

**Project Report**

**On**

**Airline Ticket Reservation System**

(CSD 2206-5 DATABASE DESIGN AND SQL)

**Submitted to: Submitted by:**

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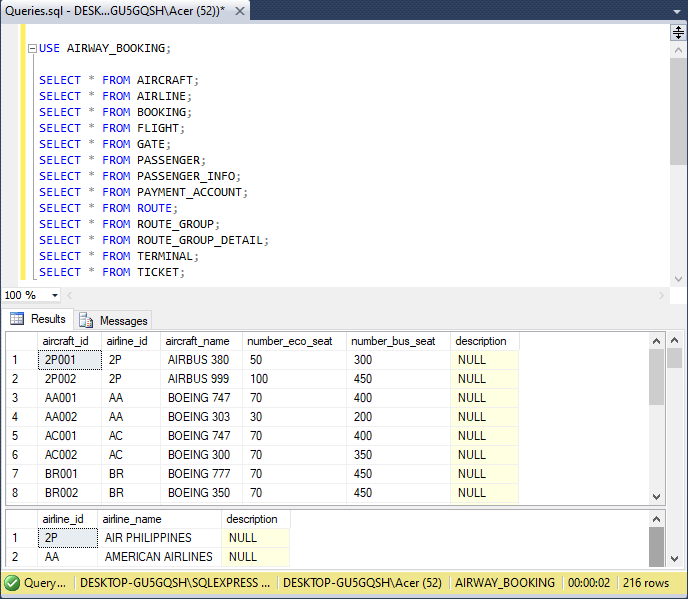
# INTRODUCTION

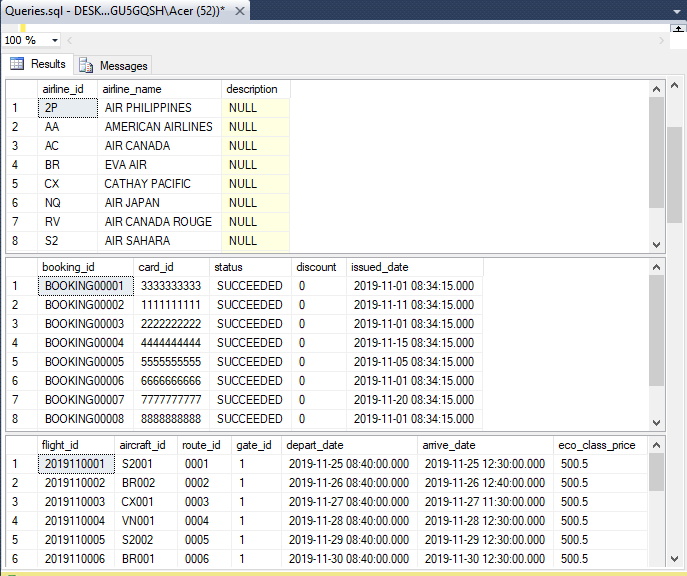
Airline Ticket Reservation System is a database project that facilitate the reservation of the online air tickets through an effective and yet simple GUI for a normal passenger intending to travel in airways. The project is basically targeted all those people who would like to travel through air. Apart from reserving tickets, through this system a passenger can compare fares ‘from’ various cities ‘to’ various cities.

