1. **What is the difference between UNION and UNION ALL?**

   Both Union and Union All is used to combine results of two selected queries. The main difference between the two is that Union does not include duplicate records whereas Union All does. Another difference is that Union All is faster than Union, because it returns less data.

2. **Suppose that you have two tables, EMPLOYEE and EMPLOYEE_1. The EMPLOYEE table contains the records for three employees: Alice Cordoza, John Cretchakov, and Anne McDonald. The EMPLOYEE_1 table contains the records for two employees: John Cretchakov and Mary Chen. Given that information, what is the query output for the UNION query?**

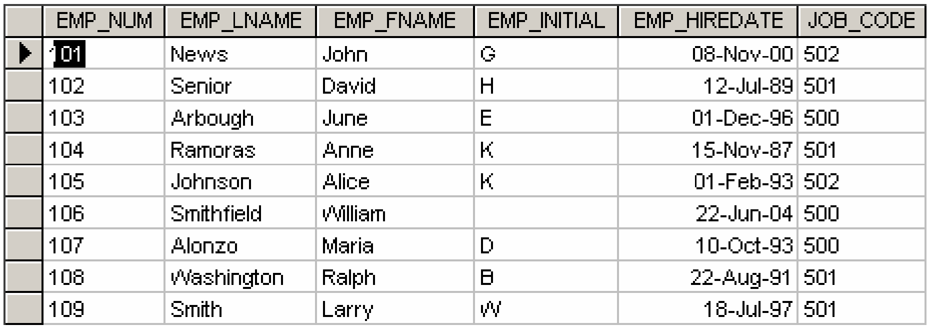
   **List the query output:**
   Alice Cordoza
   Anne McDonald
   John Cretchakov
   Mary Chen

3. **Given the employee information in question 2, what is the query output for the UNION ALL query?**

   **List the query output:**
   Alice Cordoza
   Anne McDonald
   John Cretchakov
   John Cretchakov
   Mary Chen

4. **What are the three join types included in the OUTER JOIN classification? Describe each of the types.**
   Right Outer Join - All rows from the right table are included and the output column from the other table are set to NULL
   Left Outer Join - All rows from the left table are included and the output column from the other table are set to NULL
   Full Outer Join - If a row from either table does not match the selection criteria, specifies the rows be included in the result set and its output columns that correspond to the other table be set to NULL.

**Contents of the EMPLOYEE Table**



| | EMP_NUM | EMP_LNAME | EMP_FNAME | EMP_INITIAL | EMP_HIREDATE | JOB_CODE |
|---|---|---|---|---|---|---|
| ▶ | 101 | News | John | G | 08-Nov-00 | 502 |
| | 102 | Senior | David | H | 12-Jul-89 | 501 |
| | 103 | Arbough | June | E | 01-Dec-96 | 500 |
| | 104 | Ramoras | Anne | K | 15-Nov-87 | 501 |
| | 105 | Johnson | Alice | K | 01-Feb-93 | 502 |
| | 106 | Smithfield | William | | 22-Jun-04 | 500 |
| | 107 | Alonzo | Maria | D | 10-Oct-93 | 500 |
| | 108 | Washington | Ralph | B | 22-Aug-91 | 501 |
| | 109 | Smith | Larry | W | 18-Jul-97 | 501 |

5. **Using the EMPLOYEE table shown above, write the SQL code to enter the first two rows for the table.**

```
INSERT INTO EMPLOYEE
VALUES   (‘101’, ‘News’, ‘John’, ‘G’, ’08-Nov-00’, ‘502’)

INSERT INTO EMPLOYEE
VALUES  (‘102’, ‘Senior’, ‘David’, ‘H’, ’12-Jul-89’, ‘501’)
```

6. **Using the EMPLOYEE table shown above, write the SQL code to change the job code to 501 for the person whose employee number is 107.**

