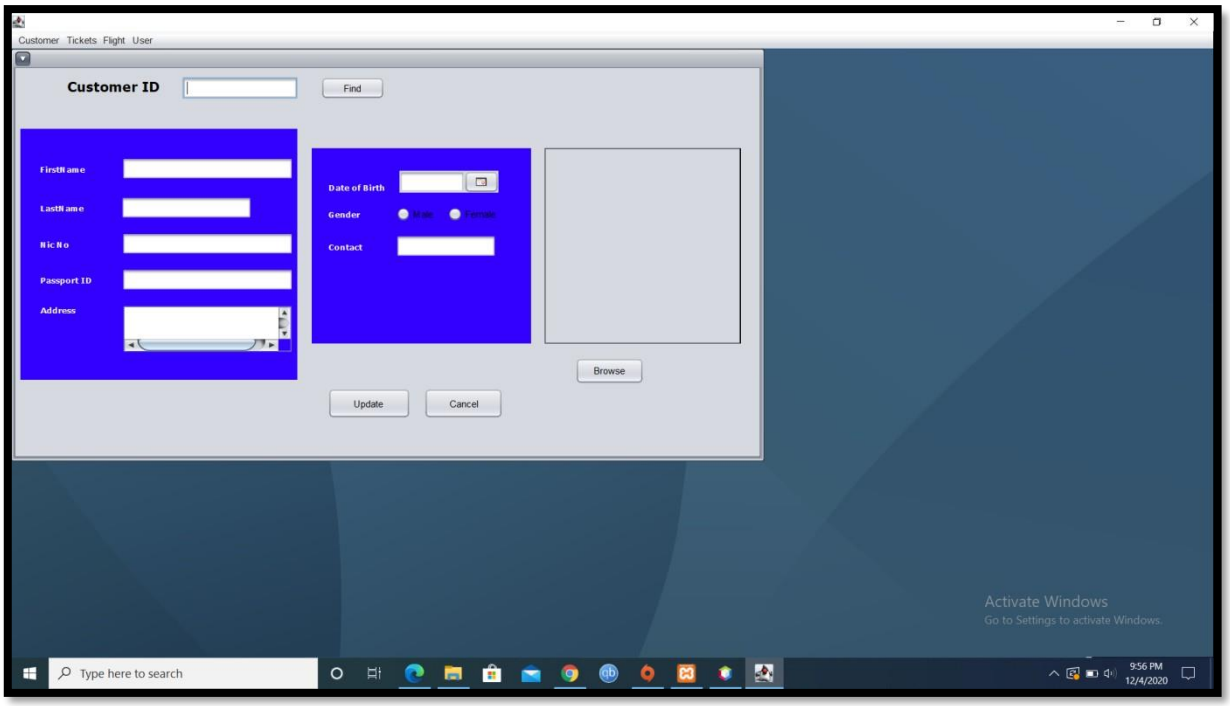
12/4/2020


Customer Tickets Flight User
Customer ID
Find
FirstName
LastName
Nic No
Passport ID
Address
Date of Birth
Gender
Male
Female
Contact
Browse
Update
Cancel
Activate Windows
Go to Settings to activate Windows.
Type here to search
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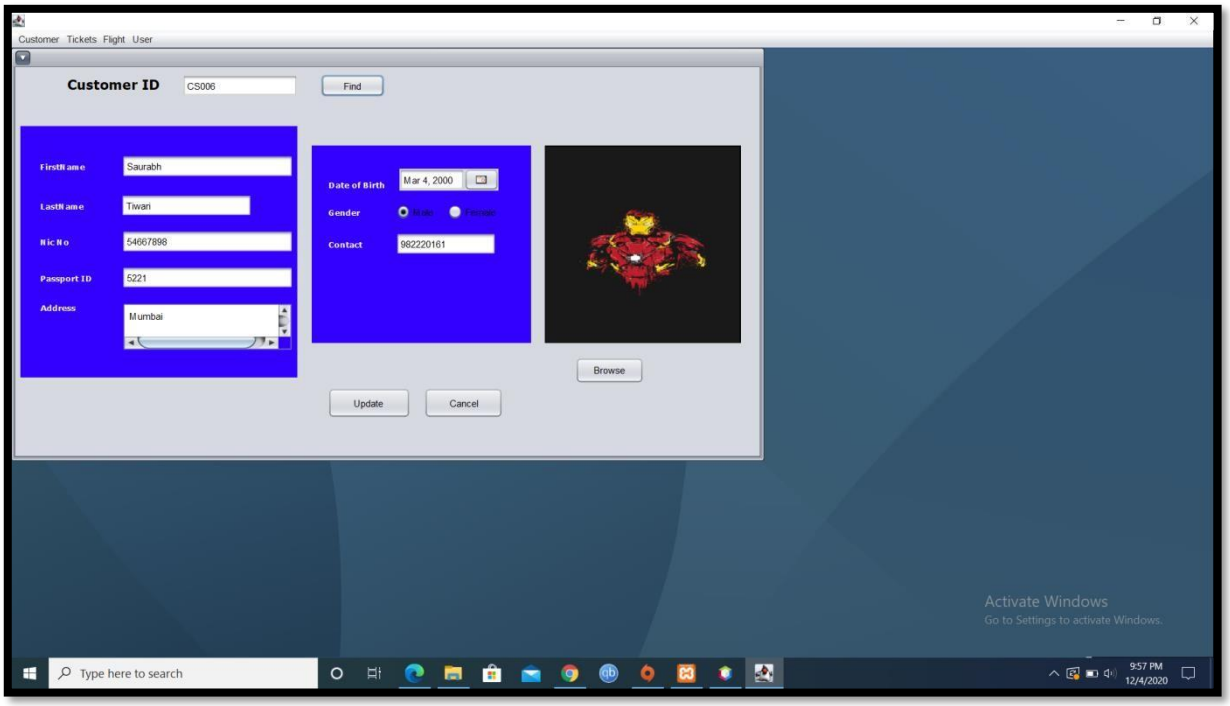
Customer Tickets Flight User
Customer ID
CS006
Find
FirstName
Saurabh
LastName
Tiwari
Nic No
54667898
Passport ID
5221
Address
Mumbai
Date of Birth
Mar 4, 2000
Gender
Male
Female
