DATABASE DESIGN FOR

TRANSPORTATION MANAGEMENT

SYSTEM

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1. Introduction

PROJECT TITTLE: TRANSPORTATION MANAGEMENT SYSTEM

This project is specifically designed about an airplane agency that act as transportation devices to move people from one place to another. Not only in local country, but we also provide the destination around the world. The purpose of this project is to design and record the passengers flight schedule and rates, managing reservation request and cancelation and number of tickets sold.

Royale' Airlines is an international airline company founded by Park Seojun with the backing of Royale' Major in 2014 and owned by Royale' Family Group. Its site launched in June 2014 with a business model in television and advertisements in the social media and Internet. In January 2017, Royale' Airlines is the largest airline operator in Southeast Asia based on average monthly flights ticket sales. In December 2020, Royale' Airlines claimed it was the top airline platform in Southeast Asia with more than 40 million active passengers who have used this airline annually.

2. Company Background

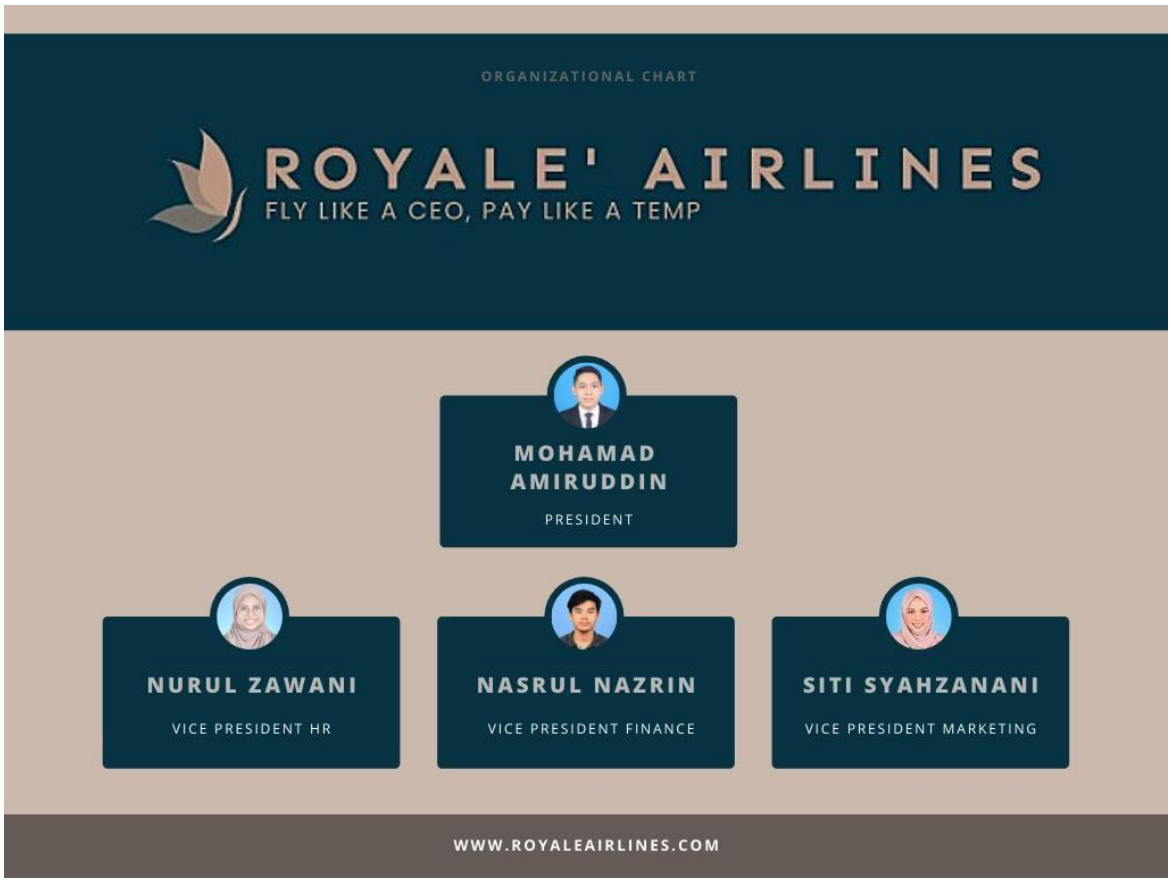
Objectives of Transportation Management Unit:

To design and record the passengers flight schedule and rates, managing reservation request and cancelation also number of tickets sold.

Transportation Management Unit Functions:

President	:	Making major decisions, main assets of the company and managing the overall operations
Vice President HR	:	Staff : Requirement, Department
Vice President Finance	:	Accounts : Account Department, Tax Department Vice
President Marketing	:	Customer Service, Sales

Transportation Management Unit Structure:



3. Current System Description

i. <u>Collect data from passengers.</u> -

Flight schedule.

- Number of tickets sold.
- Reservation/cancelation date and time.
- Destination.
- Analyze the flight classes (first class, business, economy).
- Record the payment details by customer.

ii. <u>Manage the data collected.</u>

- Record all the data in suitable charts.
- Analyze the recorded flight data to improve the safety of flight operations.
- Encrypt all the passenger's data to secure their privacy.
- Save the payment slip and data.

4. Current System Problem

i. <u>Problem faced.</u>

<u>Privacy and security:</u>

High potential risks associated with big data when it comes to the privacy and the security of the data. This leads to a high risk of exposure of the data, making it vulnerable. Thus, the rise of amount of data increases privacy and security concerns.

<u>Data analysis:</u>

It is hard to analysis the scale of an organization as the amount of data collected grows. Collecting information and creating reports becomes increasingly complex because a system that can develop with the organization is crucial to manage this issue.

ii. <u>Solution.</u>

<u>Privacy and security:</u>

Encrypt all the passenger's data to secure their privacy by dividing the tasks to several department with specific job scope.

Data analysis:

Since the data received keep on increasing, we can improve the management of data and organize it thoroughly.

5. System Objective

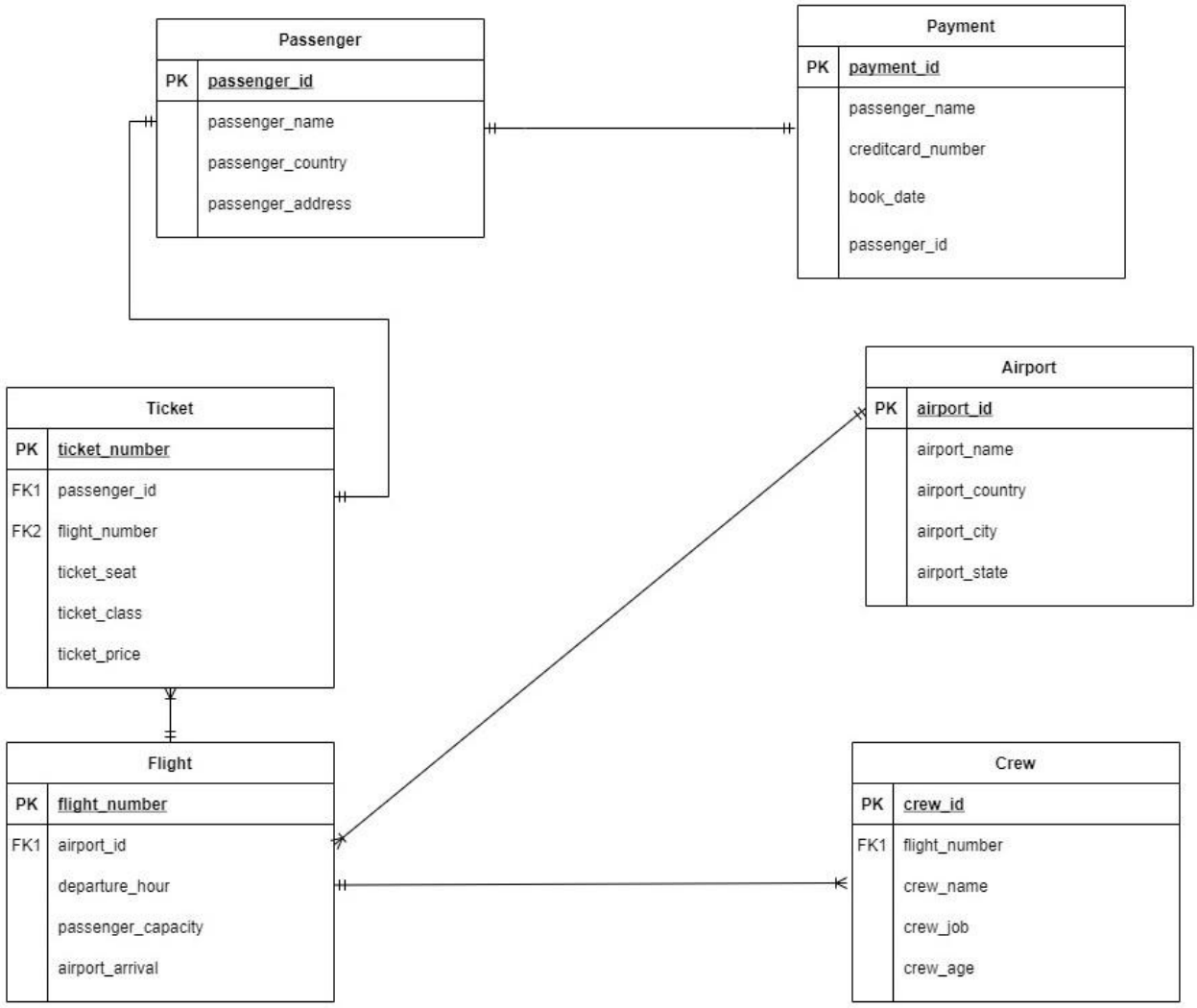
i. To enable the passengers fly without hesitation.
ii. To facilitate passenger's flight needed by business traveler.
iii. To design and record the passengers flight schedule and rates, managing reservation request and cancelation and number of tickets sold.
iv. To ease the handling and arrangement of company database.

6. System Scope

This system is developed for the transportation management unit for the purpose to manage Royale' Airline's data. The users of this system are the company organization and passengers.

- A passenger can only have one ticket and one ticket can only have one passenger.
- A passenger can only make one payment and each payment is assign to only one passenger.
- A ticket can only belong to one flight and each flight valid for one or many tickets.
- A flight can only departure and arrive at one airport and one airport can have one or many flights at a time.
- A crew can only belong to one flight and a flight can have one or many crews.

