```
SQL> @z:/Airlines_dataset/ex3.sql
SQL> @z:/Airlines_dataset/air_main.sql
SQL> --****************************************************
SQL> --CS 2258        B.Senthil Kumar
SQL> --DBMS Lab        Asst. Prof
SQL> --    Computer Science Department
SQL> --     SSN College of Engineering
SQL> --      senthil@ssn.edu.in
SQL> --****************************************************
SQL> --      AIRLINES DATASET
SQL> --   Version 1.0
SQL> --        February 05, 2013
SQL> --****************************************************
SQL> --Sources:
SQL> --  To create airlines database run the following
SQL> --    two script files which will create and populate
SQL> --    the databases.
SQL> --
SQL> --****************************************************
SQL> -- run the SQL script files
SQL>
SQL> @z:/Airlines_dataset/air_cre.sql
SQL> --****************************************************
SQL> --CS 2258        B.Senthil Kumar
SQL> --DBMS Lab        Asst. Prof
SQL> --    Computer Science Department
SQL> --     SSN College of Engineering
SQL> --      senthil@ssn.edu.in
SQL> --****************************************************
SQL> --      AIRLINES DATASET
SQL> --   Version 1.0
SQL> --        February 05, 2013
SQL> --****************************************************
SQL> --Sources:
SQL> --  This dataset is prepared for the assignment
SQL> --    on Subqueries and Join in SQL to students. This
SQL> --    is a test dataset.
SQL> --    The below SQL create the relations for airlines
SQL> --    database with constraints.
SQL> --
SQL> --****************************************************
SQL>
SQL> drop table fl_schedule;

Table dropped.

SQL> drop table flights;

Table dropped.

SQL> drop table routes;
```

Table dropped.

SQL> drop table certified;

Table dropped.

SQL> drop table employee;

Table dropped.

SQL> drop table aircraft;

Table dropped.

SQL>
SQL> create table aircraft(
  2   aid number(4) constraint aid_pk primary key,
  3   aname varchar2(30),
  4   type varchar2(10),
  5   cruisingrange number(6)
  6   );

Table created.

SQL>
SQL> create table employee(
  2   eid number(9) constraint eid_pk primary key,
  3   ename varchar2(30),
  4   salary number(10,2)
  5   );

Table created.

SQL>
SQL> create table certified(
  2   eid number(9),
  3   aid number(4),
  4   constraint eaid_pk primary key(eid,aid),
  5   constraint eid_fk foreign key(eid) references employee,
  6   constraint aid_fk foreign key(aid) references aircraft
  7   );

Table created.

SQL>
SQL> create table routes(
  2   routeID varchar2(6) constraint rid_pk primary key,
  3   orig_airport varchar2(20),
  4   dest_airport varchar2(20),
  5   distance number(6)
  6   );

Table created.

SQL>
SQL> create table flights(
  2   flightNo varchar2(7) constraint fno_pk primary key,
  3   rID varchar2(6),
  4   aid number(4),
  5   constraint fl_aid_fk foreign key(aid) references aircraft,
  6   constraint rid_fk foreign key(rid) references routes
  7   );

Table created.

SQL>
SQL> create table fl_schedule(
  2   flno varchar2(7),
  3   departs date,
  4   dtime number(4),
  5   arrives date,
  6   atime number(4),
  7   price number(7,2),
  8   constraint fno_dep_pk primary key (flno,departs),
  9   constraint fno_fk foreign key(flno) references flights
 10   );

Table created.

SQL>
SQL> --*******************END OF CREATE********************************
SQL> @z:/Airlines_dataset/air_pop.sql
SQL> --***
SQL> --CS 2258   B.Senthil Kumar
SQL> --DBMS Lab   Asst. Prof
SQL> --   Computer Science Department
SQL> --   SSN College of Engineering
SQL> --   senthil@ssn.edu.in
SQL> --***
SQL> --   AIRLINES DATASET
SQL> --   Version 1.0
SQL> --   February 05, 2013
SQL> --***
SQL> --Sources:
SQL> -- This dataset is prepared for the assignment
SQL> --   on Subqueries and Join in SQL to students. This
SQL> --   is a test dataset.
SQL> --   The below SQL statements will populate the
SQL> --   airlines database. The flight schedule contains
SQL> --   information pertained to flights during 12 to 22
SQL> --   April 2005. Do NOT MODIFY the instances.
SQL> --
SQL> --***
SQL> --

```
SQL> -- Populating Aircraft
SQL> --aircraft(aid, aname, type, cruisingrange)
SQL>
SQL> INSERT INTO  aircraft VALUES (1,'Boeing 747-400','Boeing',8430);

1 row created.

SQL> INSERT INTO  aircraft VALUES (2,'Boeing 737-800','Boeing',3383);

1 row created.

SQL> INSERT INTO  aircraft VALUES (3,'Airbus A340-300','Airbus',7120);

1 row created.

SQL> INSERT INTO  aircraft VALUES (4,'British Aerospace Jetstream 41','BAe',1502);

1 row created.

SQL> INSERT INTO  aircraft VALUES (5,'Embraer ERJ-145','Embraer',1530);

1 row created.

SQL> INSERT INTO  aircraft VALUES (6,'SAAB 340','Saab',2128);

1 row created.

SQL> INSERT INTO  aircraft VALUES (7,'Piper PA-46 Meridian','Piper',520);

1 row created.

SQL> INSERT INTO  aircraft VALUES (8,'Tupolev Tu-154','Tupolev',4103);

1 row created.

SQL> INSERT INTO  aircraft VALUES (16,'Schweizer 2-33','Schweizer',300);

1 row created.

SQL> INSERT INTO  aircraft VALUES (9,'Lockheed L1011 Tristar','Lockheed',6900);

1 row created.

SQL> INSERT INTO  aircraft VALUES (10,'Boeing 757-300','Boeing',4010);

1 row created.

SQL> INSERT INTO  aircraft VALUES (11,'Boeing 777-300','Boeing',6441);

1 row created.

SQL> INSERT INTO  aircraft VALUES (12,'Boeing 767-400ER','Boeing',6475);
```

1 row created.