Contact
982220161
Browse
Update
Cancel
Activate Windows
Go to Settings to activate Windows.
Type here to search
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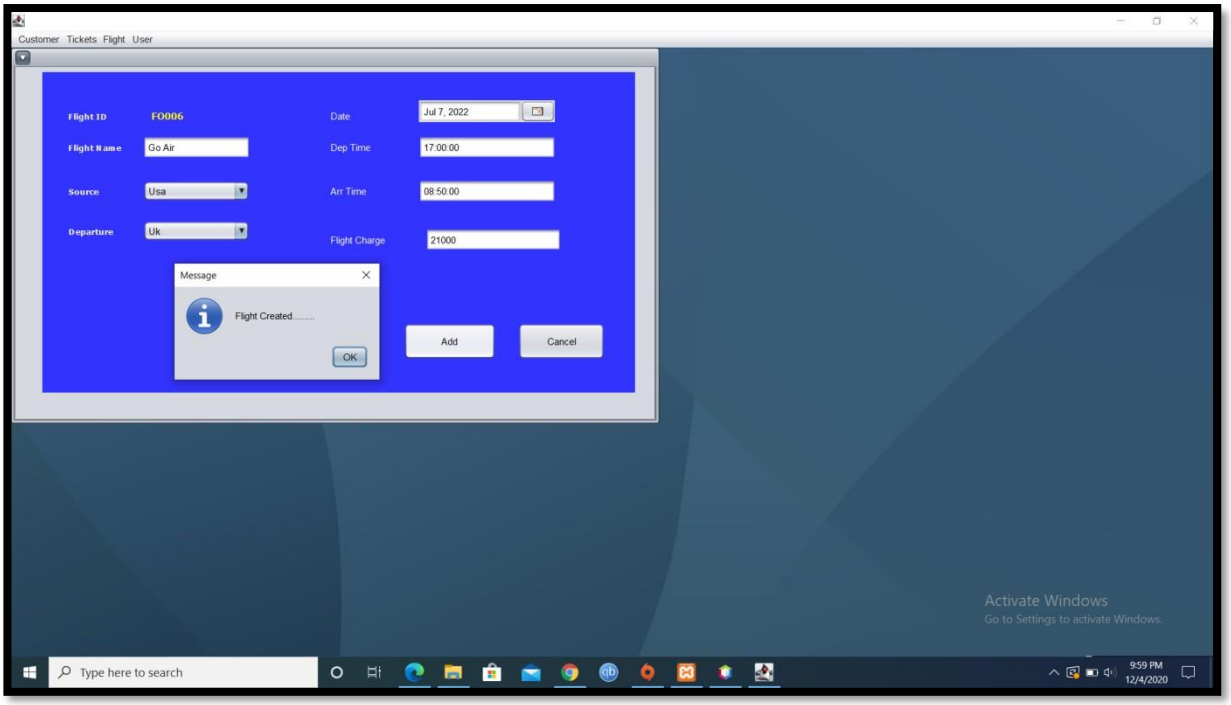
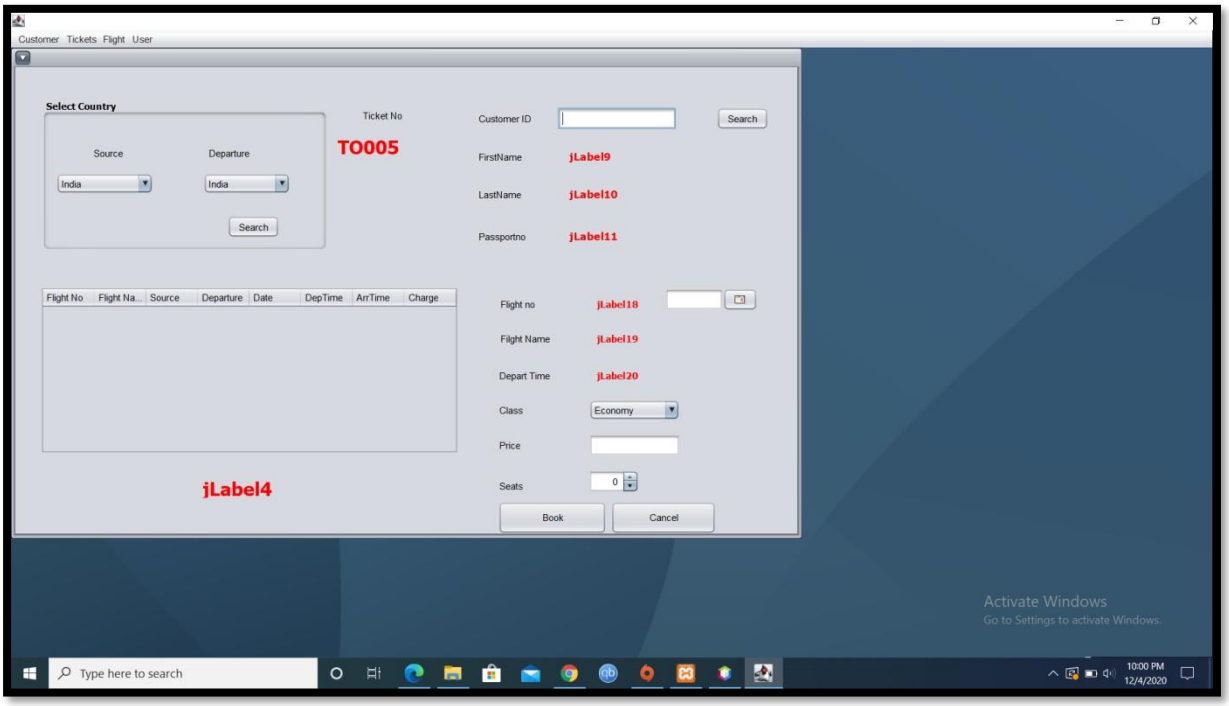
12/4/2020


Customer Tickets Flight User
Flight ID
FO006
Flight Name
Go Air
Source
Usa
Departure
Uk
Date
Jul 7, 2022
Dep Time
17:00:00
Arr Time
08:50:00
Flight Charge
21000
Message
Flight Created.....
OK
Add
Cancel
Activate Windows
Go to Settings to activate Windows.
Type here to search
9:59 PM
12/4/2020