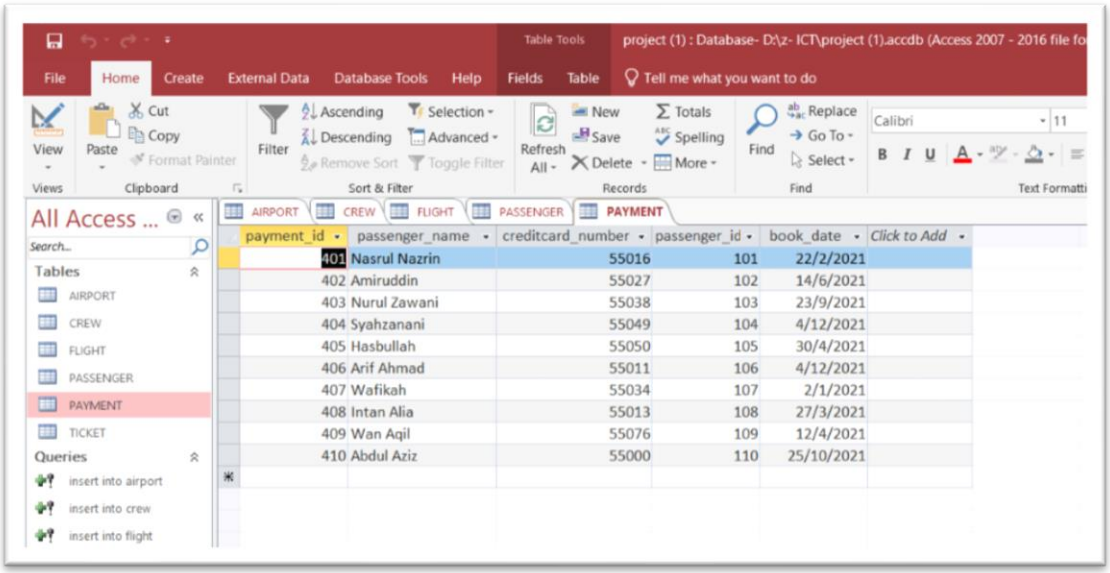
7. Entity Relationship Diagram (ERD)

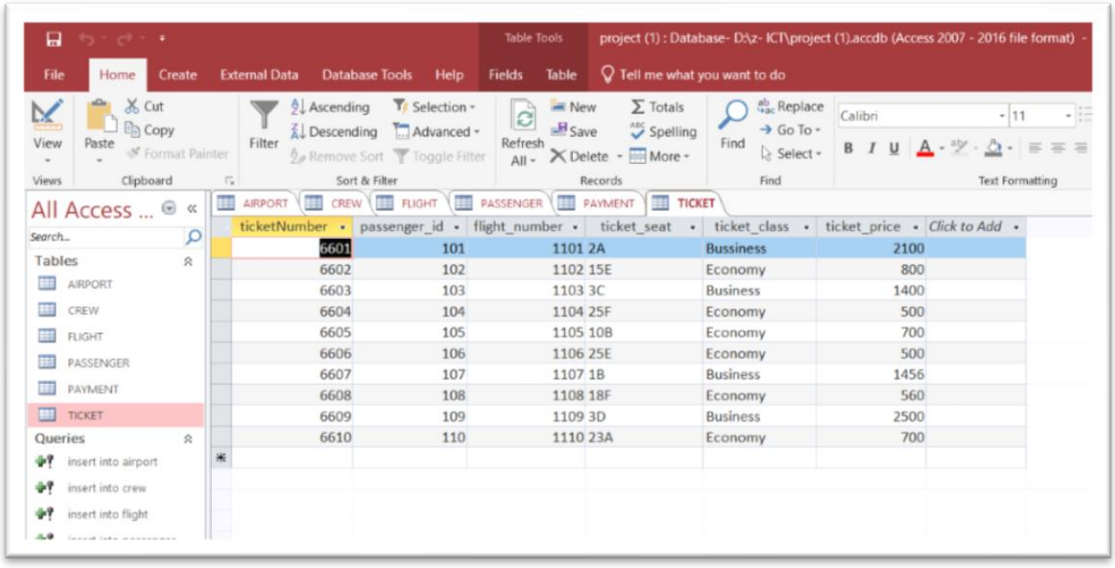


8. 3NF

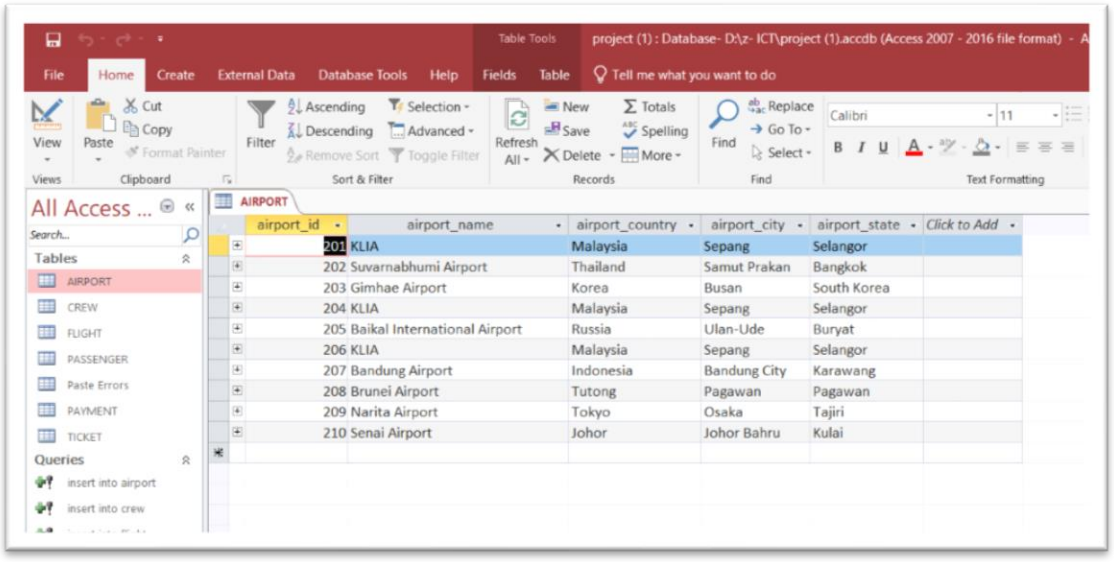
Passenger **(<u>passenger_id,</u>** passenger_name, passenger_country, passenger_address)
Payment (**<u>payment_id</u>**, passenger_name, creditcard_number, book_date, passenger_id)
Ticket (**<u>ticket_number</u>**, passenger_id, flight_number, ticket_seat, ticket_class, ticket_price)
Flight (**<u>flight_number</u>**, airport_id, departure_hour, passenger_capacity, airport_arrival)
Airport (**<u>airport_id</u>**, airport_name, airport_country, airport_city, airport_state)
Crew (**<u>crew_id</u>**, flight_number, crew_name, crew_job, crew_age)

9. Tables

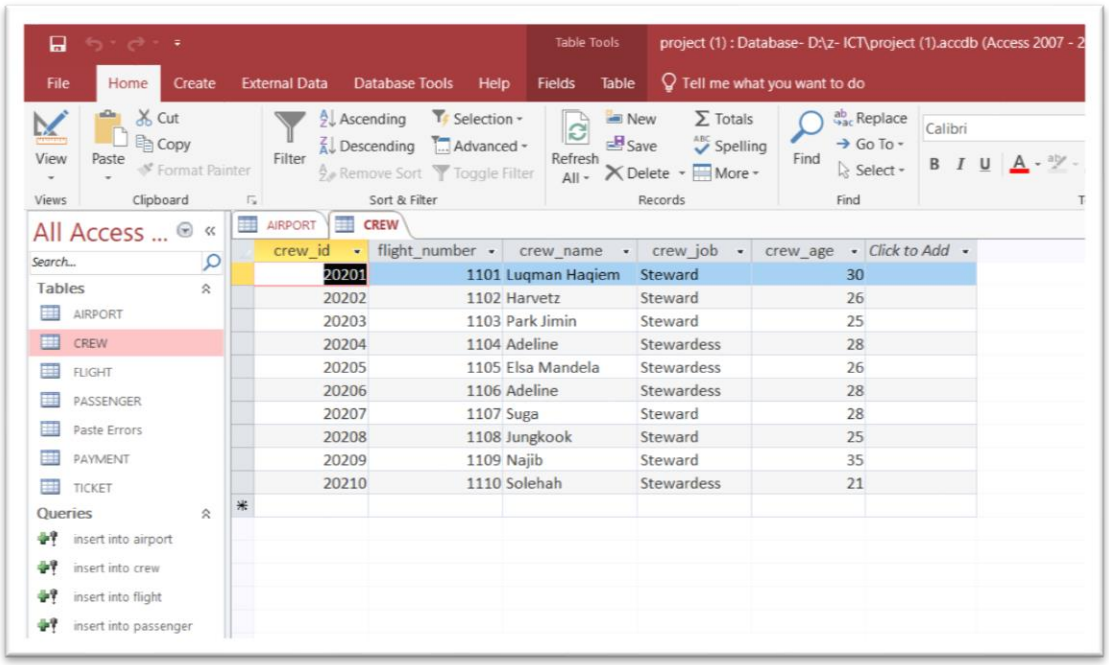




ticketNumber	passenger_id	flight_number	ticket_seat	ticket_class	ticket_price
6601	101	1101	2A	Bussiness	2100
6602	102	1102	15E	Economy	800
6603	103	1103	3C	Business	1400
6604	104	1104	25F	Economy	500
6605	105	1105	10B	Economy	700
6606	106	1106	25E	Economy	500
6607	107	1107	1B	Business	1456
6608	108	1108	18F	Economy	560
6609	109	1109	3D	Business	2500
6610	110	1110	23A	Economy	700