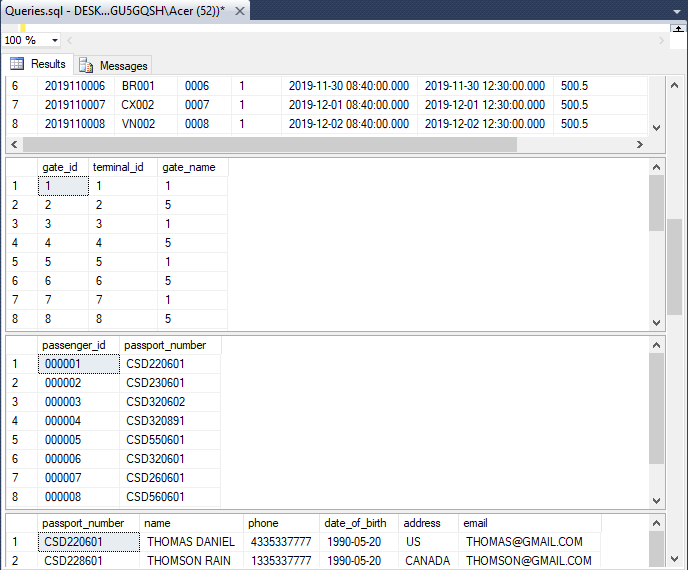
# SQL Queries

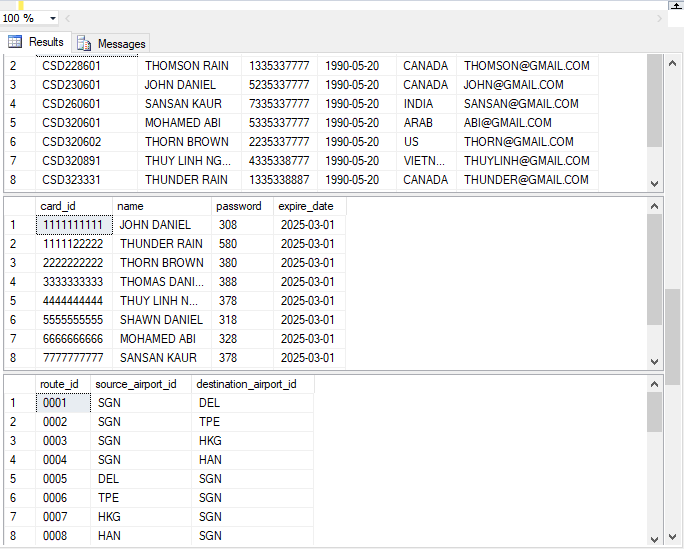
1. Data entry into tables that you have created.

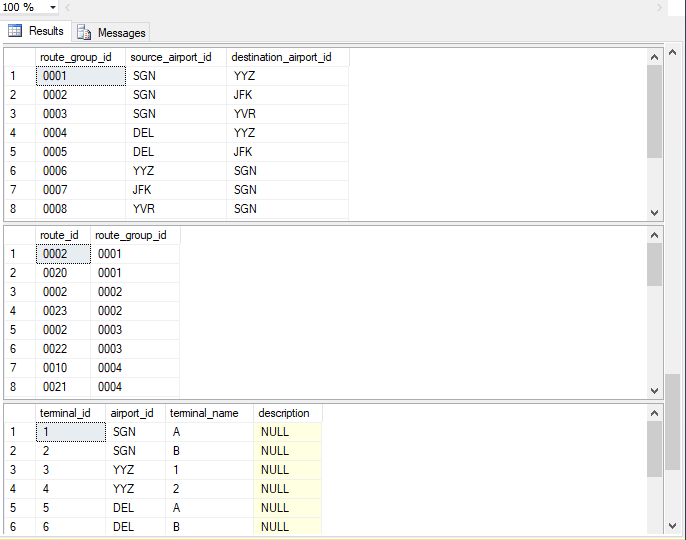
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| USE AIRWAY\_BOOKING;  SELECT \* FROM AIRCRAFT;  SELECT \* FROM AIRLINE;  SELECT \* FROM BOOKING;  SELECT \* FROM FLIGHT;  SELECT \* FROM GATE;  SELECT \* FROM PASSENGER;  SELECT \* FROM PASSENGER\_INFO;  SELECT \* FROM PAYMENT\_ACCOUNT;  SELECT \* FROM ROUTE;  SELECT \* FROM ROUTE\_GROUP;  SELECT \* FROM ROUTE\_GROUP\_DETAIL;  SELECT \* FROM TERMINAL;  SELECT \* FROM TICKET; |