Customer Tickets Flight User
Select Country
Source
India
Departure
India
Search
Ticket No
TO005
Customer ID
Search
FirstName
jLabel9
LastName
jLabel10
Passportno
jLabel11
Flight No
Flight Na...
Source
Departure
Date
DepTime
ArrTime
Charge
jLabel4
Flight no
jLabel18
Filght Name
jLabel19
Depart Time
jLabel20
Class
Economy
Price
Seats
0
Book
Cancel
Activate Windows
Go to Settings to activate Windows.
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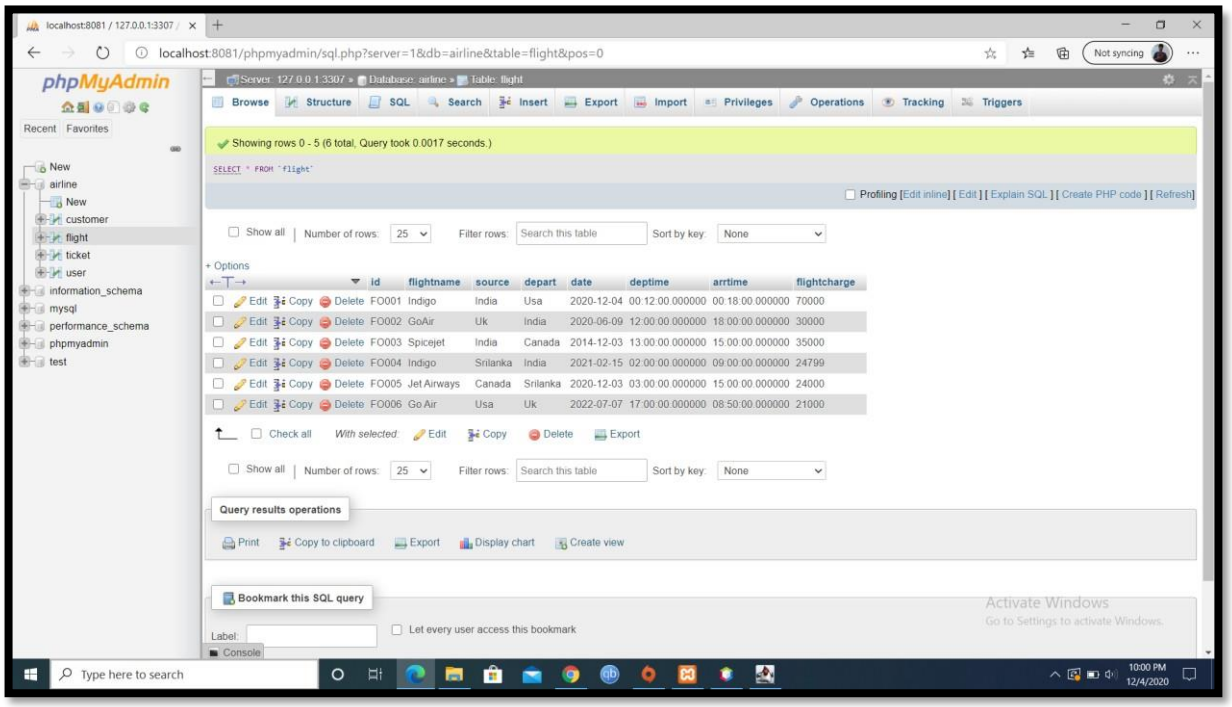
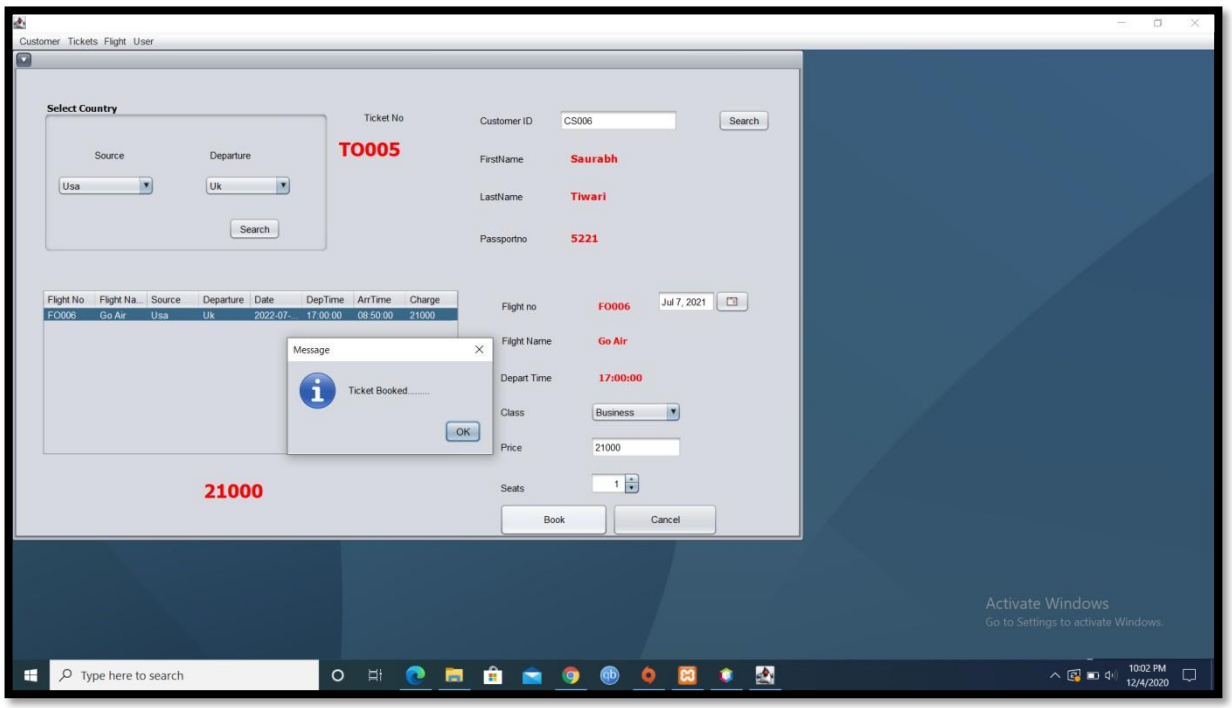
12/4/2020


phpMyAdmin
Recent Favorites
New
airline
New
customer
flight
ticket
user
information_schema
mysql
performance_schema
phpmyadmin
test
Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers
Showing rows 0 - 5 (6 total, Query took 0.0017 seconds.)
SELECT * FROM `flight`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None
+ Options
id flightname source depart date deptime arrtime flightcharge
Edit Copy Delete FO001 Indigo India Usa 2020-12-04 00:12:00.000000 00:18:00.000000 70000
Edit Copy Delete FO002 GoAir Uk India 2020-06-09 12:00:00.000000 18:00:00.000000 30000
Edit Copy Delete FO003 Spicejet India Canada 2014-12-03 13:00:00.000000 15:00:00.000000 35000
Edit Copy Delete FO004 Indigo Srilanka India 2021-02-15 02:00:00.000000 09:00:00.000000 24799
Edit Copy Delete FO005 Jet Airways Canada Srilanka 2020-12-03 03:00:00.000000 15:00:00.000000 24000
Edit Copy Delete FO006 Go Air Usa Uk 2022-07-07 17:00:00.000000 08:50:00.000000 21000
Check all With selected: Edit Copy Delete Export
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query
Label:
Let every user access this bookmark
Console
Activate Windows
Go to Settings to activate Windows.
Type here to search
10:00 PM
12/4/2020


