

### Practical-1

(i) Create tables according to the following definition:

**Table-1: Salespeople**

| Snum | Sname   | City      | Comm |
|------|---------|-----------|------|
| 1001 | Peel    | London    | 0.12 |
| 1002 | Serres  | San Jose  | 0.13 |
| 1003 | Axelord | New York  | 0.10 |
| 1004 | Motika  | London    | 0.11 |
| 1007 | Rifkin  | Barcelona | 0.15 |

**Table-2: Customer**

| Cnum | Cname    | City     | Rating | Snum |
|------|----------|----------|--------|------|
| 2001 | Hoffman  | London   | 100    | 1001 |
| 2002 | Giovamne | Rome     | 200    | 1003 |
| 2003 | Liu      | San jose | 300    | 1002 |
| 2004 | Grass    | Berlin   | 100    | 1002 |
| 2006 | Clemens  | London   | 300    | 1007 |
| 2007 | Pereria  |          | 100    | 1004 |

**Table-3: Orders**

| Onum | Amount  | Odate     | Cnum | Snum |
|------|---------|-----------|------|------|
| 3001 | 18.96   | 03-OCT-94 | 2002 | 1002 |
| 3003 | 767.19  | 03-OCT-94 | 2001 | 1001 |
| 3002 | 1900.1  | 03-OCT-94 | 2007 | 1003 |
| 3005 | 5160.45 | 03-OCT-94 | 2003 | 1002 |
| 3006 | 1098.16 | 03-OCT-94 | 2008 | 1002 |
| 3009 | 1713.23 | 04-OCT-94 | 2002 | 1003 |
| 3007 | 75.75   | 04-OCT-94 | 2004 | 1002 |
| 3008 | 4723.95 | 05-OCT-94 | 2006 | 1001 |
| 3010 | 1309.95 | 06-OCT-94 | 2004 | 1002 |
| 3011 | 9891    | 06-OCT-94 | 2006 | 1001 |
| 3009 | 0       | 07-OCT-94 | 2005 | 1003 |
| 3012 |         | 07-OCT-94 | 2005 | 1003 |

| Q-1    | Display snum, sname, city and comm. of all salespeople.   |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
|--------|---|-----------|--------|-------|--------|--------|------|---------|--------|------|--------|----------|-------|--------|---------|----------|------|---------|--------|--------|------|------|--------|-----------|-----|------|----------|----------|-----|
| A      | <pre>SQL&gt; select * from salespeople;</pre> <table><thead><tr><th>SNUM</th><th>SNAME</th><th>SCITY</th><th>COMM</th></tr></thead><tbody><tr><td>1001</td><td>Peel</td><td>London</td><td>.12</td></tr><tr><td>1002</td><td>Serres</td><td>San jose</td><td>.13</td></tr><tr><td>1003</td><td>Axelord</td><td>New York</td><td>.1</td></tr><tr><td>1004</td><td>Motika</td><td>London</td><td>.11</td></tr><tr><td>1007</td><td>Rifkin</td><td>Barcelona</td><td>.15</td></tr><tr><td>1005</td><td>Darshita</td><td>Vadodara</td><td>.19</td></tr></tbody></table> <pre>6 rows selected.</pre> | SNUM      | SNAME  | SCITY | COMM   | 1001   | Peel | London  | .12    | 1002 | Serres | San jose | .13   | 1003   | Axelord | New York | .1   | 1004    | Motika | London | .11  | 1007 | Rifkin | Barcelona | .15 | 1005 | Darshita | Vadodara | .19 |
| SNUM   | SNAME   | SCITY     | COMM   |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 1001   | Peel  | London    | .12    |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 1002   | Serres  | San jose  | .13    |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 1003   | Axelord   | New York  | .1     |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 1004   | Motika  | London    | .11    |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 1007   | Rifkin  | Barcelona | .15    |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 1005   | Darshita  | Vadodara  | .19    |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| Q-2    | Display all snum without duplicates from all orders.  |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| A      | <pre>SQL&gt; select distinct snum from orders;</pre> <table><thead><tr><th>SNUM</th></tr></thead><tbody><tr><td>1002</td></tr><tr><td>1001</td></tr><tr><td>1003</td></tr></tbody></table>  | SNUM      | 1002   | 1001  | 1003   |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| SNUM   |   |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 1002   |   |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 1001   |   |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 1003   |   |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| Q-3    | Display names and commissions of all salespeople from London.   |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| A      | <pre>SQL&gt; select sname,comm from salespeople where scity = 'London';</pre> <table><thead><tr><th>SNAME</th><th>COMM</th></tr></thead><tbody><tr><td>Peel</td><td>.12</td></tr><tr><td>Motika</td><td>.11</td></tr></tbody></table>   | SNAME     | COMM   | Peel  | .12    | Motika | .11  |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| SNAME  | COMM  |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| Peel   | .12   |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| Motika | .11   |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| Q-4    | All costomers with a rating of 100.   |           |        |       |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| A      | <pre>SQL&gt; select * from customer where rating=100;</pre> <table><thead><tr><th>CNUM</th><th>CNAME</th><th>CITY</th><th>RATING</th><th>SNUM</th></tr></thead><tbody><tr><td>2001</td><td>Hoffman</td><td>London</td><td>100</td><td>1001</td></tr><tr><td>2004</td><td>Grass</td><td>Berlin</td><td>100</td><td>1002</td></tr><tr><td>2007</td><td>Pereria</td><td></td><td>100</td><td>1004</td></tr></tbody></table>  | CNUM      | CNAME  | CITY  | RATING | SNUM   | 2001 | Hoffman | London | 100  | 1001   | 2004     | Grass | Berlin | 100     | 1002     | 2007 | Pereria |        | 100    | 1004 |      |        |           |     |      |          |          |     |
| CNUM   | CNAME   | CITY      | RATING | SNUM  |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 2001   | Hoffman   | London    | 100    | 1001  |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 2004   | Grass   | Berlin    | 100    | 1002  |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |
| 2007   | Pereria   |           | 100    | 1004  |        |        |      |         |        |      |        |          |       |        |         |          |      |         |        |        |      |      |        |           |     |      |          |          |     |