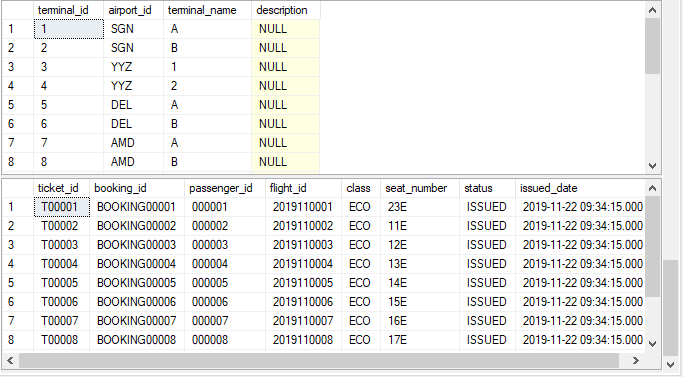






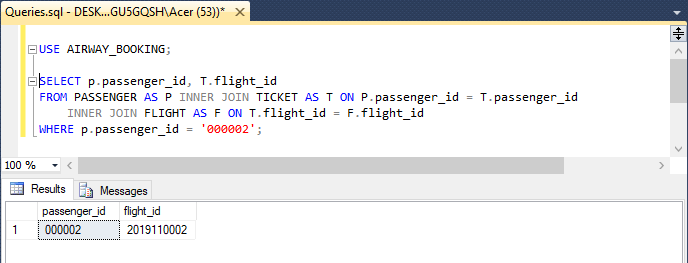






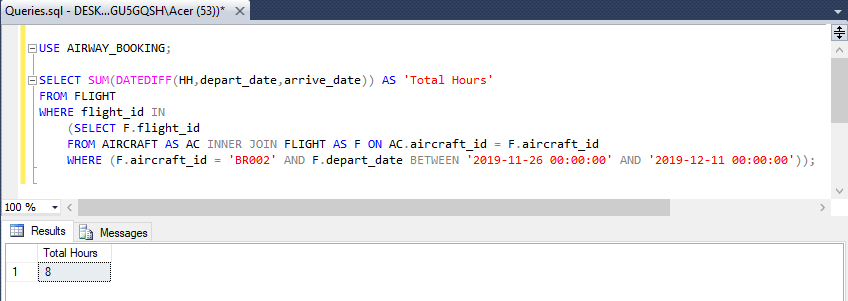
1. Travel history of a specific passenger.

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| USE AIRWAY\_BOOKING;  /\*Q2 Travel history of a specific passenger\*/  /\*Performing: All flights that passenger\_id 000002 has flied\*/  SELECT p.passenger\_id, T.flight\_id  FROM PASSENGER AS P INNER JOIN TICKET AS T ON P.passenger\_id = T.passenger\_id  INNER JOIN FLIGHT AS F ON T.flight\_id = F.flight\_id  WHERE p.passenger\_id = '000002'; |



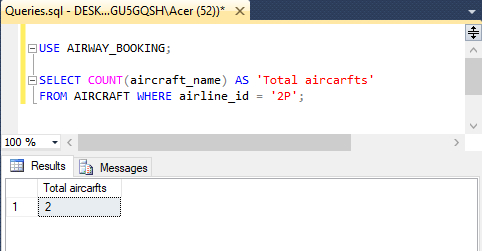
1. Total hours that a specific aircraft has served during a specific time interval.

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| USE AIRWAY\_BOOKING;  /\*Q3 total hours that a specific aircarft has served during a specific time interval\*/  /\*Performing: Total hours aircraft\_if BR002 has served from Nov 26th 2019 to Dec 11th 2019\*/  SELECT SUM(DATEDIFF(HH,depart\_date,arrive\_date)) AS 'Total Hours'  FROM FLIGHT  WHERE flight\_id IN  (SELECT F.flight\_id  FROM AIRCRAFT AS AC INNER JOIN FLIGHT AS F ON AC.aircraft\_id = F.aircraft\_id  WHERE (F.aircraft\_id = 'BR002' AND F.depart\_date BETWEEN '2019-11-26 00:00:00' AND '2019-12-11 00:00:00')); |