Customer Tickets Flight User
Select Country
Source
Departure
Usa
Uk
Search
Ticket No
TO005
Customer ID
CS006
Search
FirstName
Saurabh
LastName
Tiwari
Passportno
5221
Flight No Flight Na... Source Departure Date DepTime ArrTime Charge
FO006 Go Air Usa Uk 2022-07-... 17:00:00 08:50:00 21000
Message
Ticket Booked.....
OK
Flight no
FO006
Jul 7, 2021
Flight Name
Go Air
Depart Time
17:00:00
Class
Business
Price
21000
Seats
1
21000
Book
Cancel
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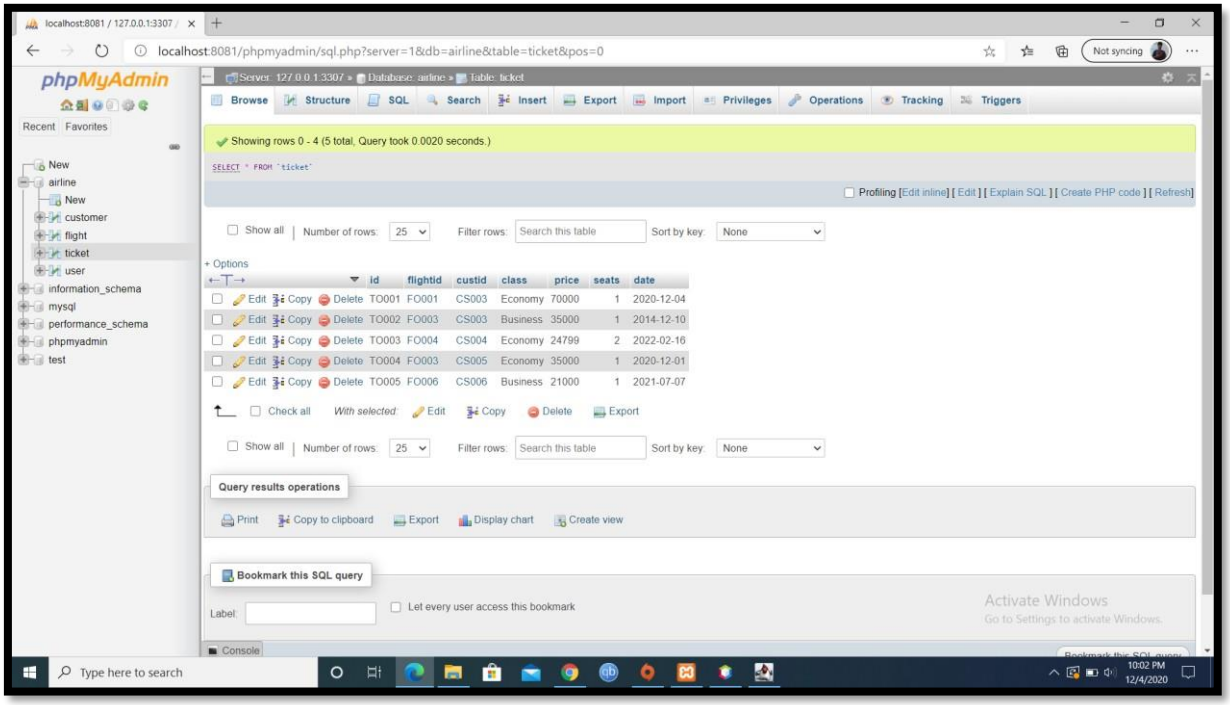
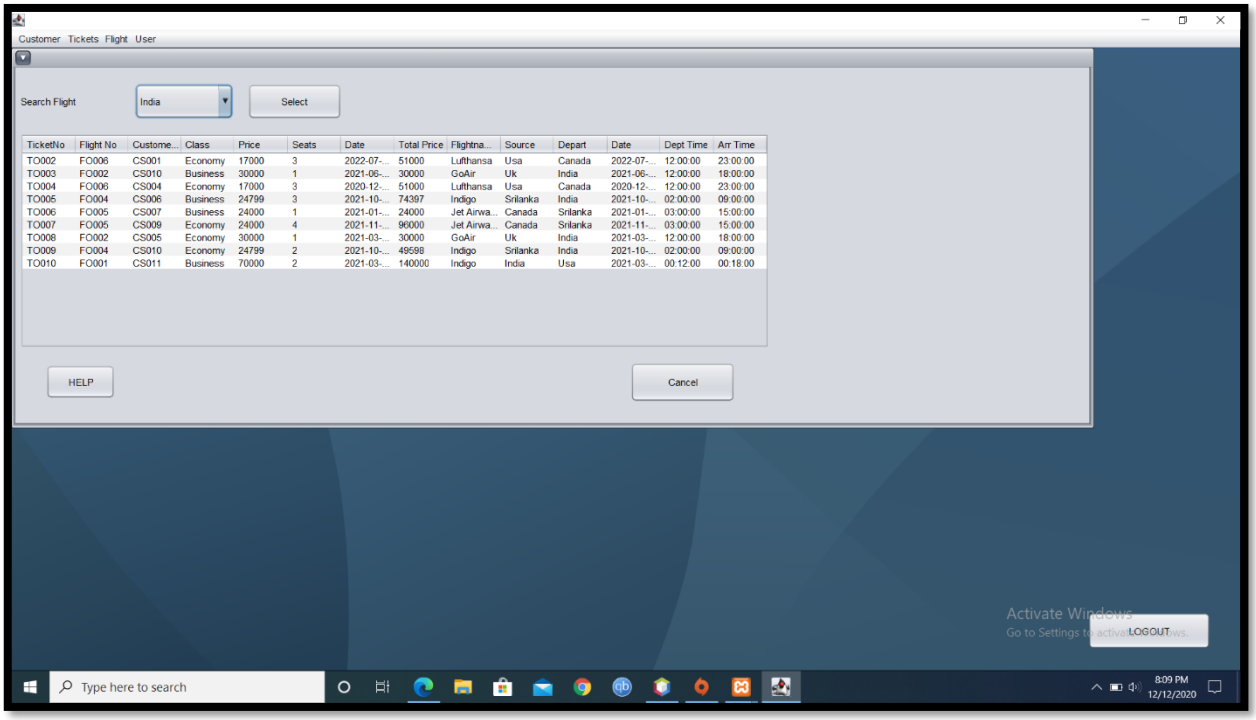
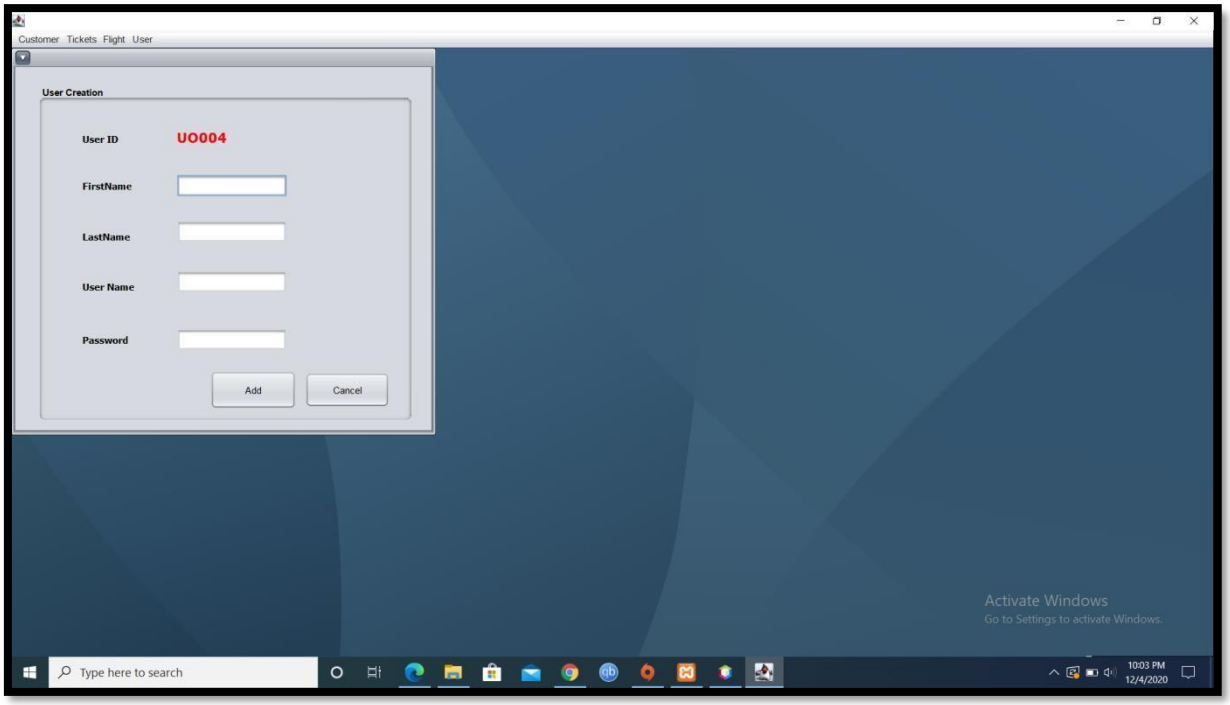
Type here to search
10:02 PM
12/4/2020