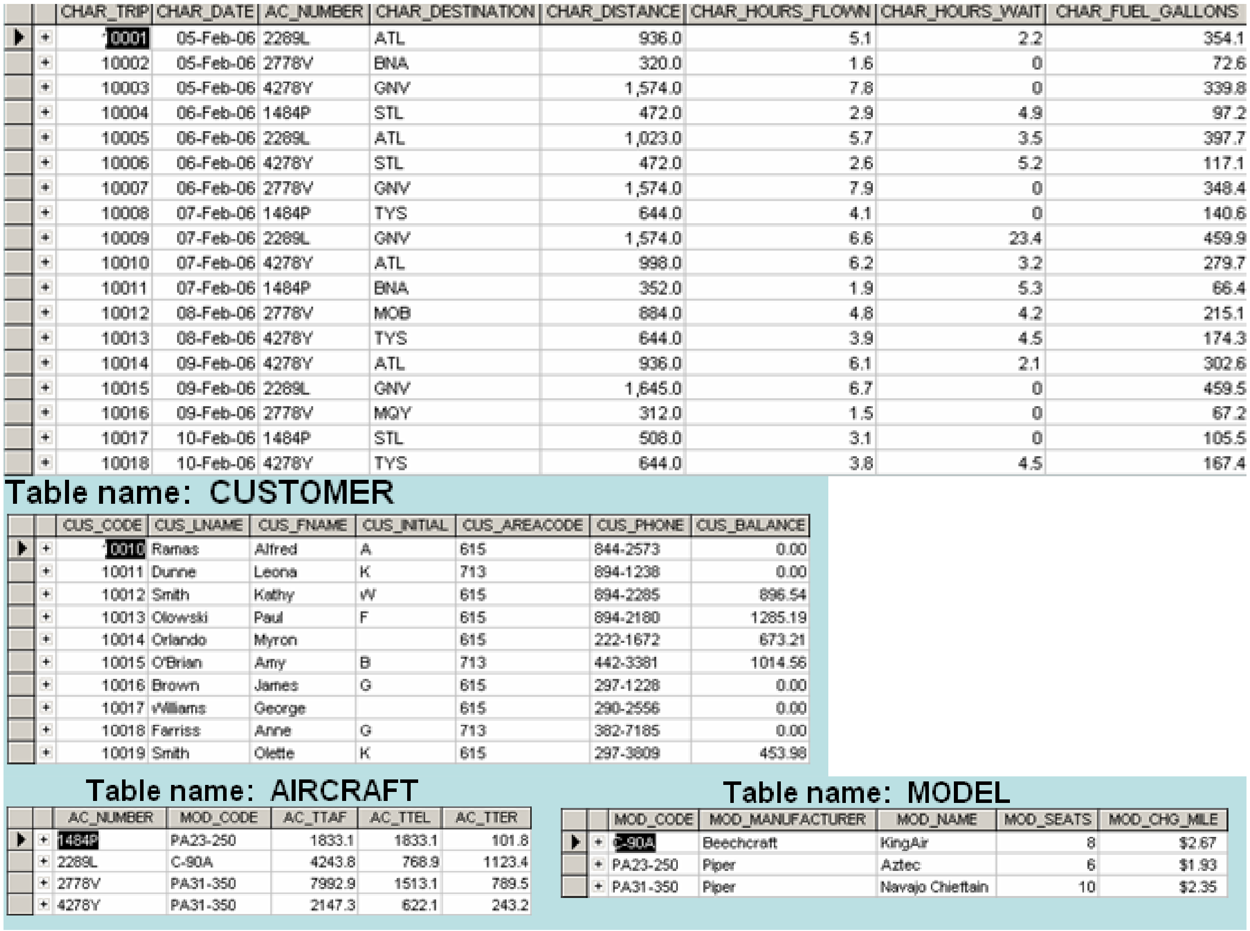
```
UPDATE  EMPLOYEE
SET         JOB_CODE = 501
WHERE   EMP_NUM = '107'
```