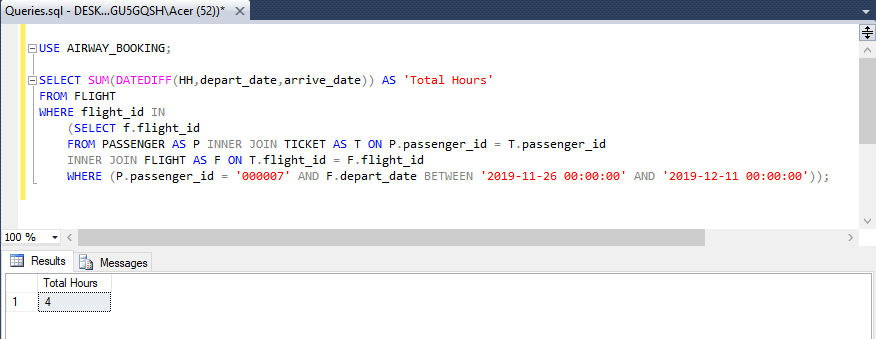
1. Total number of aircrafts belonging to a specific airline.

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| USE AIRWAY\_BOOKING;  /\*Q4 number of aircarfts belong to a specific airline\*/  /\*Performing: Total aircraft that Philipines Airline(2P) possessing\*/  SELECT COUNT(aircraft\_name) AS 'Total aircarfts'  FROM AIRCRAFT WHERE airline\_id = '2P'; |



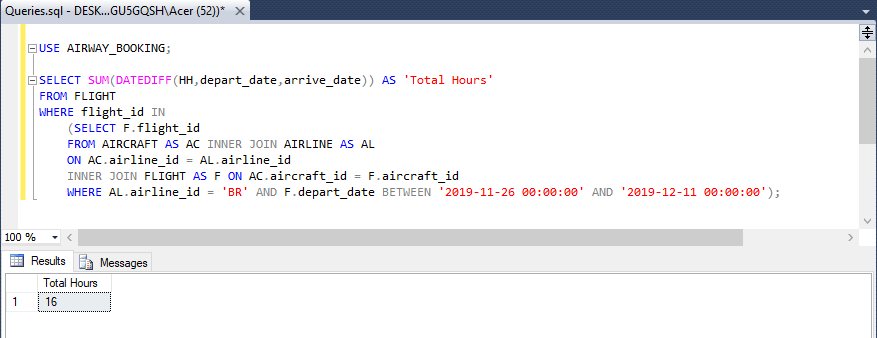
1. Total number of hours that a specific passenger has travelled during a specific time interval.

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| USE AIRWAY\_BOOKING;  /\*Q5 total hours that a specific passenger has travel during a specific time interval\*/  /\*Performing: Total hours passesger\_if 000007 has traveled during the period of Nov 26th 219 - Dec 11th 2019\*/  SELECT SUM(DATEDIFF(HH,depart\_date,arrive\_date)) AS 'Total Hours'  FROM FLIGHT  WHERE flight\_id IN  (SELECT f.flight\_id  FROM PASSENGER AS P INNER JOIN TICKET AS T ON P.passenger\_id = T.passenger\_id  INNER JOIN FLIGHT AS F ON T.flight\_id = F.flight\_id  WHERE (P.passenger\_id = '000007' AND F.depart\_date BETWEEN '2019-11-26 00:00:00' AND '2019-12-11 00:00:00')); |