phpMyAdmin
localhost:8081/phpmyadmin/sql.php?server=1&db=airline&table=ticket&pos=0
Server: 127.0.0.1:3307 » Database: airline » Table: ticket
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Tracking
Triggers
Showing rows 0 - 4 (5 total, Query took 0.0020 seconds.)
SELECT * FROM `ticket`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None
+ Options
id flightid custid class price seats date
Edit Copy Delete TO001 FO001 CS003 Economy 70000 1 2020-12-04
Edit Copy Delete TO002 FO003 CS003 Business 35000 1 2014-12-10
Edit Copy Delete TO003 FO004 CS004 Economy 24799 2 2022-02-16
Edit Copy Delete TO004 FO003 CS005 Economy 35000 1 2020-12-01
Edit Copy Delete TO005 FO006 CS006 Business 21000 1 2021-07-07
Check all With selected: Edit Copy Delete Export
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query
Label: Let every user access this bookmark
Activate Windows
Go to Settings to activate Windows.
Console
Type here to search
10:02 PM
12/4/2020


Customer Tickets Flight User
Search Flight
India
Select
TicketNo Flight No Custome... Class Price Seats Date Total Price Flightna... Source Depart Date Dept Time Arr Time
TO002 FO006 CS001 Economy 17000 3 2022-07-... 51000 Lufthansa Usa Canada 2022-07-... 12:00:00 23:00:00
TO003 FO002 CS010 Business 30000 1 2021-06-... 30000 GoAir Uk India 2021-06-... 12:00:00 18:00:00