SQL> INSERT INTO aircraft VALUES (13,'Airbus A320','Airbus',2605);

1 row created.

SQL> INSERT INTO aircraft VALUES (14,'Airbus A319','Airbus',1805);

1 row created.

SQL> INSERT INTO aircraft VALUES (15,'Boeing 727','Boeing',1504);

1 row created.

SQL>
SQL>
SQL> -- Populating employee relation
SQL> --employee(eid, ename, salary)
SQL>
SQL> INSERT INTO employee VALUES (242518965,'James Smith',120433);

1 row created.

SQL> INSERT INTO employee VALUES (141582651,'Mary Johnson',178345);

1 row created.

SQL> INSERT INTO employee VALUES (011564812,'John Williams',153972);

1 row created.

SQL> INSERT INTO employee VALUES (567354612,'Lisa Walker',256481);

1 row created.

SQL> INSERT INTO employee VALUES (552455318,'Larry West',101745);

1 row created.

SQL> INSERT INTO employee VALUES (550156548,'Karen Scott',205187);

1 row created.

SQL> INSERT INTO employee VALUES (390487451,'Lawrence Sperry',212156);

1 row created.

SQL> INSERT INTO employee VALUES (274878974,'Michael Miller',99890);

1 row created.

```
SQL> INSERT INTO  employee VALUES (254099823,'Patricia Jones',24450);

1 row created.

SQL> INSERT INTO  employee VALUES (356187925,'Robert Brown',44740);

1 row created.

SQL> INSERT INTO  employee VALUES (355548984,'Angela Martinez',212156);

1 row created.

SQL> INSERT INTO  employee VALUES (310454876,'Joseph Thompson',212156);

1 row created.

SQL> INSERT INTO  employee VALUES (489456522,'Linda Davis',127984);

1 row created.

SQL> INSERT INTO  employee VALUES (489221823,'Richard Jackson',23980);

1 row created.

SQL> INSERT INTO  employee VALUES (548977562,'William Ward',84476);

1 row created.

SQL> INSERT INTO  employee VALUES (310454877,'Chad Stewart',33546);

1 row created.

SQL> INSERT INTO  employee VALUES (142519864,'Betty Adams',227489);

1 row created.

SQL> INSERT INTO  employee VALUES (269734834,'George Wright',289950);

1 row created.

SQL> INSERT INTO  employee VALUES (287321212,'Michael Miller',48090);

1 row created.

SQL> INSERT INTO  employee VALUES (552455348,'Dorthy Lewis',92013);

1 row created.

SQL> INSERT INTO  employee VALUES (248965255,'Barbara Wilson',43723);

1 row created.
```

```
SQL> INSERT INTO  employee VALUES (159542516,'William Moore',48250);

1 row created.

SQL> INSERT INTO  employee VALUES (348121549,'Haywood Kelly',32899);

1 row created.

SQL> INSERT INTO  employee VALUES (090873519,'Elizabeth Taylor',32021);

1 row created.

SQL> INSERT INTO  employee VALUES (486512566,'David Anderson',743001);

1 row created.

SQL> INSERT INTO  employee VALUES (619023588,'Jennifer Thomas',54921);

1 row created.

SQL> INSERT INTO  employee VALUES (015645489,'Donald King',18050);

1 row created.

SQL> INSERT INTO  employee VALUES (556784565,'Mark Young',205187);

1 row created.

SQL> INSERT INTO  employee VALUES (573284895,'Eric Cooper',114323);

1 row created.

SQL> INSERT INTO  employee VALUES (574489456,'William Jones',105743);

1 row created.

SQL> INSERT INTO  employee VALUES (574489457,'Milo Brooks',12000);

1 row created.

SQL>
SQL>
SQL> -- Populating Certified relation
SQL> --certified(eid, aid)
SQL>
SQL> INSERT INTO certified VALUES (567354612,1);

1 row created.

SQL> INSERT INTO certified VALUES (567354612,2);

1 row created.
```

```
SQL> INSERT INTO certified VALUES (567354612,10);

1 row created.

SQL> INSERT INTO certified VALUES (567354612,11);

1 row created.

SQL> INSERT INTO certified VALUES (567354612,12);

1 row created.

SQL> INSERT INTO certified VALUES (567354612,15);

1 row created.

SQL> INSERT INTO certified VALUES (567354612,7);

1 row created.

SQL> INSERT INTO certified VALUES (567354612,9);

1 row created.

SQL> INSERT INTO certified VALUES (567354612,3);

1 row created.

SQL> INSERT INTO certified VALUES (567354612,4);

1 row created.

SQL> INSERT INTO certified VALUES (567354612,5);

1 row created.

SQL> INSERT INTO certified VALUES (552455318,2);

1 row created.

SQL> INSERT INTO certified VALUES (552455318,14);

1 row created.

SQL> INSERT INTO certified VALUES (550156548,1);

1 row created.

SQL> INSERT INTO certified VALUES (550156548,12);

1 row created.
```

```
SQL> INSERT INTO certified VALUES (390487451,3);

1 row created.

SQL> INSERT INTO certified VALUES (390487451,13);

1 row created.

SQL> INSERT INTO certified VALUES (390487451,14);

1 row created.

SQL> INSERT INTO certified VALUES (274878974,10);

1 row created.

SQL> INSERT INTO certified VALUES (274878974,12);

1 row created.

SQL> INSERT INTO certified VALUES (355548984,8);

1 row created.

SQL> INSERT INTO certified VALUES (355548984,9);

1 row created.

SQL> INSERT INTO certified VALUES (310454876,8);

1 row created.

SQL> INSERT INTO certified VALUES (310454876,9);

1 row created.

SQL> INSERT INTO certified VALUES (548977562,7);

1 row created.

SQL> INSERT INTO certified VALUES (142519864,1);

1 row created.

SQL> INSERT INTO certified VALUES (142519864,11);

1 row created.

SQL> INSERT INTO certified VALUES (142519864,12);

1 row created.
```

```
SQL> INSERT INTO certified VALUES (142519864,10);

1 row created.

SQL> INSERT INTO certified VALUES (142519864,3);

1 row created.

SQL> INSERT INTO certified VALUES (142519864,2);

1 row created.

SQL> INSERT INTO certified VALUES (142519864,13);

1 row created.

SQL> INSERT INTO certified VALUES (142519864,7);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,1);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,2);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,3);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,4);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,5);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,6);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,7);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,8);

1 row created.
```

```
SQL> INSERT INTO certified VALUES (269734834,9);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,10);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,11);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,12);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,13);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,14);

1 row created.

SQL> INSERT INTO certified VALUES (269734834,15);

1 row created.

SQL> INSERT INTO certified VALUES (552455318,7);

1 row created.

SQL> INSERT INTO certified VALUES (556784565,5);

1 row created.

SQL> INSERT INTO certified VALUES (556784565,2);

1 row created.

SQL> INSERT INTO certified VALUES (556784565,3);

1 row created.

SQL> INSERT INTO certified VALUES (573284895,3);

1 row created.

SQL> INSERT INTO certified VALUES (573284895,4);

1 row created.
```