airport_id	airport_name	airport_country	airport_city	airport_state
201	KLIA	Malaysia	Sepang	Selangor
202	Suvarnabhumi Airport	Thailand	Samut Prakan	Bangkok
203	Gimhae Airport	Korea	Busan	South Korea
204	KLIA	Malaysia	Sepang	Selangor
205	Baikal International Airport	Russia	Ulan-Ude	Buryat
206	KLIA	Malaysia	Sepang	Selangor
207	Bandung Airport	Indonesia	Bandung City	Karawang
208	Brunei Airport	Tutong	Pagawan	Pagawan
209	Narita Airport	Tokyo	Osaka	Tajiri
210	Senai Airport	Johor	Johor Bahru	Kulai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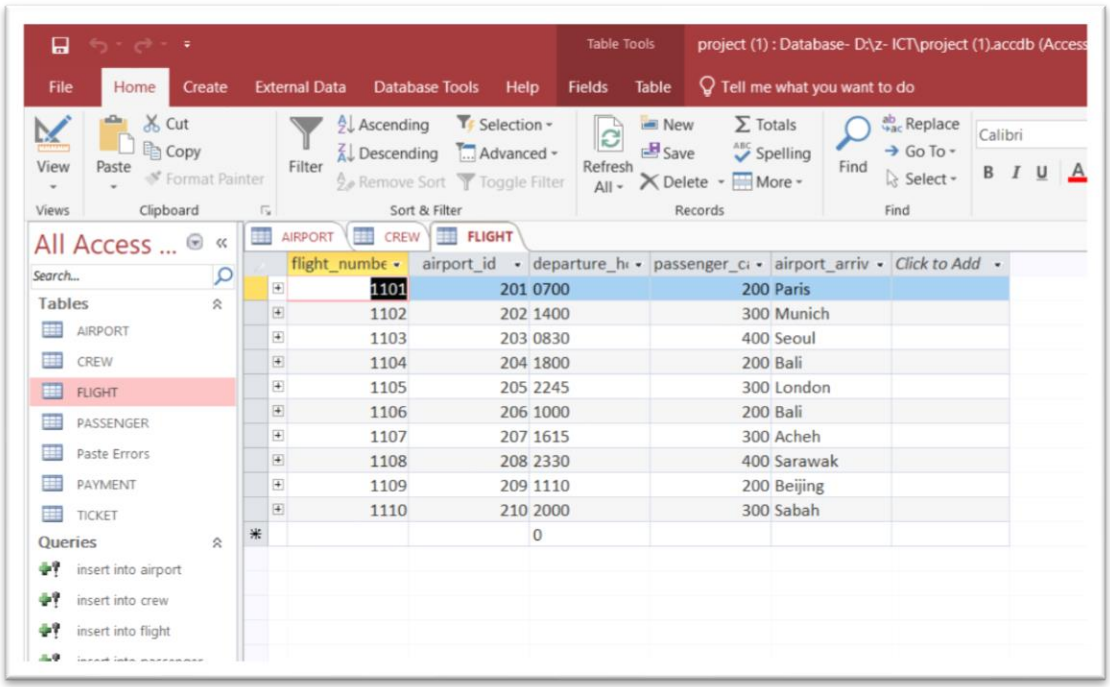
Tables
AIRPORT
CREW
FLIGHT
PASSENGER
Paste Errors
PAYMENT
TICKET
Queries
insert into airport
insert into crew
insert into flight
insert into passenger
crew_id | flight_number | crew_name | crew_job | crew_age | Click to Add
20201 | 1101 | Luqman Haqiem | Steward | 30
20202 | 1102 | Harvetz | Steward | 26
20203 | 1103 | Park Jimin | Steward | 25
20204 | 1104 | Adeline | Stewardess | 28
20205 | 1105 | Elsa Mandela | Stewardess | 26
20206 | 1106 | Adeline | Stewardess | 28
20207 | 1107 | Suga | Steward | 28
20208 | 1108 | Jungkook | Steward | 25
20209 | 1109 | Najib | Steward | 35
20210 | 1110 | Solehah | Stewardess | 21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CREW
FLIGHT
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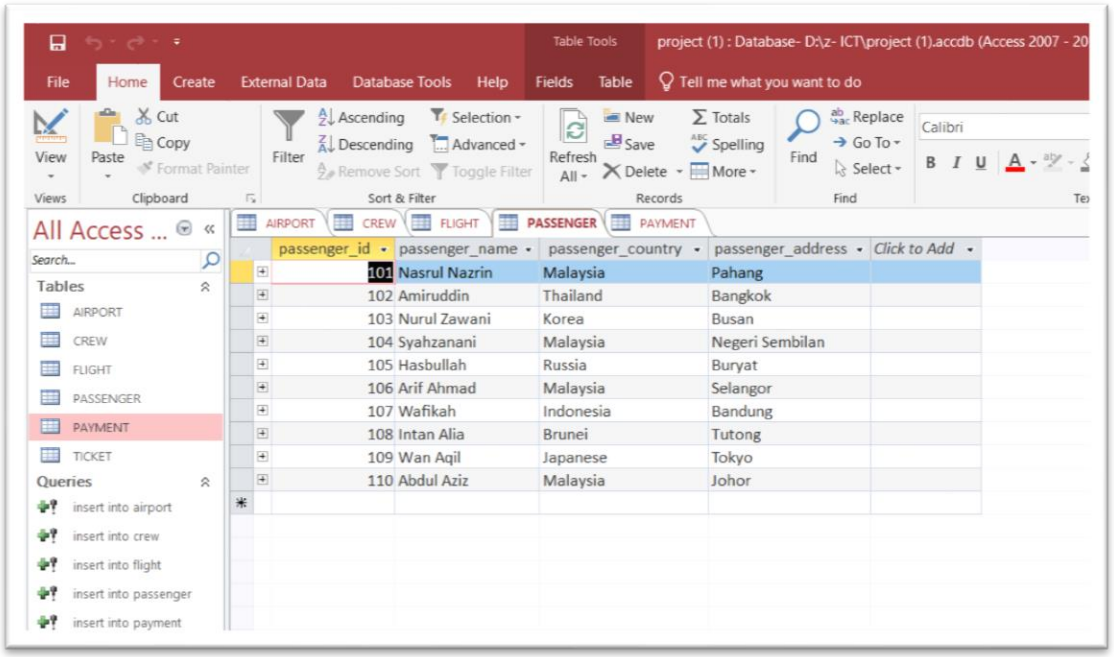
Paste Errors
PAYMENT
TICKET
Queries
insert into airport
insert into crew
insert into flight
flight_numbe | airport_id | departure_h | passenger_c | airport_arriv | Click to Add
1101 | 201 | 0700 | 200 | Paris
1102 | 202 | 1400 | 300 | Munich
1103 | 203 | 0830 | 400 | Seoul
1104 | 204 | 1800 | 200 | Bali
1105 | 205 | 2245 | 300 | London
1106 | 206 | 1000 | 200 | Bali
1107 | 207 | 1615 | 300 | Acheh
1108 | 208 | 2330 | 400 | Sarawak
1109 | 209 | 1110 | 200 | Beijing
1110 | 210 | 2000 | 300 | Sabah
0



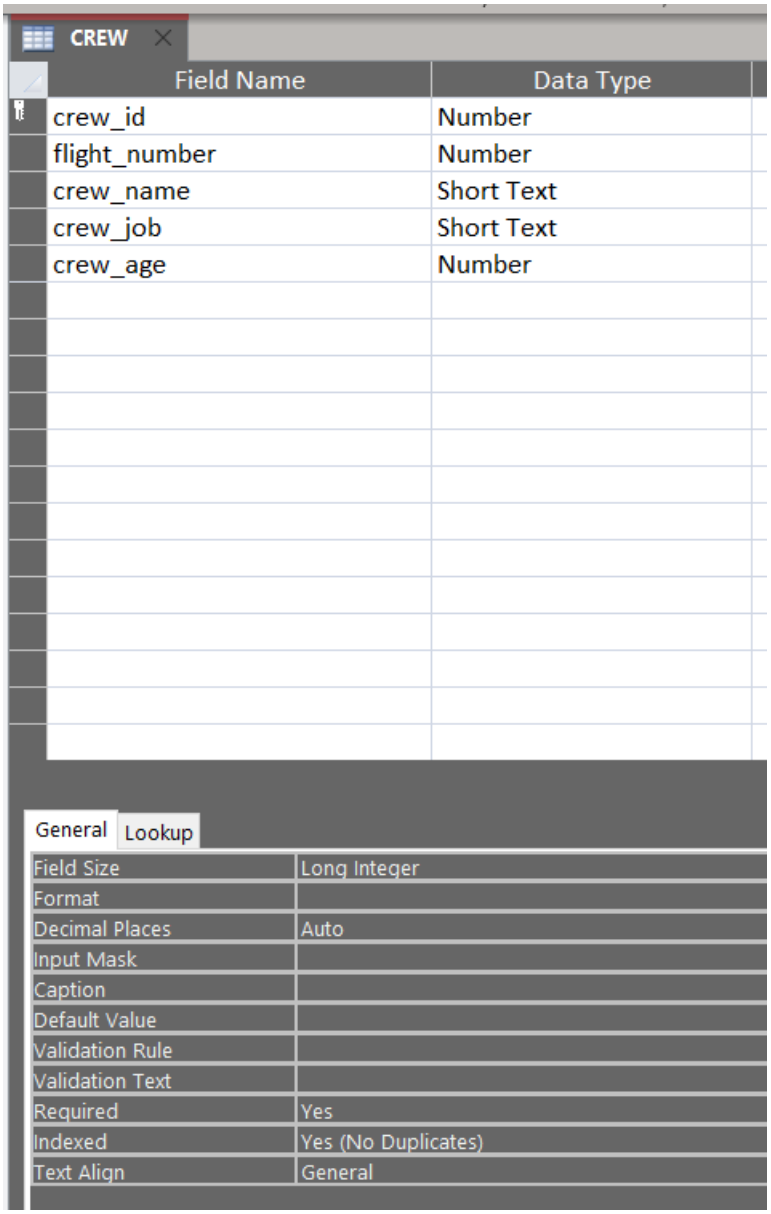
10. DATA DICTIONARY

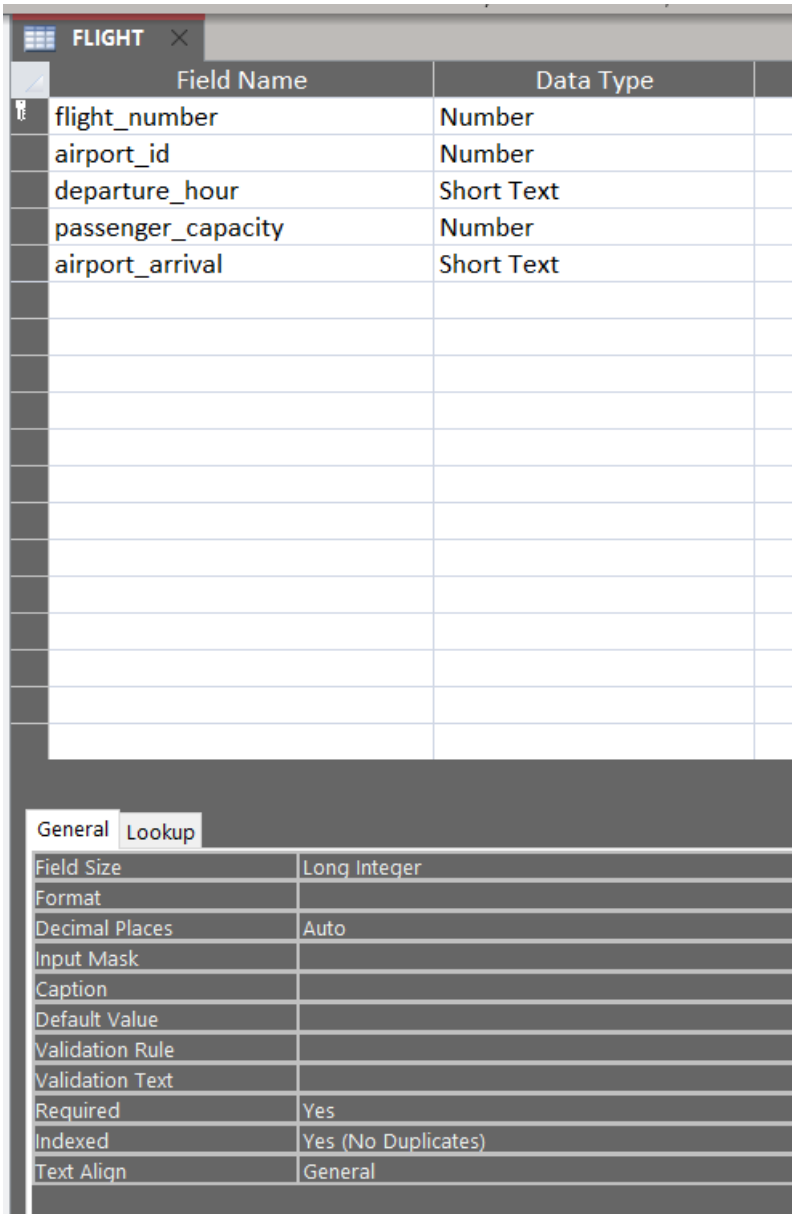
AIRPORT

Field Name	Data Type
airport_id	Number
airport_name	Short Text
airport_country	Short Text
airport_city	Short Text
airport_state	Short Text