TO004 FO006 CS004 Economy 17000 3 2020-12-... 51000 Lufthansa Usa Canada 2020-12-... 12:00:00 23:00:00
TO005 FO004 CS006 Business 24799 3 2021-10-... 74397 Indigo Srilanka India 2021-10-... 02:00:00 09:00:00
TO006 FO005 CS007 Business 24000 1 2021-01-... 24000 Jet Airwa... Canada Srilanka 2021-01-... 03:00:00 15:00:00
TO007 FO005 CS009 Economy 24000 4 2021-11-... 96000 Jet Airwa... Canada Srilanka 2021-11-... 03:00:00 15:00:00
TO008 FO002 CS005 Economy 30000 1 2021-03-... 30000 GoAir Uk India 2021-03-... 12:00:00 18:00:00
TO009 FO004 CS010 Economy 24799 2 2021-10-... 49598 Indigo Srilanka India 2021-10-... 02:00:00 09:00:00
TO010 FO001 CS011 Business 70000 2 2021-03-... 140000 Indigo India Usa 2021-03-... 00:12:00 00:18:00
HELP
Cancel
Activate Windows
Go to Settings to activate Windows.
LOGOUT
Type here to search
8:09 PM
12/12/2020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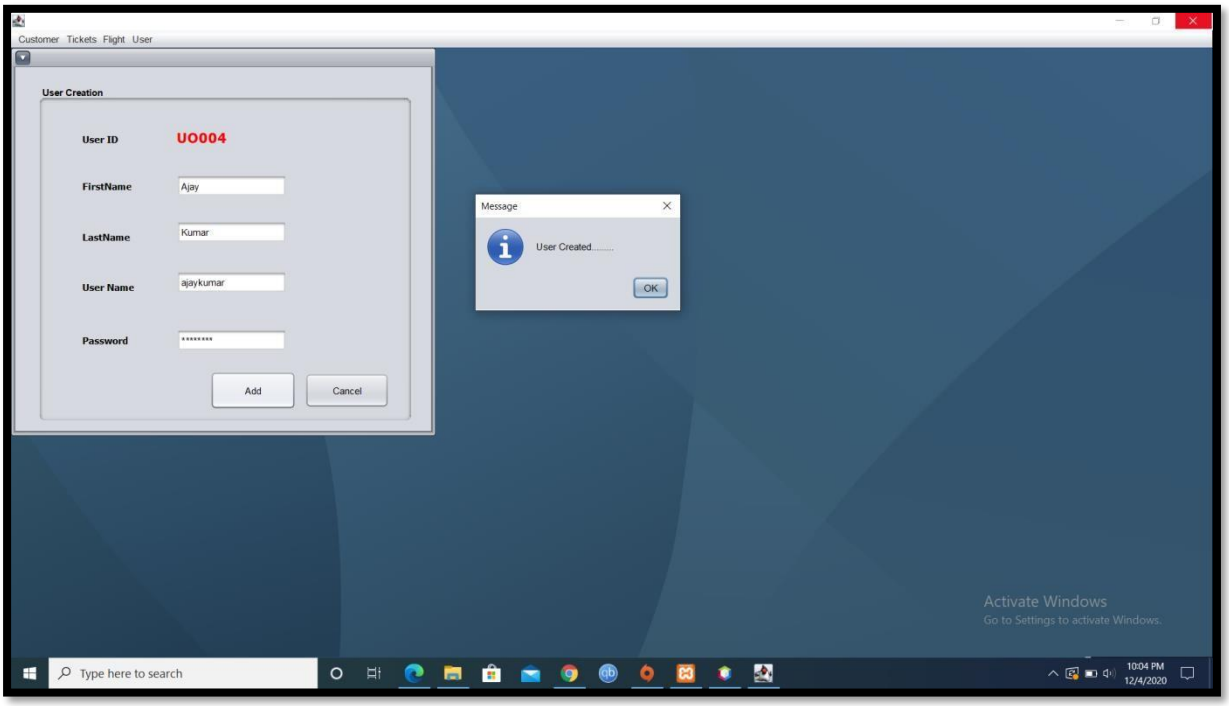
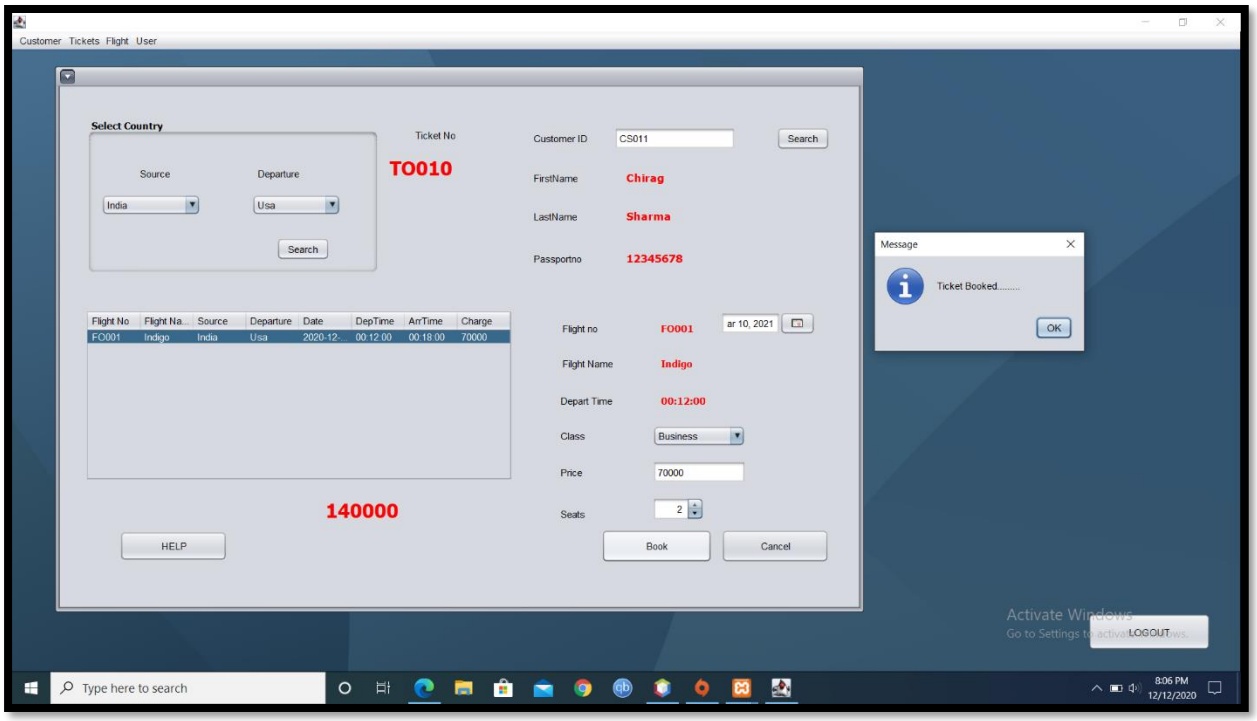
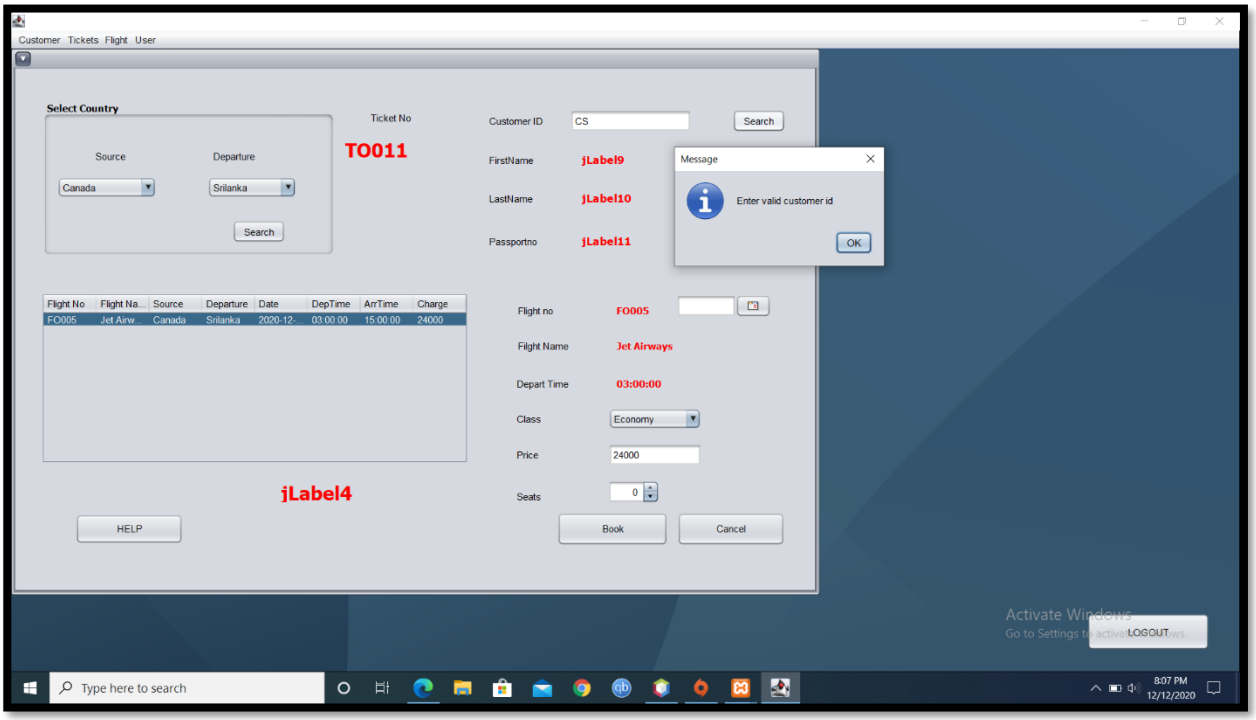
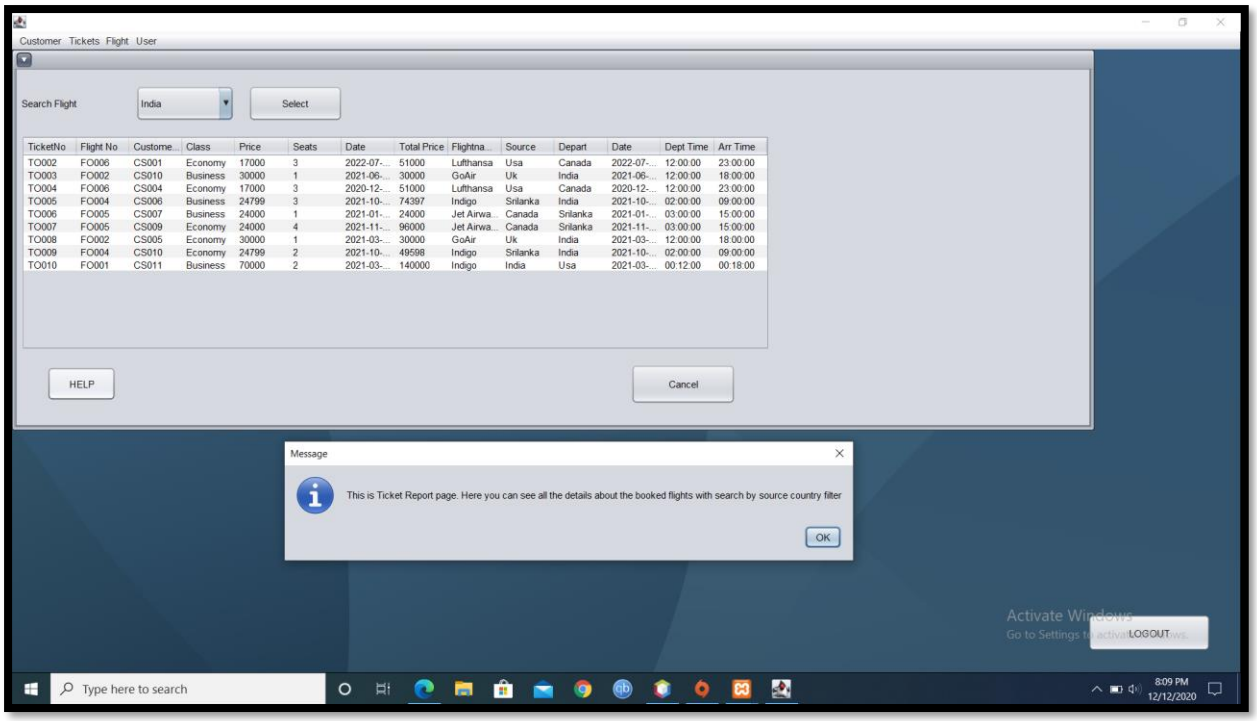
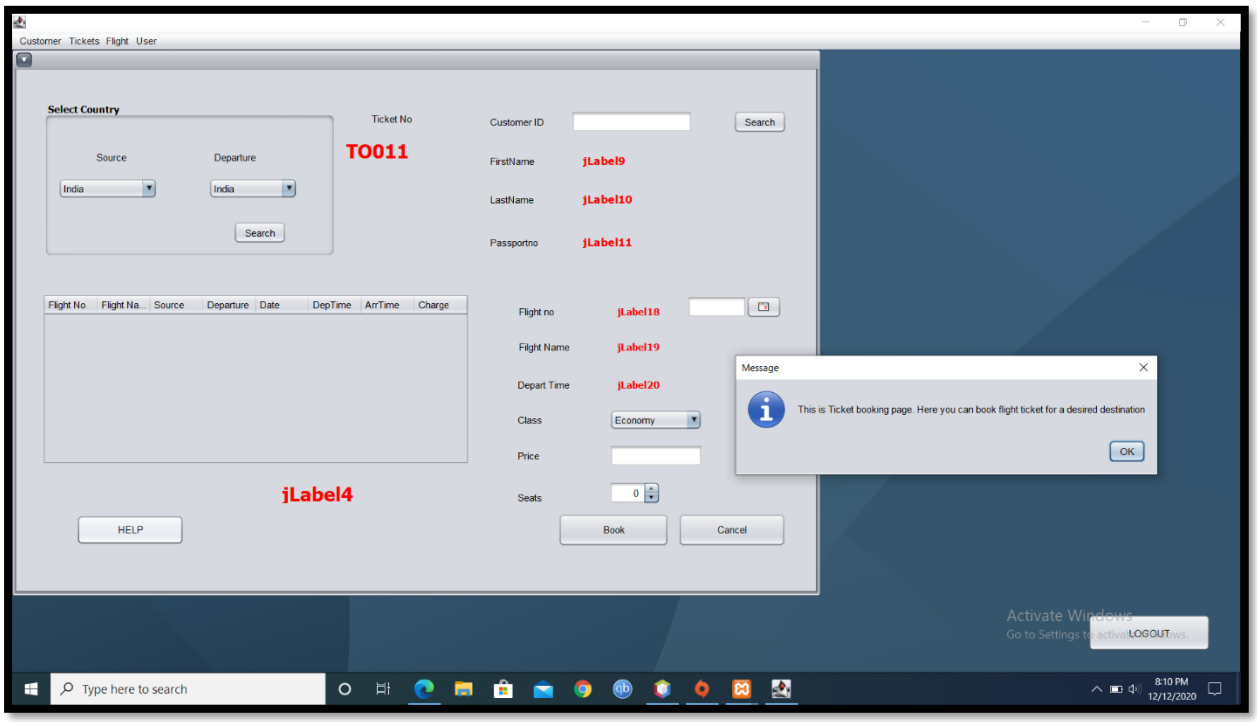
User Creation
User ID
UO004
FirstName
LastName
User Name
Password
Add
Cancel
Activate Windows
Go to Settings to activate Windows.
Type here to search
10:03 PM
12/4/2020