7. **Using the EMPLOYEE table shown above, write the SQL code to delete the row for the person named William Smithfield, who was hired on June 22, 2004 and whose job code classification is 500.**

```
DELETE FROM   EMPLOYEE
WHERE              EMP_NUM = ‘107’
AND                    EMP_LNAME = 'Smithfield'
AND                    EMP_FNAME = 'William'
AND                    EMP_HIREDATE = '22-June-04'
AND                    JOB_CODE = '50
```

8. **Using the EMPLOYEE table shown above, write the SQL code to create a copy of EMPLOYEE table, naming the copy EMPLOYEE_2. Then write the SQL code that will add the attribute PROJ_NUM which is character with a length of 3 to its structure.** ,

```
SELECT   *
INTO                  EMPLOYEE_2
FROM                 EMPLOYEE
ALTER TABLE EMPLOYEE _2 ADD PROJ_NUM CHAR(3)
```



| | CHAR_TRIP | CHAR_DATE | AC_NUMBER | CHAR_DESTINATION | CHAR_DISTANCE | CHAR_HOURS_FLOWN | CHAR_HOURS_WAIT | CHAR_FUEL_GALLONS |
|---|---|---|---|---|---|---|---|---|
| + | 10001 | 05-Feb-06 | 2289L | ATL | 936.0 | 5.1 | 2.2 | 354.1 |
| + | 10002 | 05-Feb-06 | 2778V | BNA | 320.0 | 1.6 | 0 | 72.6 |
| + | 10003 | 05-Feb-06 | 4278Y | GNV | 1,574.0 | 7.8 | 0 | 339.8 |
| + | 10004 | 06-Feb-06 | 1484P | STL | 472.0 | 2.9 | 4.9 | 97.2 |
| + | 10005 | 06-Feb-06 | 2289L | ATL | 1,023.0 | 5.7 | 3.5 | 397.7 |
| + | 10006 | 06-Feb-06 | 4278Y | STL | 472.0 | 2.6 | 5.2 | 117.1 |
| + | 10007 | 06-Feb-06 | 2778V | GNV | 1,574.0 | 7.9 | 0 | 348.4 |
| + | 10008 | 07-Feb-06 | 1484P | TYS | 644.0 | 4.1 | 0 | 140.6 |
| + | 10009 | 07-Feb-06 | 2289L | GNV | 1,574.0 | 6.6 | 23.4 | 459.9 |
| + | 10010 | 07-Feb-06 | 4278Y | ATL | 998.0 | 6.2 | 3.2 | 279.7 |
| + | 10011 | 07-Feb-06 | 1484P | BNA | 352.0 | 1.9 | 5.3 | 66.4 |
| + | 10012 | 08-Feb-06 | 2778V | MOB | 884.0 | 4.8 | 4.2 | 215.1 |
| + | 10013 | 08-Feb-06 | 4278Y | TYS | 644.0 | 3.9 | 4.5 | 174.3 |
| + | 10014 | 09-Feb-06 | 4278Y | ATL | 936.0 | 6.1 | 2.1 | 302.6 |
| + | 10015 | 09-Feb-06 | 2289L | GNV | 1,645.0 | 6.7 | 0 | 459.5 |
| + | 10016 | 09-Feb-06 | 2778V | MQY | 312.0 | 1.5 | 0 | 67.2 |
| + | 10017 | 10-Feb-06 | 1484P | STL | 508.0 | 3.1 | 0 | 105.5 |
| + | 10018 | 10-Feb-06 | 4278Y | TYS | 644.0 | 3.8 | 4.5 | 167.4 |

Table name: CUSTOMER

| | CUS_CODE | CUS_LNAME | CUS_FNAME | CUS_INITIAL | CUS_AREACODE | CUS_PHONE | CUS_BALANCE |
|---|---|---|---|---|---|---|---|
| + | 10010 | Ramas | Alfred | A | 615 | 844-2573 | 0.00 |
| + | 10011 | Dunne | Leona | K | 713 | 894-1238 | 0.00 |
| + | 10012 | Smith | Kathy | W | 615 | 894-2285 | 896.54 |
| + | 10013 | Olowski | Paul | F | 615 | 894-2180 | 1285.19 |
| + | 10014 | Orlando | Myron | | 615 | 222-1672 | 673.21 |
| + | 10015 | O'Brian | Amy | B | 713 | 442-3381 | 1014.56 |
| + | 10016 | Brown | James | G | 615 | 297-1228 | 0.00 |
| + | 10017 | Williams | George | | 615 | 290-2556 | 0.00 |
| + | 10018 | Farriss | Anne | G | 713 | 382-7185 | 0.00 |
| + | 10019 | Smith | Olette | K | 615 | 297-3809 | 453.98 |