SQL> INSERT INTO certified VALUES (573284895,5);

1 row created.

SQL> INSERT INTO certified VALUES (574489456,8);

1 row created.

SQL> INSERT INTO certified VALUES (574489456,6);

1 row created.

SQL> INSERT INTO certified VALUES (574489457,16);

1 row created.

SQL> INSERT INTO certified VALUES (287321212,7);

1 row created.

SQL> INSERT INTO certified VALUES (242518965,2);

1 row created.

SQL> INSERT INTO certified VALUES (242518965,10);

1 row created.

SQL> INSERT INTO certified VALUES (141582651,2);

1 row created.

SQL> INSERT INTO certified VALUES (141582651,10);

1 row created.

SQL> INSERT INTO certified VALUES (141582651,12);

1 row created.

SQL> INSERT INTO certified VALUES (011564812,2);

1 row created.

SQL> INSERT INTO certified VALUES (011564812,10);

1 row created.

SQL> INSERT INTO certified VALUES (356187925,6);

1 row created.

```
SQL> INSERT INTO certified VALUES (159542516,5);

1 row created.

SQL> INSERT INTO certified VALUES (159542516,7);

1 row created.

SQL> INSERT INTO certified VALUES (090873519,6);

1 row created.

SQL>
SQL>
SQL> -- Populating Routes relation
SQL> --routes(routeID, orig_airport, dest_airport, distance)
SQL>
SQL> INSERT INTO routes VALUES ('LW100','Los Angeles','Washington D.C.',2308);

1 row created.

SQL> INSERT INTO routes VALUES ('LC101','Los Angeles','Chicago',1749);

1 row created.

SQL> INSERT INTO routes VALUES ('LD102','Los Angeles','Dallas',1251);

1 row created.

SQL> INSERT INTO routes VALUES ('LB103','Los Angeles','Boston',2606);

1 row created.

SQL> INSERT INTO routes VALUES ('LS104','Los Angeles','Sydney',7487);

1 row created.

SQL> INSERT INTO routes VALUES ('LT105','Los Angeles','Tokyo',5478);

1 row created.

SQL> INSERT INTO routes VALUES ('LH106','Los Angeles','Honolulu',2551);

1 row created.

SQL> INSERT INTO routes VALUES ('CL150','Chicago','Los Angeles',1749);

1 row created.

SQL> INSERT INTO routes VALUES ('CN151','Chicago','New York',802);
```

1 row created.

SQL> INSERT INTO routes VALUES ('MD200','Madison','Detroit',319);

1 row created.

SQL> INSERT INTO routes VALUES ('DN250','Detroit','New York',470);

1 row created.

SQL> INSERT INTO routes VALUES ('DM251','Detroit','Montreal',517);

1 row created.

SQL> INSERT INTO routes VALUES ('MN204','Madison','New York',789);

1 row created.

SQL> INSERT INTO routes VALUES ('MC201','Madison','Chicago',150);

1 row created.

SQL> INSERT INTO routes VALUES ('MP202','Madison','Pittsburgh',510);

1 row created.

SQL> INSERT INTO routes VALUES ('MM203','Madison','Minneapolis',247);

1 row created.

SQL> INSERT INTO routes VALUES ('MNY300','Minneapolis','New York',991);

1 row created.

SQL> INSERT INTO routes VALUES ('PN350','Pittsburgh','New York',303);

1 row created.