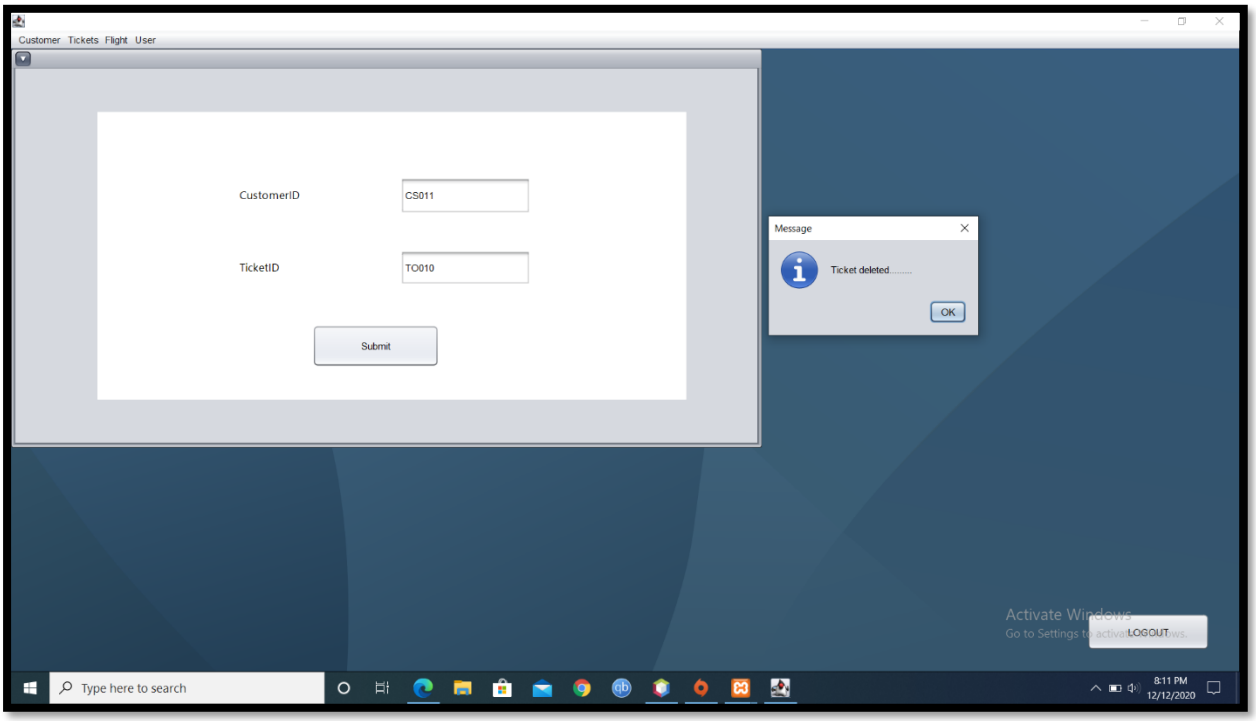

Customer Tickets Flight User
User Creation
User ID
UO004
FirstName
Ajay
LastName
Kumar
User Name
ajaykumar
Password
Add
Cancel
Message
User Created.....
OK
Activate Windows
Go to Settings to activate Windows.
Type here to search
10:04 PM
12/4/2020