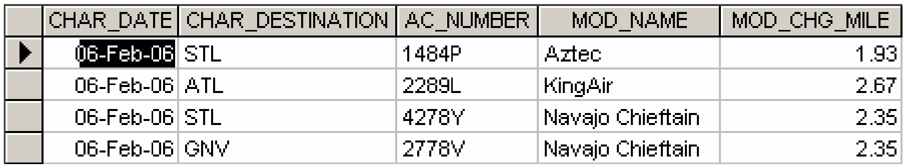
Table name: AIRCRAFT

| | AC_NUMBER | MOD_CODE | AC_TTAF | AC_TTEL | AC_TTER |
|---|---|---|---|---|---|
| + | 1484P | PA23-250 | 1833.1 | 1833.1 | 101.8 |
| + | 2289L | C-90A | 4243.8 | 768.9 | 1123.4 |
| + | 2778V | PA31-350 | 7992.9 | 1513.1 | 789.5 |
| + | 4278Y | PA31-350 | 2147.3 | 622.1 | 243.2 |

Table name: MODEL

| | MOD_CODE | MOD_MANUFACTURER | MOD_NAME | MOD_SEATS | MOD_CHG_MILE |
|---|---|---|---|---|---|
| + | C-90A | Beechcraft | KingAir | 8 | $2.67 |
| + | PA23-250 | Piper | Aztec | 6 | $1.93 |
| + | PA31-350 | Piper | Navajo Chieftain | 10 | $2.35 |

9. **Using the tables shown above, produce the output shown below. The output, derived from the CHARTER and MODEL TABLES, is limited to February 6, 2004. (Hint: You will need to join through another table.)**



| CHAR_DATE | CHAR_DESTINATION | AC_NUMBER | MOD_NAME | MOD_CHG_MILE |
|---|---|---|---|---|
| 06-Feb-06 | STL | 1484P | Aztec | 1.93 |
| 06-Feb-06 | ATL | 2289L | KingAir | 2.67 |
| 06-Feb-06 | STL | 4278Y | Navajo Chieftain | 2.35 |
| 06-Feb-06 | GNV | 2778V | Navajo Chieftain | 2.35 |

```
SELECT          CHARTER.CHAR_DATE,
                CHARTER.CHAR_DESTINATION,
                CHARTER.AC_NUMBER,
                MODEL.MOD_NAME,
                MODEL.MOD_CHG_MILE
 FROM           MODEL,
                AIRCRAFT,
                CHARTER
WHERE           AIRCRAFT.AC_NUMBER = CHARTER.AC_NUMBER
AND             MODEL.MOD_CODE = AIRCRAFT.MOD_CODE
AND             CHARTER.CHAR_DATE = ‘Feb 6 2
```

10. **Explain the GROUP BY clause.**
    The GROUP BY clause specifies a summary query. Instead of producing one rows of query results for each rows of data in the database, a summary query groups together similar rows and then produces one summary rows of query results for each group.

11. **Explain the HAVING clause.**
    The HAVING clause tells SQL to include only certain groups produced by the GROUP BY clause in the query results. Like the WHERE clause, it uses a search condition to specify the desired groups.

12. **Explain the ROLLUP clause.**
    The ROLLUP clause is used with row aggregates to produce subtotals of groups and final totals. These summary values appear as additional rows in the query results.

13. **Explain the inner join type.**
    The inner join joins produces a result set that includes only the rows of the joining tables that meet the restriction using a comparison operator. Rows that do not meet the join restriction are not included in the joined table.