SQL> INSERT INTO routes VALUES ('PC351','Pittsburgh','Chicago',409);

1 row created.

SQL> INSERT INTO routes VALUES ('NYL400','New York','London',3471);

1 row created.

SQL> INSERT INTO routes VALUES ('NYP401','New York','Paris',3631);

1 row created.

SQL> INSERT INTO routes values('LNY107','Los Angeles','New York',2510);

1 row created.

SQL>
SQL>
SQL> -- Populating Fligts relations
SQL> --flights(flightNo, rID, aid)
SQL>
SQL> INSERT INTO flights VALUES ('9E-3749','DM251',4);

1 row created.

SQL> INSERT INTO flights VALUES ('MQ-4477','DN250',5);

1 row created.

SQL> INSERT INTO flights VALUES ('MQ-4565','DN250',5);

1 row created.

SQL> INSERT INTO flights VALUES ('CX-7520','LD102',4);

1 row created.

SQL> INSERT INTO flights VALUES ('WS-5060','LD102',5);

1 row created.

SQL> INSERT INTO flights VALUES ('QF-3045','LD102',15);

1 row created.

SQL> INSERT INTO flights VALUES ('JJ-7456','LW100',13);

1 row created.

SQL> INSERT INTO flights VALUES ('JJ-2482','LW100',13);

1 row created.

SQL> INSERT INTO flights VALUES ('SN-8814','LW100',2);

1 row created.

SQL> INSERT INTO flights VALUES ('WN-484','LC101',14);

1 row created.

SQL> INSERT INTO flights VALUES ('WN-434','LC101',13);

1 row created.

SQL> INSERT INTO flights VALUES ('B6-474','LB103',2);

1 row created.

SQL> INSERT INTO flights VALUES ('B6-482','LB103',2);

1 row created.

SQL> INSERT INTO flights VALUES ('VA-6551','LS104',1);

1 row created.

SQL> INSERT INTO flights VALUES ('VA-2','LS104',1);

1 row created.

SQL> INSERT INTO flights VALUES ('DJ-2','LS104',1);

1 row created.

SQL> INSERT INTO flights VALUES ('SQ-11','LT105',11);

1 row created.

SQL> INSERT INTO flights VALUES ('AI-7205','LT105',12);

1 row created.

SQL> INSERT INTO flights VALUES ('MH-93','LT105',11);

1 row created.

SQL> INSERT INTO flights VALUES ('HA-3','LH106',13);

1 row created.

SQL> INSERT INTO flights VALUES ('HA-1','LH106',13);

1 row created.

SQL> INSERT INTO flights VALUES ('UA-1428','LH106',2);

1 row created.

SQL> INSERT INTO flights VALUES ('A5-3376','CL150',14);

1 row created.

SQL> INSERT INTO flights VALUES ('A5-3246','CN151',4);

1 row created.

SQL> INSERT INTO flights VALUES ('9E-3851','MD200',5);

1 row created.

SQL> INSERT INTO flights VALUES ('9E-3622','MD200',4);

1 row created.

SQL> INSERT INTO flights VALUES ('G7-6205','MN204',4);

1 row created.

SQL> INSERT INTO flights VALUES ('EV-5134','MN204',15);

1 row created.

SQL> INSERT INTO flights VALUES ('RP-5018','MC201',16);

1 row created.

SQL> INSERT INTO flights VALUES ('G7-3664','MC201',5);

1 row created.

SQL> INSERT INTO flights VALUES ('FX-2351','MP202',7);

1 row created.

SQL> INSERT INTO flights VALUES ('AS-5958','MM203',16);

1 row created.

SQL> INSERT INTO flights VALUES ('AS-5062','MM203',7);

1 row created.

SQL> INSERT INTO flights VALUES ('DL-3402','PN350',15);

1 row created.

SQL> INSERT INTO flights VALUES ('CY-1846','NYL400',8);

1 row created.

SQL> INSERT INTO flights VALUES ('BA-178','NYL400',10);

1 row created.

SQL> INSERT INTO flights VALUES ('IB-4618','NYL400',9);

1 row created.

SQL> INSERT INTO flights VALUES ('VS-26','NYL400',8);

1 row created.

SQL> INSERT INTO flights VALUES ('AF-23','NYP401',10);

1 row created.

SQL> INSERT INTO flights VALUES ('AF-11','NYP401',10);

1 row created.

SQL> INSERT INTO flights VALUES ('RJ-7056','NYP401',8);

1 row created.

SQL> INSERT INTO flights values('AF-12','LNY107',10);

1 row created.

SQL>
SQL>
SQL> -- Populating Fl_schedule relation
SQL> --fl_schedule(flno, departs, dtime, arrives, atime, price)
SQL>
SQL> INSERT INTO fl_schedule VALUES ('9E-3851','12-apr-2005',0710,'12-apr-2005',0800,120.40);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('CX-7520','12-apr-2005',0730,'12-apr-2005',0840,225.43);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('JJ-7456','12-apr-2005',0930,'12-apr-2005',1240,235.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('WS-5060','12-apr-2005',0930,'12-apr-2005',1042,227.60);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('AI-7205','12-apr-2005',1010,'13-apr-2005',1850,785.19);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('CY-1846','12-apr-2005',1040,'13-apr-2005',0920,250.50);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('DL-3402','12-apr-2005',1140,'12-apr-2005',1220,116.50);