General | Lookup

Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (No Duplicates)
Text Align	General



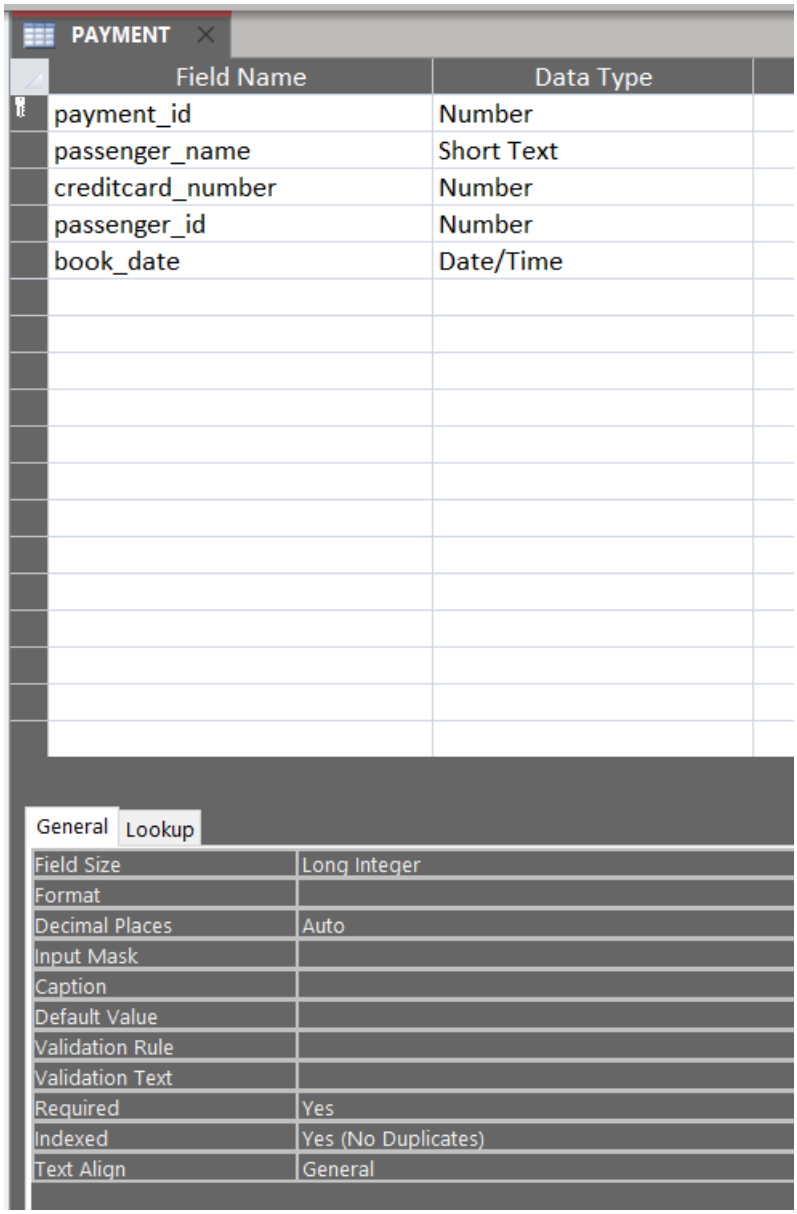


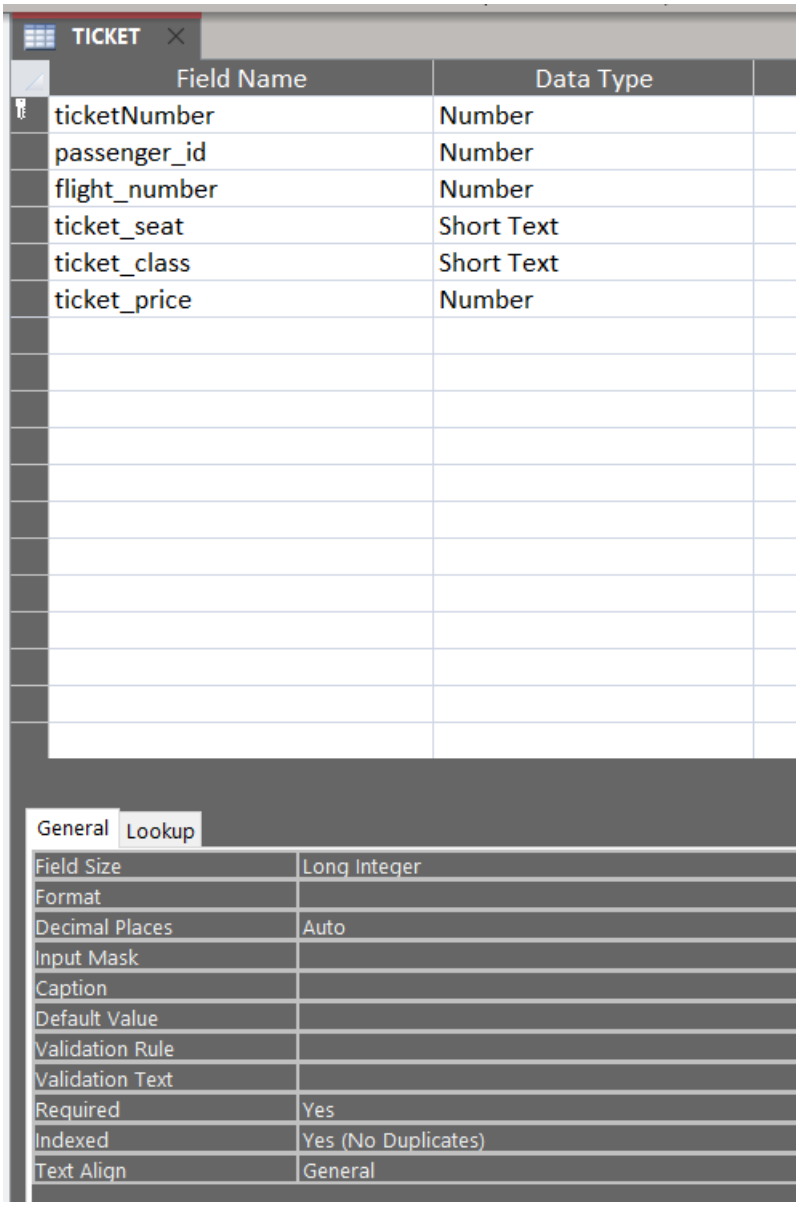
PASSENGER

Field Name	Data Type
passenger_id	Number
passenger_name	Short Text
passenger_country	Short Text
passenger_address	Short Text

General | Lookup

Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (No Duplicates)
Text Align	General





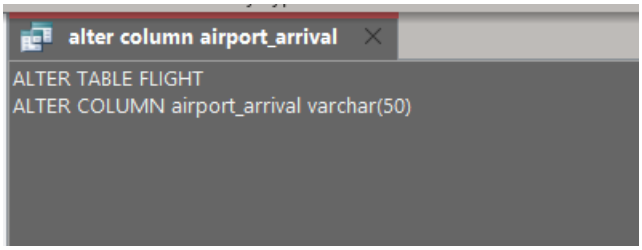
TICKET

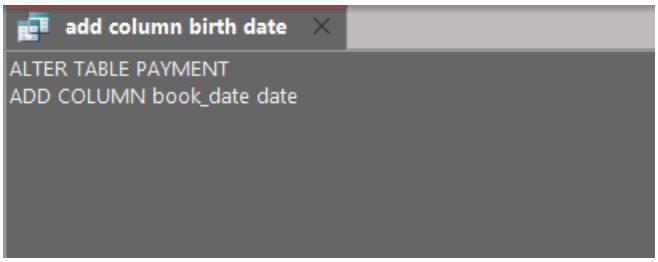
Field Name	Data Type
ticketNumber	Number
passenger_id	Number
flight_number	Number
ticket_seat	Short Text
ticket_class	Short Text
ticket_price	Number

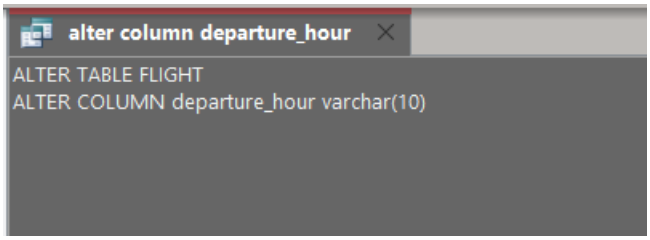
General | Lookup

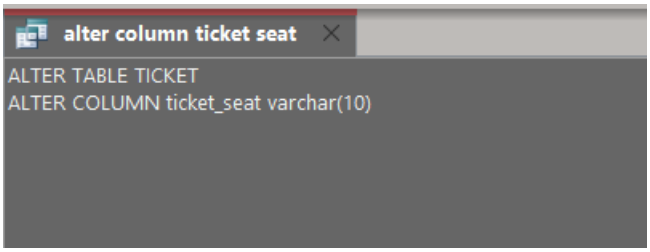
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (No Duplicates)
Text Align	General

11. DDL









create table airport

```
CREATE TABLE AIRPORT
(
airport_id int NOT NULL PRIMARY KEY,
airport_name varchar(50),
airport_country varchar(50),
airport_city varchar(50),
airport_state varchar(50)
)
```

create table crew

```
CREATE TABLE CREW
(
crew_id int NOT NULL PRIMARY KEY,
flight_number int,
crew_name varchar(50),
crew_job varchar(50),
crew_age int
)
```

create table flight

```
CREATE TABLE FLIGHT
(
flight_number int NOT NULL PRIMARY KEY,
airport_id int,
departure_hour float,
passenger_capacity int,
airport_arrival float
)
```

Query Type

create table passenger

```
CREATE TABLE PASSENGER
(
passenger_id int NOT NULL PRIMARY KEY,
passenger_name varchar(50),
passenger_country varchar(50),
passenger_address varchar(100)
)
```

create table payment

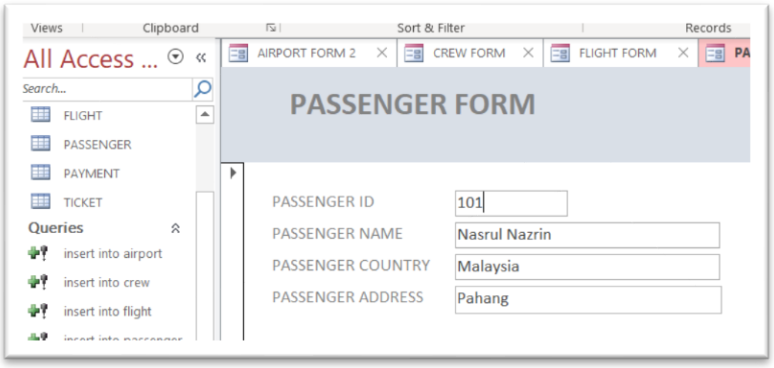
```
CREATE TABLE PAYMENT
(
payment_id int NOT NULL PRIMARY KEY,
passenger_name varchar(50),
creditcard_number int,
passenger_id int
)
```