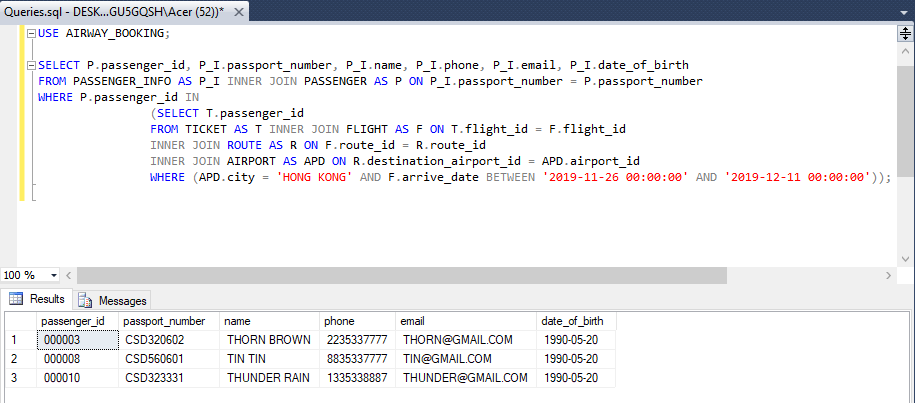
1. Total number of hours that a specific airline has been running during a specific time interval.

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| USE AIRWAY\_BOOKING;  /\*Q6 Total number of hours that a specific airline has been running during a specific time interval\*/  /\*Performing: Total number of hours that Eva Airline has been running between Nov 26 2019 and Dec 11 2019\*/  SELECT SUM(DATEDIFF(HH,depart\_date,arrive\_date)) AS 'Total Hours'  FROM FLIGHT  WHERE flight\_id IN (SELECT F.flight\_id  FROM AIRCRAFT AS AC INNER JOIN AIRLINE AS AL  ON AC.airline\_id = AL.airline\_id  INNER JOIN FLIGHT AS F ON AC.aircraft\_id = F.aircraft\_id  WHERE AL.airline\_id = 'BR' AND F.depart\_date BETWEEN '2019-11-26 00:00:00'AND '2019-12-11 00:00:00'); |



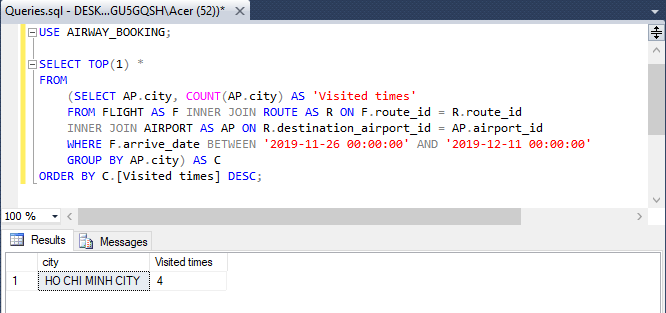
1. List of all passengers who flew to a specific city during a specific time interval.

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| USE AIRWAY\_BOOKING;  /\*Q7 List of all passengers who flew to a specific city during a specific time interval\*/  /\*Performing: List all passgener who flew to Hong Kong between Nov 26 2019 and Dec 11 2019\*/  SELECT P.passenger\_id, P\_I.passport\_number, P\_I.name, P\_I.phone, P\_I.email, P\_I.date\_of\_birth  FROM PASSENGER\_INFO AS P\_I INNER JOIN PASSENGER AS P ON P\_I.passport\_number = P.passport\_number  WHERE P.passenger\_id IN  (SELECT T.passenger\_id FROM TICKET AS T INNER JOIN FLIGHT AS F ON T.flight\_id = F.flight\_id INNER JOIN ROUTE AS R ON F.route\_id = R.route\_id  INNER JOIN AIRPORT AS APD ON R.destination\_airport\_id = APD.airport\_id  WHERE (APD.city = 'HONG KONG' AND F.arrive\_date BETWEEN '2019-11-26 00:00:00' AND '2019-12-11 00:00:00')); |