1 row created.

```
SQL> INSERT INTO fl_schedule VALUES ('AS-5958','12-apr-2005',1210,'14-apr-2005',1300,220.15);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('QF-3045','12-apr-2005',1320,'12-apr-2005',1440,227.60);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('9E-3749','12-apr-2005',1940,'14-apr-2005',2020,170.40);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('G7-3664','13-apr-2005',0535,'13-apr-2005',0610,112.45);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('WN-484','13-apr-2005',0800,'13-apr-2005',0935,220.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('HA-3','13-apr-2005',1230,'13-apr-2005',1555,375.23);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('AS-5062','13-apr-2005',2010,'14-apr-2005',2100,120.11);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('VA-2','13-apr-2005',2030,'15-apr-2005',0430,1300.50);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('A5-3376','13-apr-2005',2030,'13-apr-2005',2150,220.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('FX-2351','14-apr-2005',0810,'14-apr-2005',0900,208.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('AF-23','14-apr-2005',1020,'15-apr-2005',1210,320.70);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('B6-474','14-apr-2005',1710,'14-apr-2005',2120,261.56);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('G7-6205','22-apr-2005',1725,'22-apr-2005',1850,202.34);

1 row created.
```

```
SQL> INSERT INTO fl_schedule VALUES ('VA-6551','14-apr-2005',2230,'16-apr-2005',0610,1278.56);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('9E-3851','15-apr-2005',1035,'15-apr-2005',1140,120.40);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('HA-1','15-apr-2005',1110,'15-apr-2005',1445,375.23);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('BA-178','15-apr-2005',1140,'16-apr-2005',1020,250.50);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('SQ-11','15-apr-2005',1230,'16-apr-2005',2055,780.99);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('JJ-2482','15-apr-2005',1230,'15-apr-2005',1540,235.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('MQ-4477','15-apr-2005',1510,'15-apr-2005',1600,180.56);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('A5-3246','15-apr-2005',1810,'15-apr-2005',1900,202.45);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('RP-5018','15-apr-2005',2100,'15-apr-2005',2155,225.45);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('WS-5060','16-apr-2005',0930,'16-apr-2005',1042,227.60);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('WN-484','16-apr-2005',0940,'16-apr-2005',1110,220.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('WN-434','16-apr-2005',1410,'16-apr-2005',1530,225.10);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('MH-93','17-apr-2005',0440,'18-apr-2005',1315,783.30);

1 row created.
```

```
SQL> INSERT INTO fl_schedule VALUES ('G7-3664','17-apr-2005',0725,'17-apr-2005',0815,112.45);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('CX-7520','17-apr-2005',0730,'17-apr-2005',0840,225.43);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('AF-11','17-apr-2005',1340,'18-apr-2005',1530,320.70);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('9E-3622','17-apr-2005',1655,'17-apr-2005',1750,118.40);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('EV-5134','17-apr-2005',2135,'17-apr-2005',2240,202.34);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('B6-482','18-apr-2005',0330,'18-apr-2005',0740,261.56);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('DL-3402','18-apr-2005',1140,'18-apr-2005',1220,116.50);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('IB-4618','18-apr-2005',1310,'19-apr-2005',1150,250.50);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('UA-1428','18-apr-2005',1420,'18-apr-2005',1740,425.38);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('MQ-4565','18-apr-2005',1810,'18-apr-2005',1900,180.56);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('JJ-7456','19-apr-2005',0930,'19-apr-2005',1240,235.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('WN-484','19-apr-2005',1000,'19-apr-2005',1120,220.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('QF-3045','19-apr-2005',1320,'19-apr-2005',1440,227.60);

1 row created.
```

SQL> INSERT INTO fl_schedule VALUES ('WS-5060','20-apr-2005',0930,'20-apr-2005',1042,227.60);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('RJ-7056','20-apr-2005',1810,'21-apr-2005',2020,320.70);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('FX-2351','21-apr-2005',0810,'21-apr-2005',0900,208.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('AF-23','21-apr-2005',1020,'22-apr-2005',1210,320.70);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('VS-26','21-apr-2005',1340,'22-apr-2005',1230,250.50);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('VA-6551','21-apr-2005',2230,'23-apr-2005',0610,1278.56);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('G7-3664','22-apr-2005',0535,'22-apr-2005',0610,112.45);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('CX-7520','22-apr-2005',0730,'22-apr-2005',0840,225.43);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('SN-8814','22-apr-2005',1030,'22-apr-2005',1335,245);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('WN-484','22-apr-2005',1200,'22-apr-2005',1325,220.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('JJ-2482','22-apr-2005',1230,'22-apr-2005',1540,235.98);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('WN-434','22-apr-2005',1540,'22-apr-2005',1700,225.10);

1 row created.

SQL> INSERT INTO fl_schedule VALUES ('B6-474','22-apr-2005',1710,'22-apr-2005',2120,261.56);