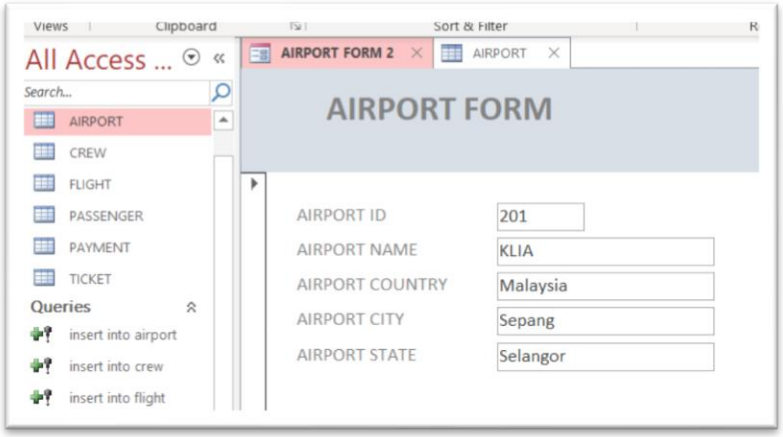
cretae table ticket

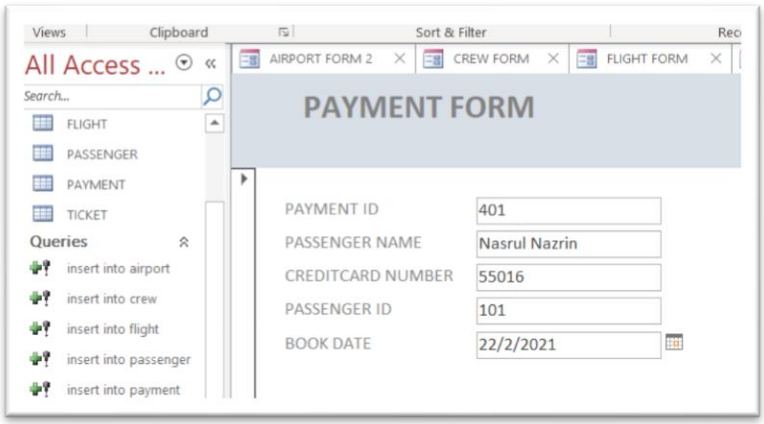
```
CREATE TABLE TICKET
(
ticketNumber int NOT NULL PRIMARY KEY,
passenger_id int,
flight_number int,
ticket_seat int,
ticket_class varchar(50),
ticket_price int
)
```

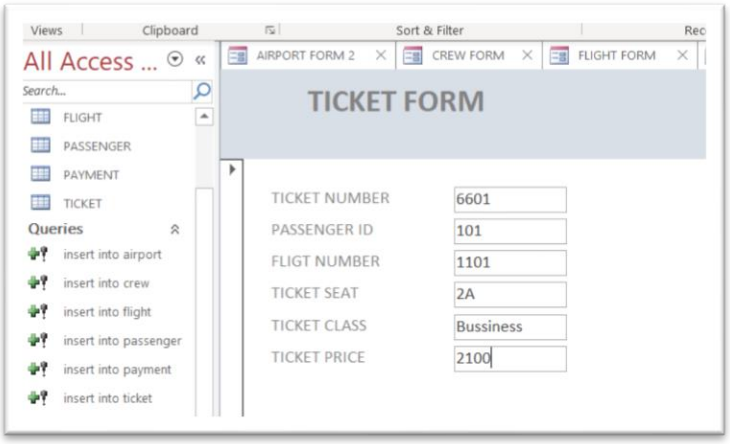
12. Application Screenshot

FORM





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FLIGHT
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PAYMENT
TICKET
Queries
insert into airport
insert into crew
insert into flight
insert into passenger
insert into payment
insert into ticket
AIRPORT FORM 2
CREW FORM
FLIGHT FORM
TICKET FORM
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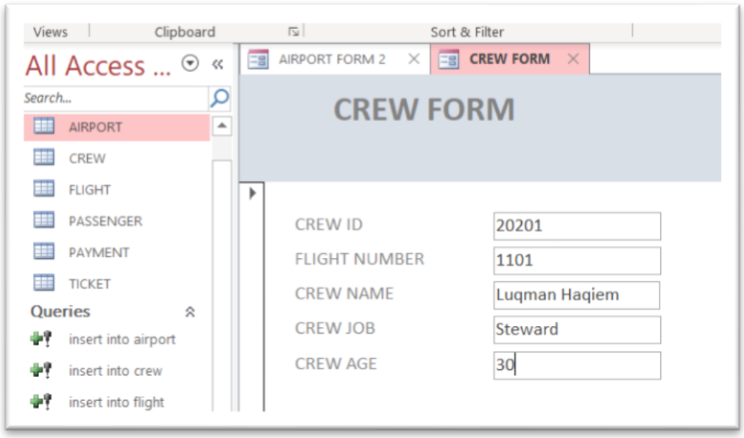
PASSENGER ID 101
FLIGT NUMBER 1101
TICKET SEAT 2A
TICKET CLASS Bussiness
TICKET PRICE 2100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TICKET
Queries
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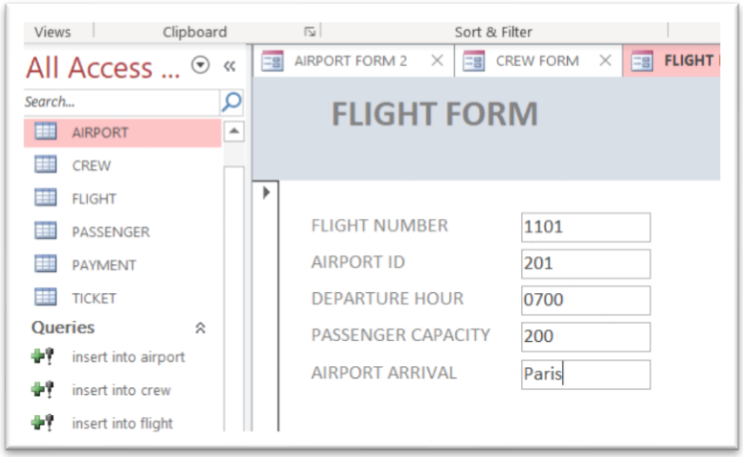
insert into crew
insert into flight
AIRPORT FORM 2
CREW FORM
CREW FORM
CREW ID 20201
FLIGHT NUMBER 1101
CREW NAME Luqman Haqiem
CREW JOB Steward
CREW AGE 30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Queries
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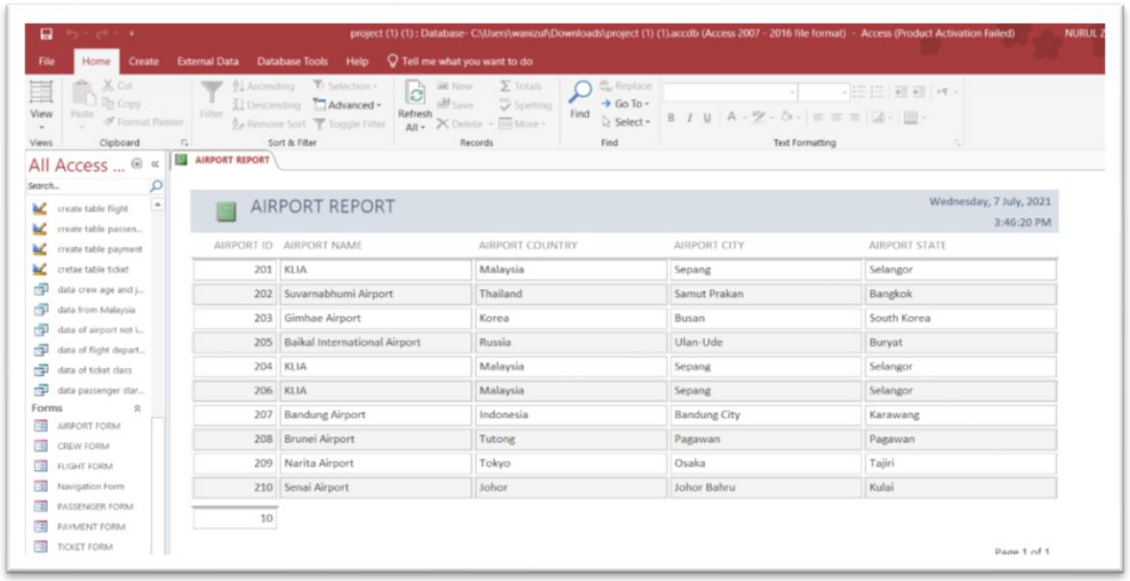
insert into crew
insert into flight
AIRPORT FORM 2
CREW FORM
FLIGHT
FLIGHT FORM
FLIGHT NUMBER 1101
AIRPORT ID 201
DEPARTURE HOUR 0700
PASSENGER CAPACITY 200
AIRPORT ARRIVAL Paris

REPORT



AIRPORT REPORT

Wednesday, 7 July, 2021
3:46:20 PM

AIRPORT ID	AIRPORT NAME	AIRPORT COUNTRY	AIRPORT CITY	AIRPORT STATE
201	KLIA	Malaysia	Sepang	Selangor
202	Suvarnabhumi Airport	Thailand	Samut Prakan	Bangkok
203	Gimhae Airport	Korea	Busan	South Korea
205	Baikal International Airport	Russia	Ulan-Ude	Buryat
204	KLIA	Malaysia	Sepang	Selangor
206	KLIA	Malaysia	Sepang	Selangor
207	Bandung Airport	Indonesia	Bandung City	Karawang
208	Brunei Airport	Tutong	Pagawan	Pagawan
209	Narita Airport	Tokyo	Osaka	Tajiri
210	Senai Airport	Johor	Johor Bahru	Kulai