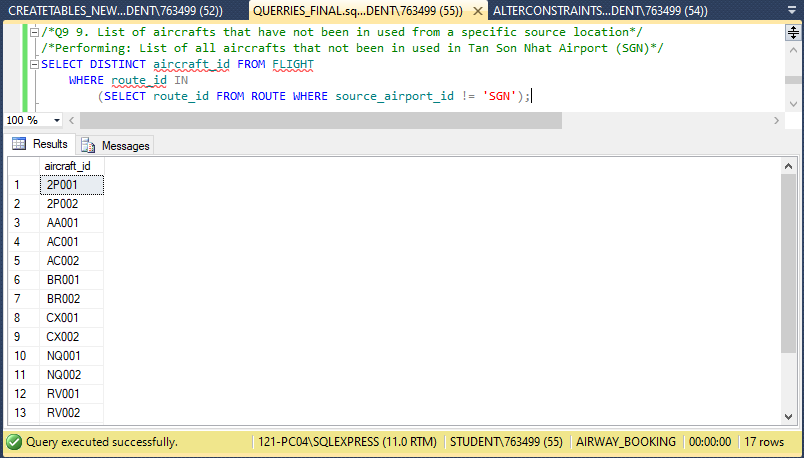
1. Most visited city during the last month.

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| USE AIRWAY\_ BOOKING;  /\*Q8 Most visited city during the last month.\*/  /\*Performing: Show the city was visited the most in the period from Nov 26 2019 to Dec 11 2019\*/  SELECT TOP(1) \*  FROM  (SELECT AP.city, COUNT(AP.city) AS 'Visited times'  FROM FLIGHT AS F INNER JOIN ROUTE AS R ON F.route\_id = R.route\_id  INNER JOIN AIRPORT AS AP ON R.destination\_airport\_id = AP.airport\_id  WHERE F.arrive\_date BETWEEN '2019-11-26 00:00:00' AND '2019-12-11 00:00:00'  GROUP BY AP.city) AS C  ORDER BY C.[Visited times] DESC; |



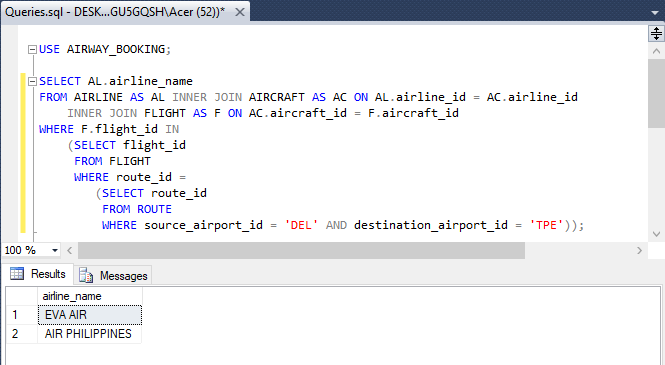
1. List of aircrafts that have **not** been in used from a specific source location.

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| USE AIRWAY\_BOOKING;  SELECT DISTINCT aircraft\_id FROM FLIGHT  WHERE route\_id IN  (SELECT route\_id FROM ROUTE WHERE source\_airport\_id != 'SGN'); |



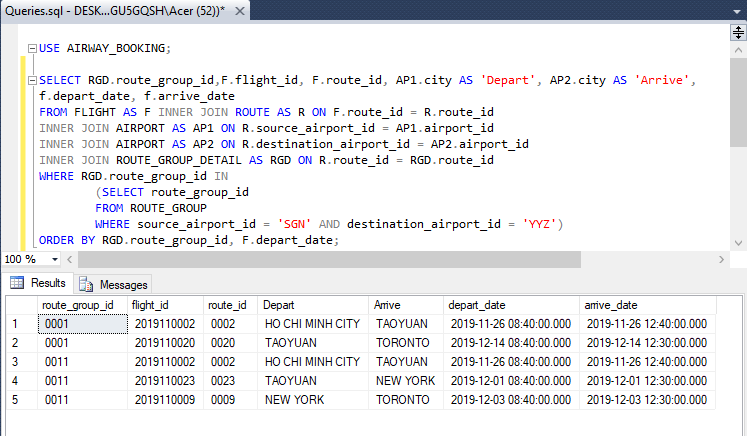
1. List of airlines that run flight from a specific source to a destination.