1 row created.

```
SQL> INSERT INTO fl_schedule VALUES ('A5-3246','22-apr-2005',1810,'22-apr-2005',1900,202.45);

1 row created.

SQL> INSERT INTO fl_schedule values('AF-12','22-apr-05',1245,'22-apr-05',1850,450.25);

1 row created.

SQL>
SQL> --************************END OF INSERT**************************
SQL>
SQL> --**********END OF AIRLINES DB CREATION****************
SQL>
SQL> rem: 1.Display the flight number,departure date and time of a flight, its
SQL> --    route details and aircraft name of type either Schweizer or Piper
SQL> --    that departs during 8.00 PM and 9.00 PM.
SQL>
SQL>     SELECT flno, departs, dtime,routeid,orig_airport,dest_airport,distance,aname
  2     FROM flights f
  3     JOIN fl_schedule fs
  4     ON (f.flightno=fs.flno)
  5     JOIN routes r
  6     ON (r.routeid=f.rid)
  7     JOIN aircraft a
  8     ON(a.aid=f.aid)
  9     WHERE a.type IN ('Schweizer', 'Piper') and fs.dtime between 2000 and 2100;

FLNO    DEPARTS      DTIME ROUTEI ORIG_AIRPORT      DEST_AIRPORT       DISTANCE ANAME

------- --------- ---------- ------ ------------------- ------------------- ---------- -----------------------------

AS-5062 13-APR-05     2010 MM203  Madison            Minneapolis            247 Piper PA-46 Meridian

RP-5018 15-APR-05     2100 MC201  Madison            Chicago                150 Schweizer 2-33


SQL> -- ----------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem : 2.For all the routes, display the flight number, origin and destination airport,
SQL> --    if a flight is assigned for that route.
SQL>
SQL>     SELECT routeid,flightno,orig_airport,dest_airport
  2     FROM flights f
  3     JOIN routes r
  4     ON(r.routeid=f.rid);

ROUTEI FLIGHTN ORIG_AIRPORT      DEST_AIRPORT

------ ------- ------------------- -------------------
DM251  9E-3749 Detroit            Montreal
DN250  MQ-4477 Detroit            New York
DN250  MQ-4565 Detroit            New York
```

```
LD102  CX-7520 Los Angeles        Dallas
LD102  WS-5060 Los Angeles        Dallas
LD102  QF-3045 Los Angeles        Dallas
LW100  JJ-7456 Los Angeles        Washington D.C.
LW100  JJ-2482 Los Angeles        Washington D.C.
LW100  SN-8814 Los Angeles         Washington D.C.


LC101  WN-484  Los Angeles        Chicago
LC101  WN-434  Los Angeles        Chicago

ROUTEI FLIGHTN ORIG_AIRPORT        DEST_AIRPORT

------ ------- -------------------- --------------------
LB103  B6-474  Los Angeles         Boston
LB103  B6-482  Los Angeles         Boston
LS104  VA-6551 Los Angeles         Sydney
LS104  VA-2    Los Angeles        Sydney
LS104  DJ-2    Los Angeles        Sydney
LT105  SQ-11   Los Angeles        Tokyo
LT105  AI-7205 Los Angeles         Tokyo
LT105  MH-93   Los Angeles         Tokyo
LH106  HA-3    Los Angeles        Honolulu
LH106  HA-1    Los Angeles        Honolulu
LH106  UA-1428 Los Angeles         Honolulu


ROUTEI FLIGHTN ORIG_AIRPORT        DEST_AIRPORT

------ ------- -------------------- --------------------
CL150  A5-3376 Chicago             Los Angeles
CN151  A5-3246 Chicago             New York
MD200  9E-3851 Madison             Detroit
MD200  9E-3622 Madison             Detroit
MN204  G7-6205 Madison             New York
MN204  EV-5134 Madison              New York
MC201  RP-5018 Madison             Chicago
MC201  G7-3664 Madison             Chicago
MP202  FX-2351 Madison             Pittsburgh
MM203  AS-5958 Madison              Minneapolis
MM203  AS-5062 Madison              Minneapolis


ROUTEI FLIGHTN ORIG_AIRPORT        DEST_AIRPORT

------ ------- -------------------- --------------------
PN350  DL-3402 Pittsburgh          New York
NYL400 CY-1846 New York             London
NYL400 BA-178  New York            London
NYL400 IB-4618 New York            London
NYL400 VS-26   New York            London
NYP401 AF-23   New York            Paris
NYP401 AF-11   New York            Paris
NYP401 RJ-7056 New York            Paris
LNY107 AF-12   Los Angeles         New York
```

42 rows selected.

SQL>
SQL> -- --
SQL>
SQL> rem : 3. For all aircraft with cruisingrange over 5,000 miles, find the name of the
SQL> --   aircraft and the average salary of all pilots certified for this aircraft.
SQL>
SQL>   SELECT aname, avg(salary)
  2   FROM aircraft a
  3   JOIN CERTIFIED c
  4   USING (aid)
  5   JOIN employee e
  6   USING(eid)
  7   WHERE cruisingrange > 5000
  8   GROUP BY aname;

ANAME   AVG(SALARY)
------------------------------ -----------
Airbus A340-300   217597.667
Boeing 777-300   257973.333
Boeing 747-400   244776.75
Boeing 767-400ER   209557
Lockheed L1011 Tristar   242685.75

SQL>
SQL> -- --
SQL>
SQL> rem : 4.Show the employee details such as id, name and salary who are not pilots
SQL> --   and whose salary is more than the average salary of pilots.
SQL>
SQL>
SQL>   SELECT e.eid, ename,salary
  2   FROM employee e
  3   WHERE e.eid NOT IN
  4   (SELECT c.eid
  5   FROM certified c)
  6   AND salary >
  7   (SELECT avg(salary)
  8   FROM employee join certified USING(eid));

      EID ENAME   SALARY
---------- ------------------------------ ----------
 486512566 David Anderson   743001