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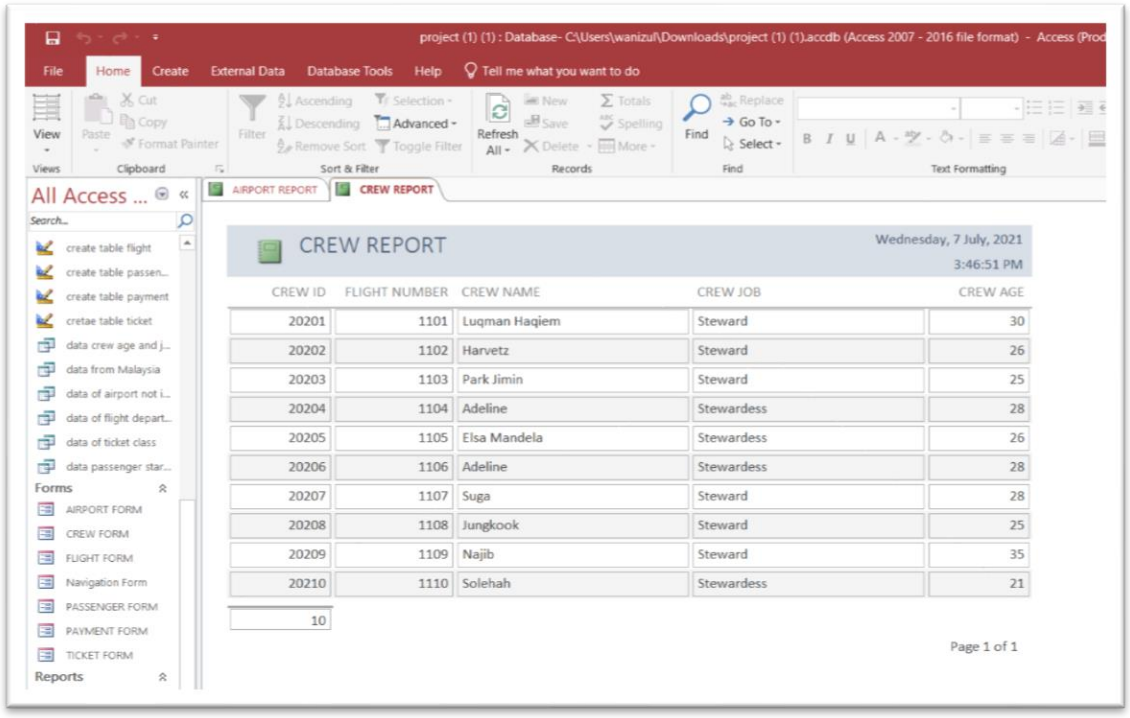

CREW REPORT

Wednesday, 7 July, 2021
3:46:51 PM

CREW ID	FLIGHT NUMBER	CREW NAME	CREW JOB	CREW AGE
20201	1101	Luqman Haqiem	Steward	30
20202	1102	Harvetz	Steward	26
20203	1103	Park Jimin	Steward	25
20204	1104	Adeline	Stewardess	28
20205	1105	Elsa Mandela	Stewardess	26
20206	1106	Adeline	Stewardess	28
20207	1107	Suga	Steward	28
20208	1108	Jungkook	Steward	25
20209	1109	Najib	Steward	35
20210	1110	Solehah	Stewardess	21

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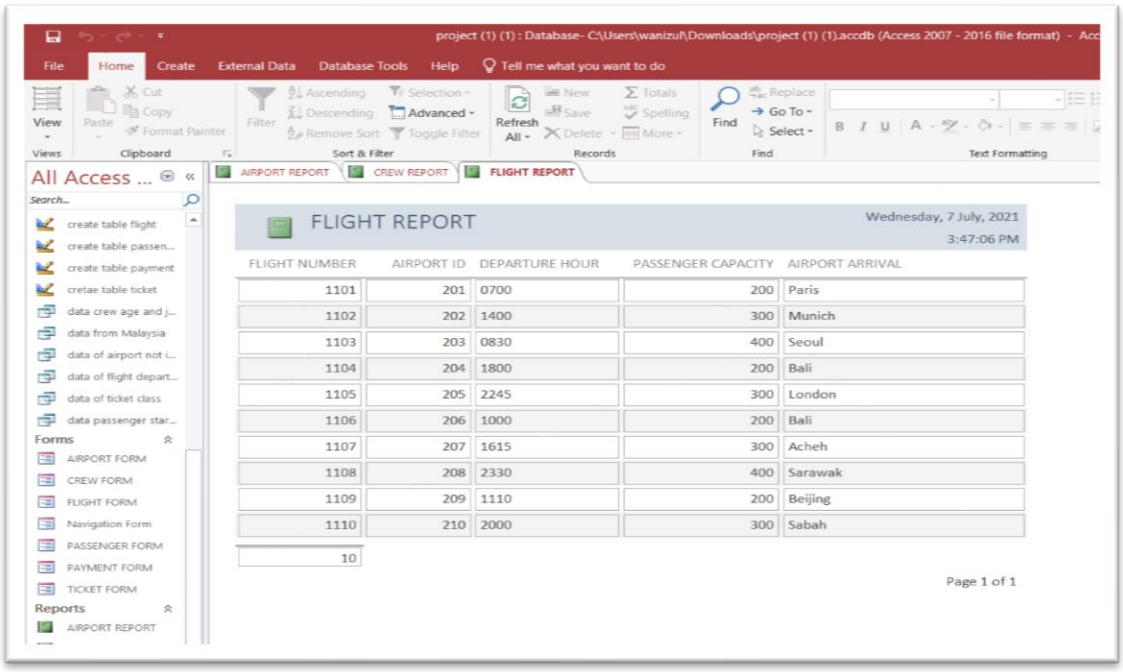
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AIRPORT REPORT
CREW REPORT
FLIGHT REPORT
FLIGHT REPORT
Wednesday, 7 July, 2021
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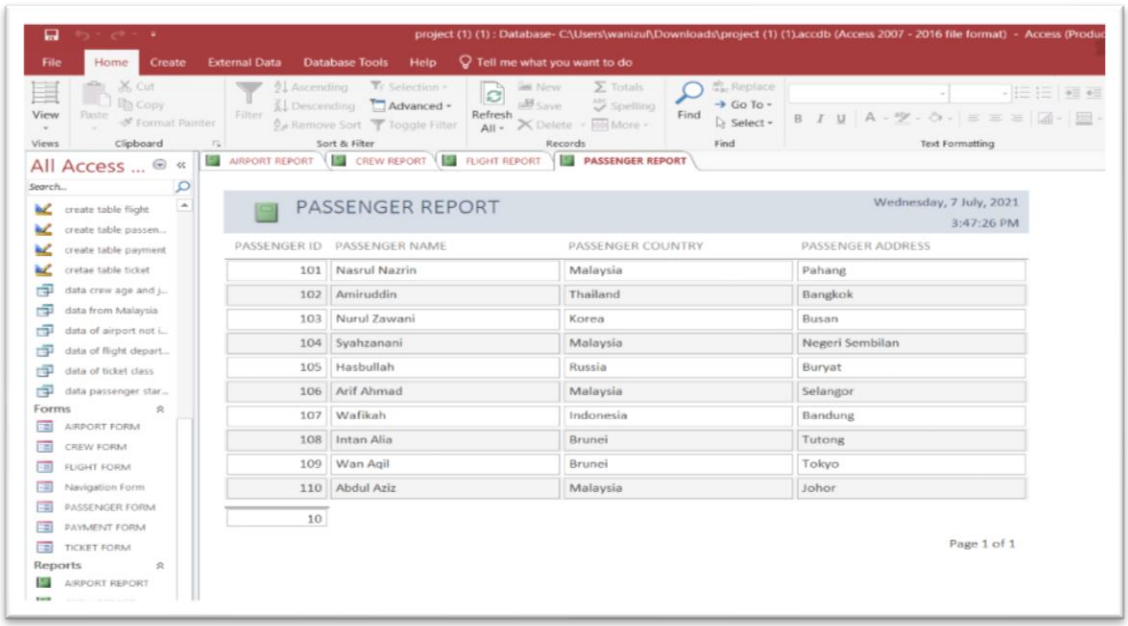
FLIGHT NUMBER
AIRPORT ID
DEPARTURE HOUR
PASSENGER CAPACITY
AIRPORT ARRIVAL
1101 201 0700 200 Paris
1102 202 1400 300 Munich
1103 203 0830 400 Seoul
1104 204 1800 200 Bali
1105 205 2245 300 London
1106 206 1000 200 Bali
1107 207 1615 300 Acheh
1108 208 2330 400 Sarawak
1109 209 1110 200 Beijing
1110 210 2000 300 Sabah
10
Page 1 of 1
Forms
AIRPORT FORM
CREW FORM
FLIGHT FORM
Navigation Form
PASSENGER FORM
PAYMENT FORM
TICKET FORM
Reports
AIRPORT REPORT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Database Tools
Help
Tell me what you want to do
All Access ...
AIRPORT REPORT
CREW REPORT
FLIGHT REPORT
PASSENGER REPORT
PASSENGER REPORT
Wednesday, 7 July, 2021
3:47:26 PM
PASSENGER ID
PASSENGER NAME
PASSENGER COUNTRY
PASSENGER ADDRESS
101 Nasrul Nazrin Malaysia Pahang
102 Amiruddin Thailand Bangkok
103 Nurul Zawani Korea Busan
104 Syahzanani Malaysia Negeri Sembilan
105 Hasbullah Russia Buryat
106 Arif Ahmad Malaysia Selangor
107 Wafikah Indonesia Bandung
108 Intan Alia Brunei Tutong
109 Wan Aqil Brunei Tokyo
110 Abdul Aziz Malaysia Johor
10
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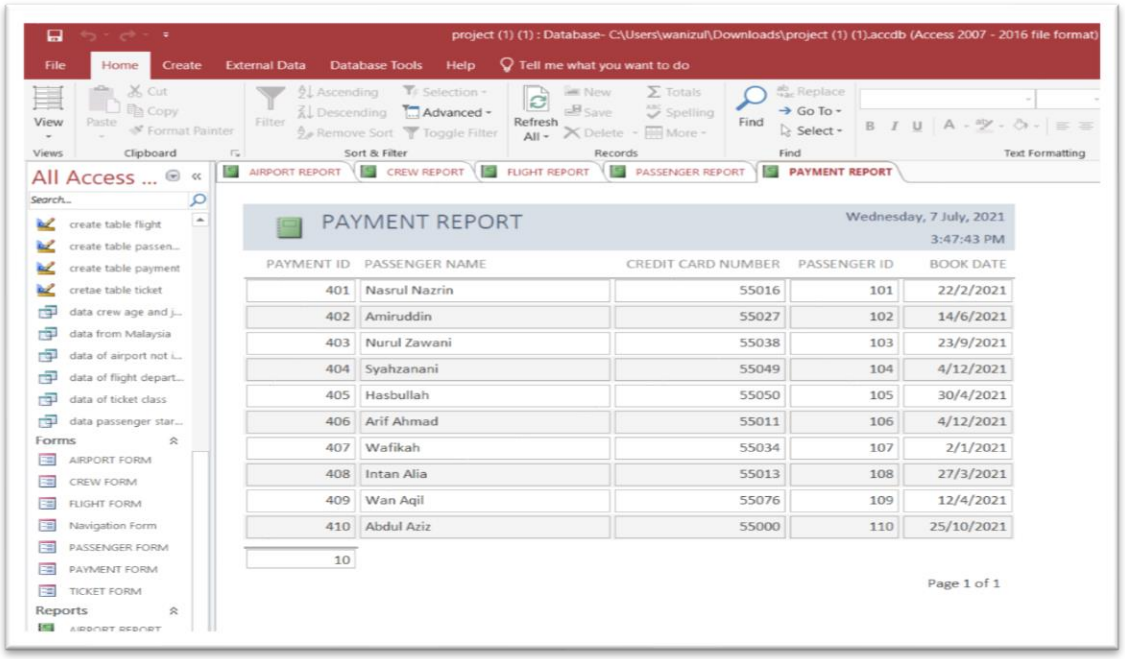
Forms
AIRPORT FORM
CREW FORM
FLIGHT FORM
Navigation Form
PASSENGER FORM
PAYMENT FORM
TICKET FORM
Reports
AIRPORT REPORT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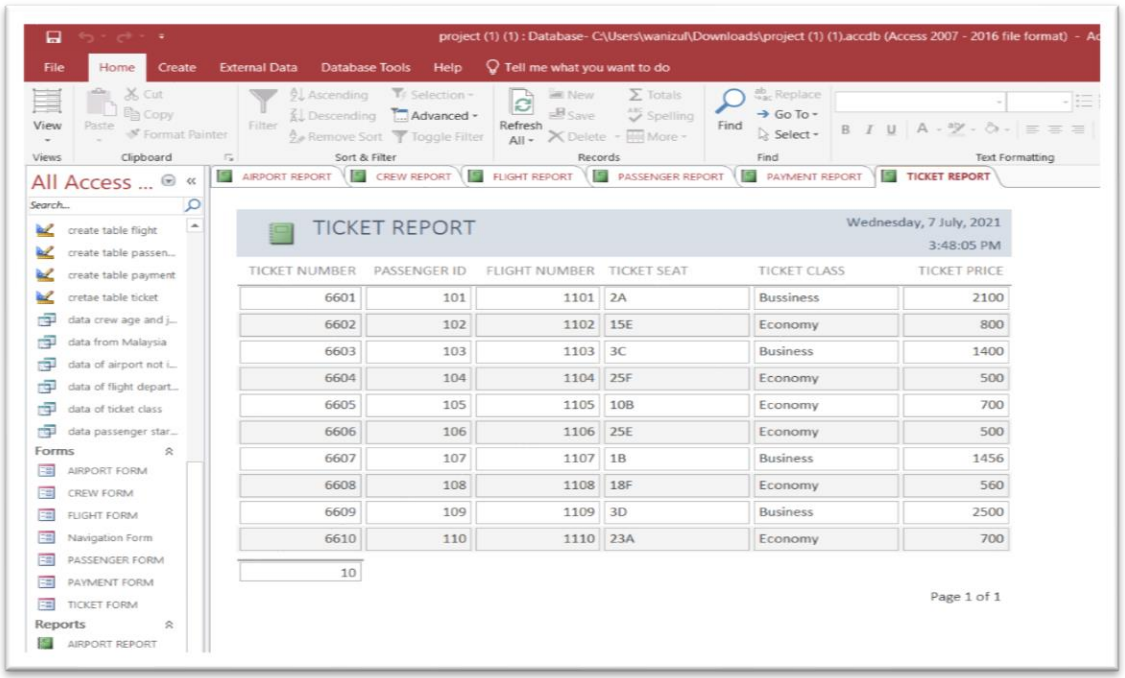
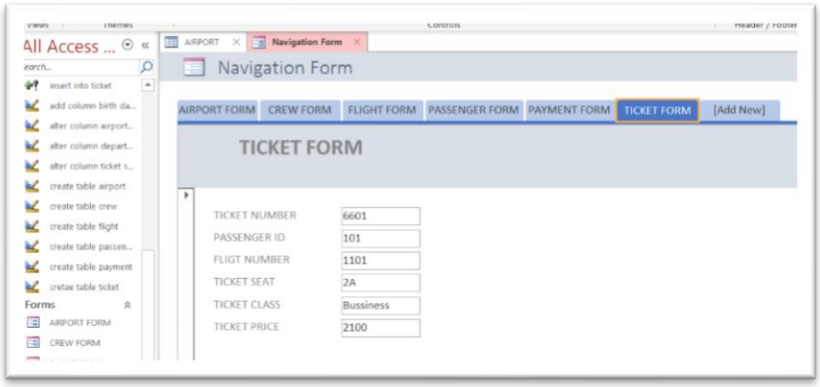
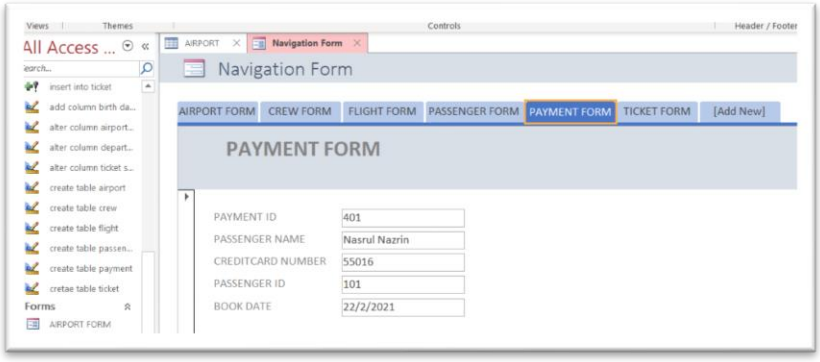
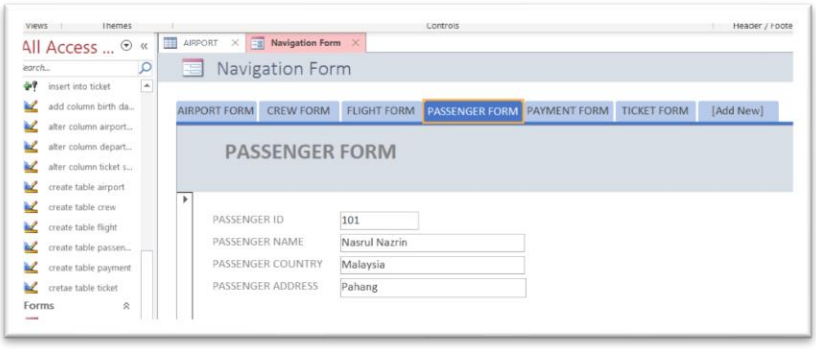
File
Home
Create
External Data
Database Tools
Help
Tell me what you want to do
All Access ...
AIRPORT REPORT
CREW REPORT
FLIGHT REPORT
PASSENGER REPORT
PAYMENT REPORT
PAYMENT REPORT
Wednesday, 7 July, 2021
3:47:43 PM
PAYMENT ID | PASSENGER NAME | CREDIT CARD NUMBER | PASSENGER ID | BOOK DATE
401 | Nasrul Nazrin | 55016 | 101 | 22/2/2021
402 | Amiruddin | 55027 | 102 | 14/6/2021
403 | Nurul Zawani | 55038 | 103 | 23/9/2021
404 | Syahzanani | 55049 | 104 | 4/12/2021
405 | Hasbullah | 55050 | 105 | 30/4/2021
406 | Arif Ahmad | 55011 | 106 | 4/12/2021
407 | Wafikah | 55034 | 107 | 2/1/2021
408 | Intan Alia | 55013 | 108 | 27/3/2021
409 | Wan Aqil | 55076 | 109 | 12/4/2021
410 | Abdul Aziz | 55000 | 110 | 25/10/2021
10
Page 1 of 1