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| USE AIRWAY\_BOOKING;  /\*Q10 List of airlines that run flight from a specific source to a destination.\*/  /\*Performing: List of all airlines have the flight from DEL (Delhi City) to TPE (TAIWAN)\*/  SELECT AL.airline\_name  FROM AIRLINE AS AL INNER JOIN AIRCRAFT AS AC ON AL.airline\_id = AC.airline\_id  INNER JOIN FLIGHT AS F ON AC.aircraft\_id = F.aircraft\_id  WHERE F.flight\_id IN  (SELECT flight\_id  FROM FLIGHT  WHERE route\_id =  (SELECT route\_id FROM ROUTE  WHERE source\_airport\_id = 'DEL' AND destination\_airport\_id = 'TPE')); |



1. The list of all options that a passenger can have when travelling from a source to a destination. This includes a connecting flight, for instance, a passenger is travelling from Toronto to Dehli and there is no direct flight, therefore, you have to find the options for this passenger.

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| USE AIRWAY\_BOOKING;  /\*Q11 The list of all options that a passenger can have when travelling from a source to a destination.  This includes a connecting flight, for instance, a passenger is travelling from Toronto to Dehli and there is no  direct flight, therefore, you have to find the options for this passenger.\*/  /\*Performing: List all in-direct flights from SGN(Ho Chi Minh City) to YYZ(Toronto)\*/  SELECT RGD.route\_group\_id,F.flight\_id, F.route\_id, AP1.city AS 'Depart', AP2.city AS 'Arrive', f.depart\_date, f.arrive\_date  FROM FLIGHT AS F INNER JOIN ROUTE AS R ON F.route\_id = R.route\_id  INNER JOIN AIRPORT AS AP1 ON R.source\_airport\_id = AP1.airport\_id  INNER JOIN AIRPORT AS AP2 ON R.destination\_airport\_id = AP2.airport\_id  INNER JOIN ROUTE\_GROUP\_DETAIL AS RGD ON R.route\_id = RGD.route\_id  WHERE RGD.route\_group\_id IN  (SELECT route\_group\_id  FROM ROUTE\_GROUP  WHERE source\_airport\_id = 'SGN' AND destination\_airport\_id = 'YYZ')  ORDER BY RGD.route\_group\_id, F.depart\_date; |



1. What is the minimum number of hours that it will take for a passenger to travel from a source city to a destination city? Again, consider the connecting flights as mentioned in item number 9, e.g. travelling from Toronto to Dehli.

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| USE AIRWAY\_BOOKING;  /\*Q12 What is the minimum number of hours that it will take for a passenger to travel from a source city to a  destination city. Again, consider the connecting flights as mentioned in item number 9, e.g. travelling from Toronto to Dehli.\*/  /\*Performing: Amount of minimum hour it takes for flying from SGN to YYZ\*/  SELECT MIN(B.Total\_hours) AS 'Minimum number of hours' FROM  (SELECT STR(CAST(SUM(DATEDIFF(MINUTE,C.depart\_date,C.arrive\_date)) AS DECIMAL(10,2))/60,10,2) AS 'Total\_hours'  FROM  (SELECT RGD.route\_group\_id,F.flight\_id, F.route\_id, F.arrive\_date, F.depart\_date  FROM FLIGHT AS F INNER JOIN ROUTE AS R ON F.route\_id = R.route\_id  INNER JOIN AIRPORT AS AP1 ON R.source\_airport\_id = AP1.airport\_id  INNER JOIN AIRPORT AS AP2 ON R.destination\_airport\_id = AP2.airport\_id  INNER JOIN ROUTE\_GROUP\_DETAIL AS RGD ON R.route\_id = RGD.route\_id  WHERE RGD.route\_group\_id IN  (SELECT route\_group\_id  FROM ROUTE\_GROUP  WHERE source\_airport\_id = 'SGN' AND destination\_airport\_id = 'YYZ')) AS C  GROUP BY C.route\_group\_id) AS B; |