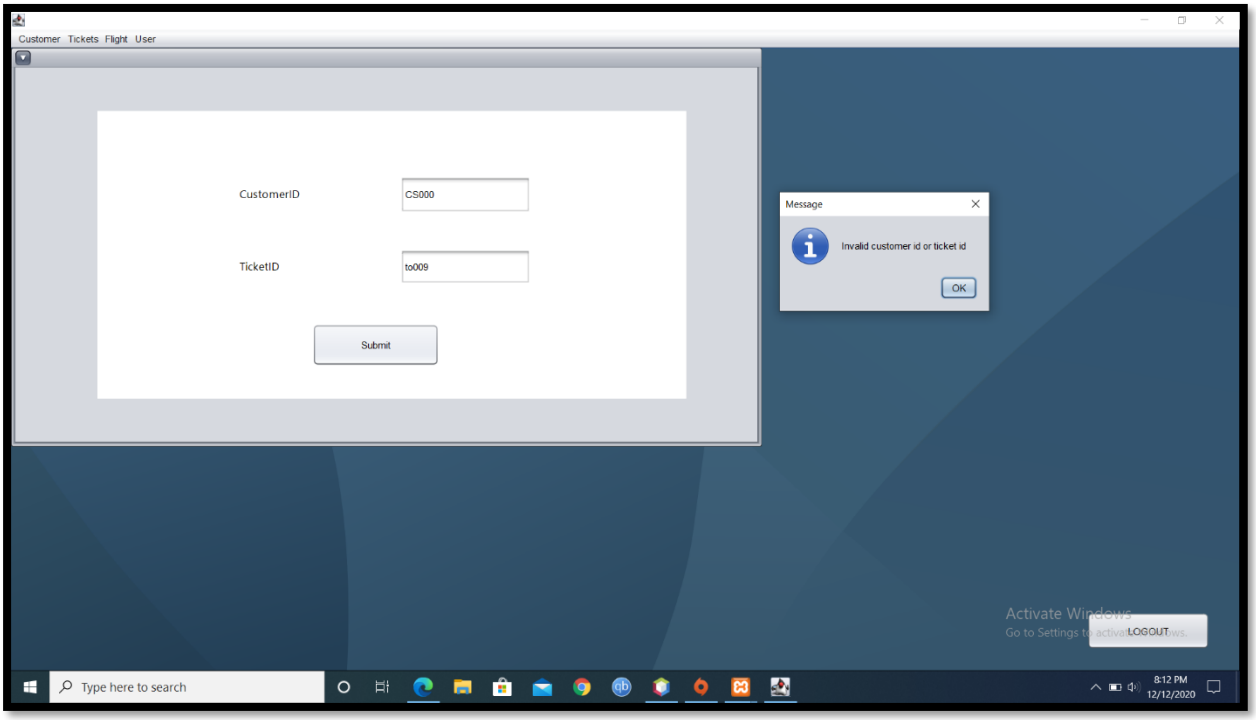

Customer Tickets Flight User
Select Country
Source
Departure
India
Usa
Search
Ticket No
TO010
Customer ID
CS011
Search
FirstName
Chirag
LastName
Sharma
Passportno
12345678
Flight No
Flight Na...
Source
Departure
Date
DepTime
ArrTime
Charge
FO001
Indigo
India
Usa
2020-12-...
00:12:00
00:18:00
70000
Flight no
FO001
ar 10, 2021
Flight Name
Indigo
Depart Time
00:12:00
Class
Business
Price
70000
Seats
2
140000
HELP
Book
Cancel
Message
Ticket Booked.....
OK
LOGOUT
Type here to search
8:06 PM
12/12/2020


Customer Tickets Flight User
Select Country
Source
Departure
Canada
Srilanka
Search
Ticket No
TO011
Customer ID
CS
Search
FirstName
jLabel9
LastName
jLabel10
Passportno
jLabel11
Message
Enter valid customer id
OK
Flight No
Flight Na...
Source
Departure
Date
DepTime
ArrTime
Charge
FO005
Jet Airw...
Canada
Srilanka
2020-12-...
03:00:00
15:00:00
24000
Flight no
FO005
Flight Name
Jet Airways
Depart Time
03:00:00
Class
Economy
Price
24000
Seats
0
jLabel4
HELP
Book
Cancel
LOGOUT
Type here to search
8:07 PM
12/12/2020


Customer Tickets Flight User
Search Flight
India
Select
TicketNo Flight No Custome... Class Price Seats Date Total Price Flightna... Source Depart Date Dept Time Arr Time
TO002 FO006 CS001 Economy 17000 3 2022-07-... 51000 Lufthansa Usa Canada 2022-07-... 12:00:00 23:00:00
TO003 FO002 CS010 Business 30000 1 2021-06-... 30000 GoAir Uk India 2021-06-... 12:00:00 18:00:00
TO004 FO006 CS004 Economy 17000 3 2020-12-... 51000 Lufthansa Usa Canada 2020-12-... 12:00:00 23:00:00
TO005 FO004 CS006 Business 24799 3 2021-10-... 74397 Indigo Srilanka India 2021-10-... 02:00:00 09:00:00
TO006 FO005 CS007 Business 24000 1 2021-01-... 24000 Jet Airwa... Canada Srilanka 2021-01-... 03:00:00 15:00:00
TO007 FO005 CS009 Economy 24000 4 2021-11-... 96000 Jet Airwa... Canada Srilanka 2021-11-... 03:00:00 15:00:00
TO008 FO002 CS005 Economy 30000 1 2021-03-... 30000 GoAir Uk India 2021-03-... 12:00:00 18:00:00
TO009 FO004 CS010 Economy 24799 2 2021-10-... 49598 Indigo Srilanka India 2021-10-... 02:00:00 09:00:00
TO010 FO001 CS011 Business 70000 2 2021-03-... 140000 Indigo India Usa 2021-03-... 00:12:00 00:18:00
HELP
Cancel
Message
This is Ticket Report page. Here you can see all the details about the booked flights with search by source country filter
OK
LOGOUT
Type here to search
8:09 PM
12/12/2020


Customer Tickets Flight User
Select Country
Source
Departure
India
India
Search
Ticket No
TO011
Customer ID
Search
FirstName
jLabel9
LastName
jLabel10
Passportno
jLabel11
Flight No Flight Na... Source Departure Date DepTime ArrTime Charge
Flight no
jLabel18
Flight Name
jLabel19
Depart Time
jLabel20
Class
Economy
Price
Seats
0
jLabel4
HELP
Book
Cancel
Message
This is Ticket booking page. Here you can book flight ticket for a desired destination
OK
LOGOUT
Type here to search
8:10 PM
12/12/2020


Customer Tickets Flight User
CustomerID
CS011
TicketID
TO010
Submit
Message
Ticket deleted.....
OK
LOGOUT
Type here to search
8:11 PM
12/12/2020


Customer Tickets Flight User
CustomerID
CS000
TicketID
to009
Submit
Message
Invalid customer id or ticket id
OK
LOGOUT
Type here to search
8:12 PM
12/12/2020

FUTURE SCOPE

- **In Future, we can add a new entity/section in our database through which information can be provided to aware users about –**
  - **mandatory rules and restrictions currently followed at airports. E.g. do's and don'ts on a flight**
  - **COVID-19 health precautions**
  - **Additional documents which are required to be presented while traveling through flights. E.g. medical history.**
  - **And this crucial information can be printed at back of their tickets when they book a flight.**
- **We can provide some additional information in our Desktop application about famous destinations like places to see, places to shop, places to eat etc. for all such destinations in our database.**

This will attract the customers and help them finalize the holidays destinations if it is the case.

Passengers can be notified through Email or SMS in case of any delays or flight cancelation.

Finally, feedback from customers can be taken and stored in database, so that the management can monitor it precisely, and improve on shortcomings.

CONCLUSION

We have implemented an Airline Management system. It mainly helps admins to keep record of all the flights. Using NetBeans, Java as Backend Language and MySQL as Database Storage we performed basic to advance database operations required.

With some new concepts like normalization, triggers, views we successfully executed a java-based project.

We are extremely grateful to Dr. Emmanuel M., Dr. Anant Bagade and the Pune Institute of Computer Technology for this opportunity and would like to thank them wholeheartedly.

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- **https://www.ionos.com/digitalguide/server/tools/ xampp-tutorial-create-your-own-local-test-server/**
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