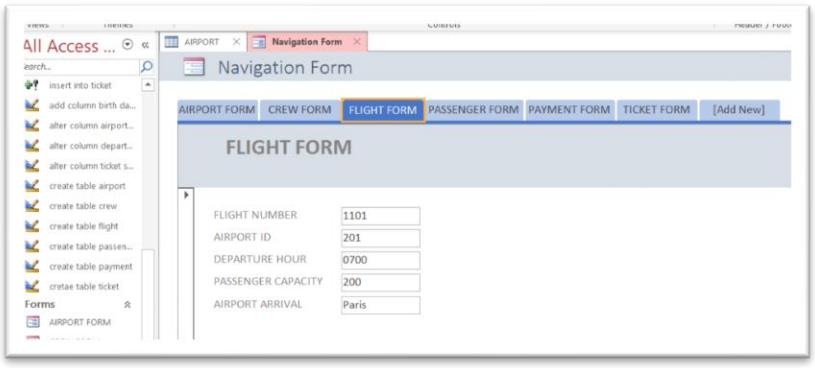

project (1) (1) : Database- C:\Users\wanizul\Downloads\project (1) (1).accdb (Access 2007 - 2016 file format)
File
Home
Create
External Data
Database Tools
Help
Tell me what you want to do
All Access ...
AIRPORT REPORT
CREW REPORT
FLIGHT REPORT
PASSENGER REPORT
PAYMENT REPORT
TICKET REPORT
TICKET REPORT
Wednesday, 7 July, 2021
3:48:05 PM
TICKET NUMBER | PASSENGER ID | FLIGHT NUMBER | TICKET SEAT | TICKET CLASS | TICKET PRICE
6601 | 101 | 1101 | 2A | Bussiness | 2100
6602 | 102 | 1102 | 15E | Economy | 800
6603 | 103 | 1103 | 3C | Business | 1400
6604 | 104 | 1104 | 25F | Economy | 500
6605 | 105 | 1105 | 10B | Economy | 700
6606 | 106 | 1106 | 25E | Economy | 500
6607 | 107 | 1107 | 1B | Business | 1456
6608 | 108 | 1108 | 18F | Economy | 560
6609 | 109 | 1109 | 3D | Business | 2500
6610 | 110 | 1110 | 23A | Economy | 700
10
Page 1 of 1