SQL>
SQL> -- --
SQL>
SQL> rem: 5.Find the id and name of pilots who were certified to operate some aircrafts
SQL> --   but at least one of that aircraft is not scheduled from any routes.
SQL>

```
SQL>    SELECT distinct eid,ename
  2       FROM employee e
  3       JOIN certified c
  4       USING(eid)
  5       JOIN aircraft a
  6       USING(aid)
  7       WHERE aid NOT IN
  8        (SELECT f.aid FROM flights f);

     EID ENAME
---------- ------------------------------
 269734834 George Wright
 356187925 Robert Brown
  90873519 Elizabeth Taylor
 574489456 William Jones
 567354612 Lisa Walker
 556784565 Mark Young
 573284895 Eric Cooper
 390487451 Lawrence Sperry
 142519864 Betty Adams

9 rows selected.

SQL>
SQL> -- -----------------------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem: 6.Display the origin and destination of the flights having at least
SQL> --     three departures with maximum distance covered.
SQL>
SQL>    SELECT orig_airport, dest_airport
  2       FROM routes r1
  3       JOIN flights
  4       ON(rid=routeid)
  5       WHERE distance= (SELECT max(distance)
  6        FROM routes)
  7       GROUP BY orig_airport, dest_airport
  8       HAVING count(*)>=3;

ORIG_AIRPORT        DEST_AIRPORT
-------------------- --------------------
Los Angeles         Sydney

SQL>
SQL> -- -----------------------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem: 7.Display name and salary of pilot whose salary is more than the
SQL> --     average salary of any pilots for each route other than flights
SQL> --     originating from Madison airport.
SQL>
SQL>    SELECT distinct ename,salary
  2       FROM employee e
  3       JOIN certified c21
```

```
  4      USING(eid)
  5      JOIN flights f1
  6      USING(aid)
  7      JOIN routes r1
  8      ON(rid=routeid)
  9      WHERE salary > ( SELECT avg(salary)
 10        FROM employee e2
 11        JOIN certified c2
 12        USING(eid)
 13        JOIN flights f2
 14        USING(aid)
 15        JOIN routes r2
 16        ON(rid=routeid)
 17        WHERE r2.routeid=r1.routeid)
 18      AND orig_airport<>'Madison';
```

```
ENAME                          SALARY
------------------------------ ----------
George Wright                  289950
Betty Adams                    227489
Angela Martinez                212156
Lawrence Sperry                212156
Joseph Thompson                212156
Mark Young                     205187
Lisa Walker                    256481
```

7 rows selected.

```
SQL>
SQL> -- ------------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem: 8.Display the flight number, aircraft type, source and destination
SQL> --      airport of the aircraft having maximum number of flights to Honolulu.
SQL>
SQL>      SELECT flightno,type, orig_airport,dest_airport
  2       FROM aircraft
  3       JOIN flights USING(aid)
  4       JOIN routes ON(routeid=rid)
  5       WHERE aid=
  6        (SELECT* FROM(
  7      SELECT aid
  8      FROM aircraft
  9      JOIN flights USING(aid)
 10       JOIN routes ON(routeid=rid)
 11       WHERE dest_airport='Honolulu'
 12       GROUP BY aid, aname
 13       ORDER BY count(*) desc)
 14       WHERE rownum=1);
```

```
FLIGHTN TYPE      ORIG_AIRPORT          DEST_AIRPORT

------- ---------- -------------------- --------------------
```

```
JJ-7456 Airbus    Los Angeles        Washington D.C.
JJ-2482 Airbus    Los Angeles        Washington D.C.
WN-434  Airbus    Los Angeles        Chicago
HA-3   Airbus   Los Angeles        Honolulu
HA-1   Airbus   Los Angeles        Honolulu

SQL>
SQL> -- ---------------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem: 9.Display the pilot(s) who are certified exclusively to pilot all aircraft in a type
SQL>
SQL>      SELECT distinct eid, ename,type
  2      FROM employee
  3      JOIN certified USING(eid)
  4      JOIN aircraft USING(aid)
  5      WHERE eid IN ( SELECT c.eid
  6       FROM certified c
  7       JOIN aircraft a USING(aid)
  8       WHERE c.eid IN ( SELECT c1.eid
  9        FROM certified c1
 10        JOIN aircraft a1 USING(aid)
 11        GROUP BY c1.eid
 12        HAVING(count(distinct a1.type))=1)
 13       GROUP BY c.eid,a.type
 14       HAVING count(*)=(SELECT COUNT (a1.aid)
 15        FROM aircraft a1
 16        WHERE a1.type=a.type)
 17       );

    EID ENAME                    TYPE
---------- ------------------------------ ----------
 390487451 Lawrence Sperry           Airbus
 574489457 Milo Brooks              Schweizer
  90873519 Elizabeth Taylor          Saab
 548977562 William Ward             Piper
 356187925 Robert Brown             Saab
 287321212 Michael Miller            Piper

6 rows selected.

SQL>
SQL> -- ---------------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem: 10. Name the employee(s) who is earning the maximum salary
SQL> --     among the airport having maximum number of departures.
SQL>
SQL>
SQL>      SELECT eid,ename,salary
  2      FROM employee e
  3      WHERE salary = (SELECT max(salary)
  4       FROM employee
  5       JOIN certified c USING (eid)
```

```
6        JOIN flights f USING (aid)
7        JOIN routes r ON (rid=routeid)
8      WHERE orig_airport = (SELECT orig_airport
9         FROM routes r
10        JOIN flights f ON (routeid=rid)
11        GROUP BY orig_airport
12        HAVING count(*) = (SELECT max(count(*))
13          FROM routes r
14          JOIN flights f ON (routeid=rid)
15          GROUP BY orig_airport)));
```

```
     EID ENAME                     SALARY
---------- ---------------------------- ----------
 269734834 George Wright                 289950
```

```
SQL>
SQL> -- ----------------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem: 11. Display the departure chart as follows:flight number, departure(date,airport,time),
SQL> --      destination airport, arrival time, aircraft name for the flights from New York airport
SQL> --      during 15 to 19th April 2005.
SQL> --     Make sure that the route contains at least two flights in the above specified condition.
SQL>
SQL>     SELECT flightno, departs, orig_airport, dtime, dest_airport, atime, aname
2      FROM fl_schedule
3      JOIN flights ON(flightno=flno)
4      JOIN routes ON(routeid=rid)
5      JOIN aircraft USING(aid)
6      WHERE orig_airport='New York' AND ( departs BETWEEN '15-APR-05' AND '19-APR-05')
7      AND  rid=(SELECT rid
8       FROM fl_schedule
9       JOIN flights ON(flightno=flno)
10       JOIN routes ON(routeid=rid)
11       WHERE orig_airport='New York' AND ( departs BETWEEN '15-APR-05' AND '19-APR-05')
12       GROUP BY rid
13       HAVING count(*) > =2);
```

FLIGHTN	DEPARTS	ORIG_AIRPORT	DTIME	DEST_AIRPORT	ATIME	ANAME
BA-178	15-APR-05	New York	1140	London	1020	Boeing 757-300
IB-4618	18-APR-05	New York	1310	London	1150	Lockheed L1011 Tristar

```
SQL>
SQL> -- ----------------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem : 12. A customer wants to travel from Madison to New York with no more than two changes of flight.
SQL> --     List the flight numbers from Madison if the customer wants to arrive in New York by 6.50 p.m.
SQL>
SQL>
```

```sql
SQL>    (
2       SELECT distinct f.flightNo
3       FROM routes r
4       JOIN flights f ON(r.routeid = f.rid)
5       JOIN fl_schedule fl ON(f.flightNo = fl.flno)
6       WHERE r.orig_airport = 'Madison' AND
7       r.dest_airport = 'New York' AND
8       fl.atime <=1850
9       )
10      UNION
11      (
12      SELECT distinct f.flightNo
13      FROM
14      (routes r
15      JOIN flights f ON (r.routeid = f.rid)
16      JOIN fl_schedule fl ON(f.flightNo = fl.flno))
17      JOIN
18      (routes rm
19      JOIN flights fm ON (rm.routeid = fm.rid)
20      JOIN fl_schedule flm ON(fm.flightNo = flm.flno)
21      )
22      ON (r.dest_airport = rm.orig_airport)
23      WHERE r.orig_airport = 'Madison' AND
24      rm.dest_airport = 'New York' AND
25      fl.atime <= flm.dtime AND
26      flm.atime <=1850
27      )
28      UNION
29      (
30      SELECT distinct f.flightNo
31      FROM
32      (
33       (routes r join flights f ON (r.routeid = f.rid)
34        JOIN fl_schedule fl ON(f.flightNo = fl.flno)
35       )
36       JOIN
37       (routes rm join flights fm ON (rm.routeid = fm.rid)
38        JOIN fl_schedule flm ON(fm.flightNo = flm.flno)
39       )
40       ON (r.dest_airport = rm.orig_airport)
41      )
42      JOIN
43      (
44       routes rm1 JOIN flights fm1 ON (rm1.routeid = fm1.rid)
45       JOIN fl_schedule flm1 ON(fm1.flightNo = flm1.flno)
46      )
47      ON (rm.dest_airport = rm1.orig_airport)
48      WHERE r.orig_airport = 'Madison' AND
49      rm1.dest_airport = 'New York' AND
50      (fl.atime<=flm.dtime AND flm.atime<=flm1.dtime) AND
51      flm1.atime <=1850);
```

```
FLIGHTN
-------
9E-3851
FX-2351
G7-6205

SQL>
SQL> -- ---------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem : 13. Display the id and name of employee(s) who are not pilots.
SQL>
SQL>      SELECT e.eid,e.ename
  2      FROM employee e
  3      WHERE e.eid IN
  4       (SELECT e1.eid FROM employee e1
  5       MINUS
  6       SELECT c.eid FROM certified c);

    EID ENAME
---------- -----------------------------
 254099823 Patricia Jones
 489456522 Linda Davis
 489221823 Richard Jackson
 310454877 Chad Stewart
 552455348 Dorthy Lewis
 248965255 Barbara Wilson
 348121549 Haywood Kelly
 486512566 David Anderson
 619023588 Jennifer Thomas
  15645489 Donald King

10 rows selected.

SQL>
SQL> -- ---------------------------------------------------------------------------------------------------------------
SQL>
SQL> rem : 14. Display the id and name of employee(s) who pilots the aircraft
SQL> --      from Los Angels and Detroit airport.
SQL>
SQL>      (SELECT distinct eid,e.ename
  2      FROM employee e
  3      JOIN certified c USING (eid)
  4      JOIN flights f USING (aid)
  5      JOIN aircraft a USING (aid)
  6      JOIN routes r on (r.routeID=f.rID)
  7      WHERE
  8      r.orig_airport='Los Angeles')
  9      INTERSECT
 10      (SELECT distinct eid,e.ename
 11       FROM employee e JOIN certified c using (eid)
 12       JOIN flights f USING (aid)
 13       JOIN aircraft a USING (aid)
```

```
 14      JOIN routes r on (r.routeID=f.rID)
 15      WHERE r.orig_airport='Detroit');

     EID ENAME
---------- ------------------------------
 159542516 William Moore
 269734834 George Wright
 556784565 Mark Young
 567354612 Lisa Walker
 573284895 Eric Cooper

SQL> spool off
```