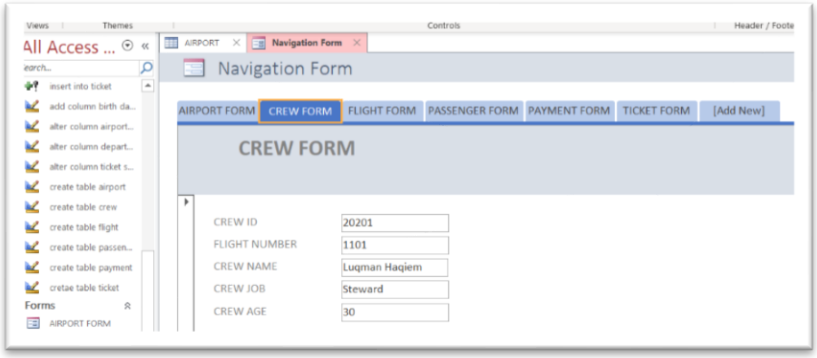
NAVIGATION FORM








All Access ...
AIRPORT
Navigation Form
Navigation Form
AIRPORT FORM
CREW FORM
FLIGHT FORM
PASSENGER FORM
PAYMENT FORM
TICKET FORM
[Add New]
FLIGHT FORM
FLIGHT NUMBER 1101
AIRPORT ID 201
DEPARTURE HOUR 0700
PASSENGER CAPACITY 200
AIRPORT ARRIVAL Paris
Forms
AIRPORT FORM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Navigation Form
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CREW FORM
FLIGHT FORM
PASSENGER FORM
PAYMENT FORM
TICKET FORM
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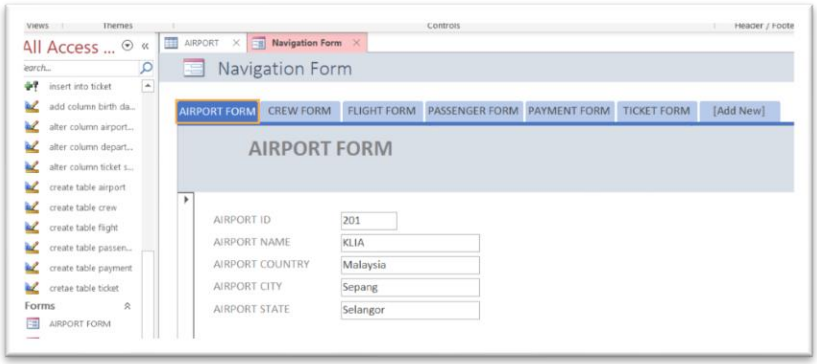
FLIGHT NUMBER 1101
CREW NAME Luqman Haqiem
CREW JOB Steward
CREW AGE 30
Forms
AIRPORT FORM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Navigation Form
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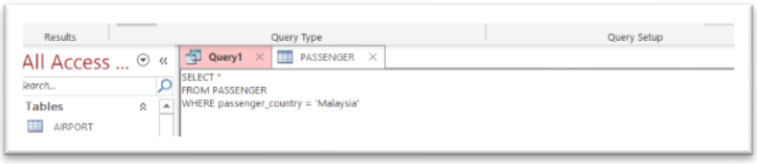
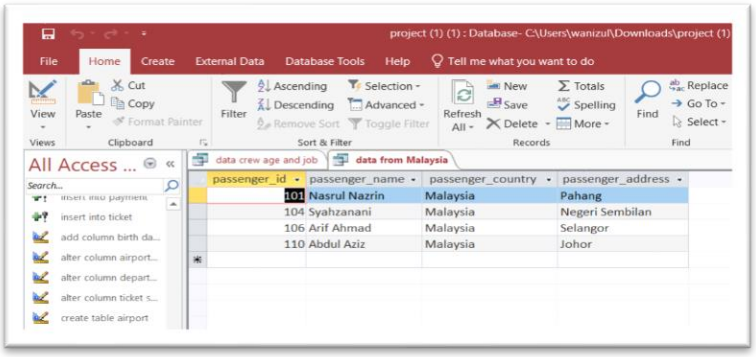
CREW FORM
FLIGHT FORM
PASSENGER FORM
PAYMENT FORM
TICKET FORM
[Add New]
AIRPORT FORM
AIRPORT ID 201
AIRPORT NAME KLIA
AIRPORT COUNTRY Malaysia
AIRPORT CITY Sepang
AIRPORT STATE Selangor
Forms
AIRPORT FORM

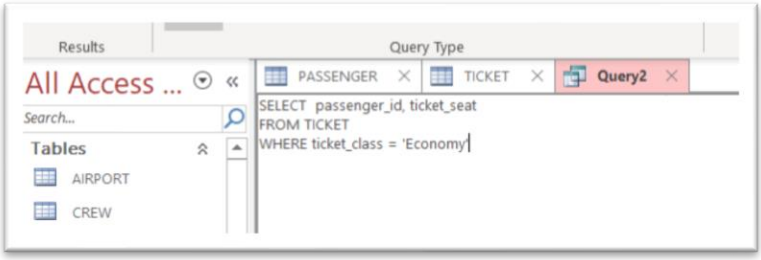
13. SQL

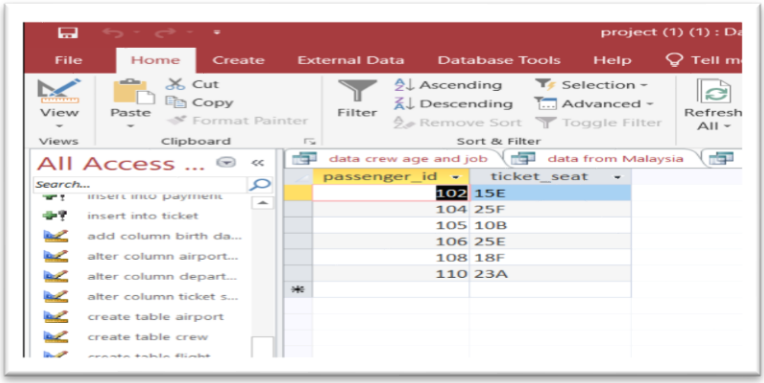
i. Find the data of passengers from Malaysia.



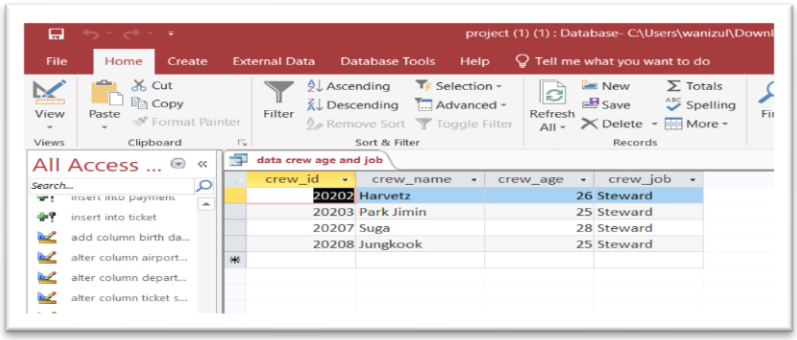


ii. Find the data of passenger's ticket class.

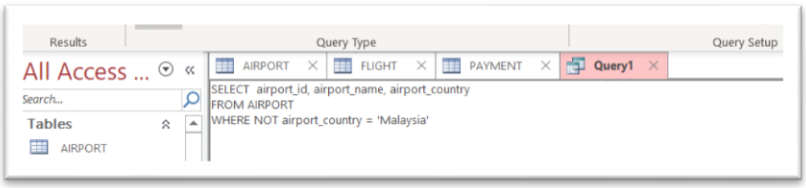


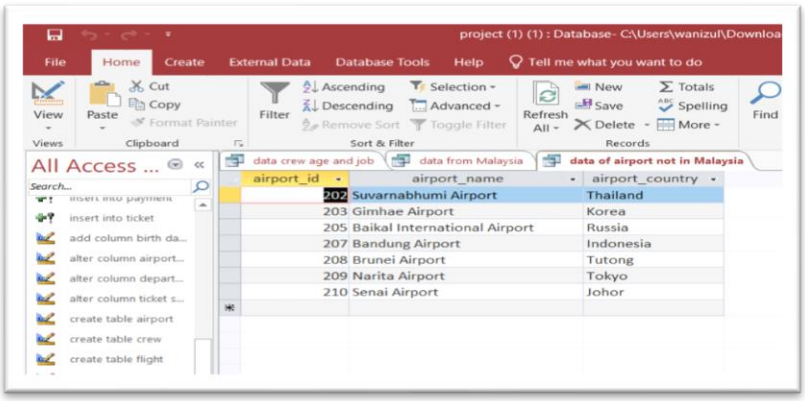


iii. Find the data of crew who is below 30 and a steward.

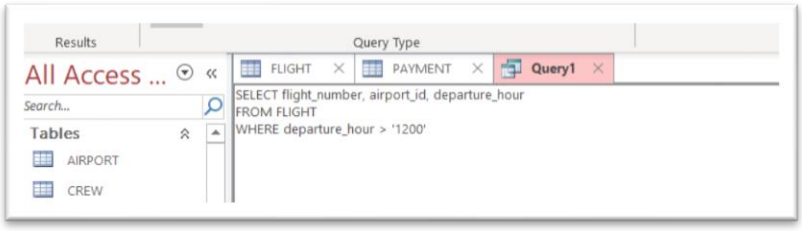


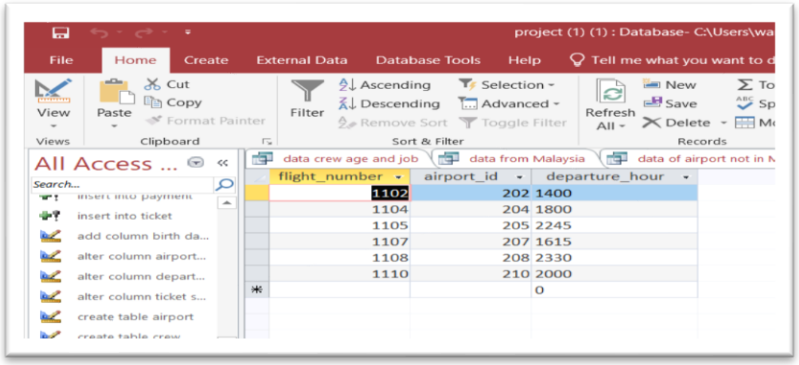
iv. Find the data of airport that are not in Malaysia.



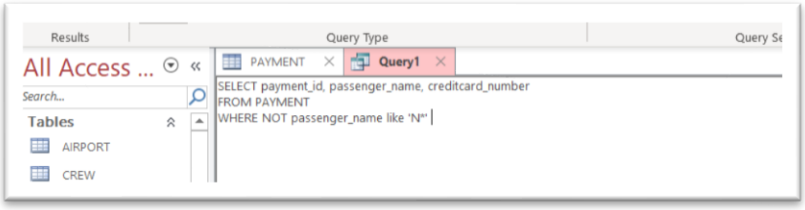


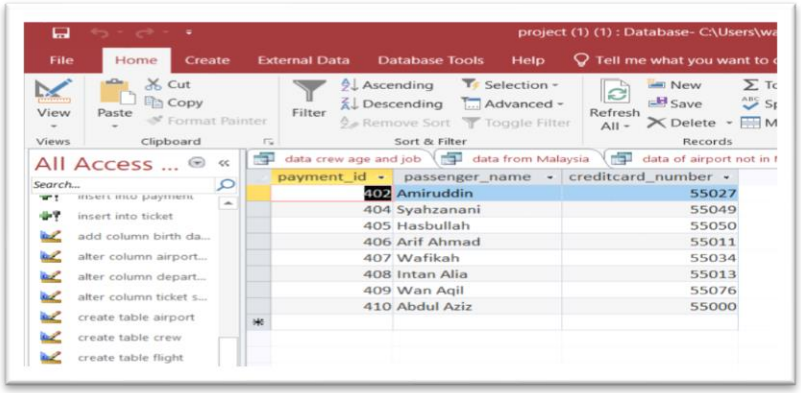
v. Find the data of flight that depart above 1200 hours.





vi. Find passengers name that starts other than ‘N’.





14. Conclusion

The conclusion of this project is that Transportation Management System is about an airplane agency. This system keeps all the data of hardware assets besides software of this organization. The proposed system will keep a track of passengers, crews, airports, tickets, flights and payment. This project has Graphic User Interface (GUI) based on software that will help in storing, updating and retrieving the data through various user-friendly menu-driven modules. The main objective of this project is to design and record the passengers flight schedule and rates, also managing reservation request and cancelation and the number of tickets sold. This system also helps to enable the passengers fly without hesitation. Besides, this system is to ease the handling the arrangement of company database. The admin of this system can search for particular facilities and easily to view its information. The system also will update the list of facilities in the database every time the booking process is completed and provides a preview of booking status to the user. The existing system is a manually maintained system. All the records are to be maintained for its details of each passengers, crews, airports, tickets, flights and payment process. All these details were entered and retrieve manually and because of this, there are some disadvantages like time consuming, updating process and also inaccuracy of the data. To avoid this matter, we have introduced or proposed a new system in computerized version of the existing system which provides an easy and quick way access over the data.