| Q-5  | Produce order no. , amount and date for all rows in the order table.   |           |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
|------|--|-----------|--------|-------|--------|-------|-----------|------|----------|-----------|------|--------|-----------|--------|---------|-----------|------|---------|-----------|------|---------|-----------|------|-------|-----------|------|---------|-----------|------|---------|-----------|------|------|-----------|------|---|-----------|------|--|-----------|
| A    | <pre>SQL&gt; select onum,amount,odate from orders;</pre> <table><thead><tr><th>ONUM</th><th>AMOUNT</th><th>ODATE</th></tr></thead><tbody><tr><td>3001</td><td>18.96</td><td>03-OCT-94</td></tr><tr><td>3003</td><td>767.19</td><td>03-OCT-94</td></tr><tr><td>3002</td><td>1900.1</td><td>03-OCT-94</td></tr><tr><td>3005</td><td>5160.45</td><td>03-OCT-94</td></tr><tr><td>3006</td><td>1098.16</td><td>03-OCT-94</td></tr><tr><td>3009</td><td>1713.23</td><td>04-OCT-94</td></tr><tr><td>3007</td><td>75.75</td><td>04-OCT-94</td></tr><tr><td>3008</td><td>4723.95</td><td>05-OCT-94</td></tr><tr><td>3010</td><td>1309.95</td><td>06-OCT-94</td></tr><tr><td>3011</td><td>9891</td><td>06-OCT-94</td></tr><tr><td>3009</td><td>0</td><td>07-OCT-94</td></tr><tr><td>3012</td><td></td><td>07-OCT-94</td></tr></tbody></table> <pre>12 rows selected.</pre> | ONUM      | AMOUNT | ODATE | 3001   | 18.96 | 03-OCT-94 | 3003 | 767.19   | 03-OCT-94 | 3002 | 1900.1 | 03-OCT-94 | 3005   | 5160.45 | 03-OCT-94 | 3006 | 1098.16 | 03-OCT-94 | 3009 | 1713.23 | 04-OCT-94 | 3007 | 75.75 | 04-OCT-94 | 3008 | 4723.95 | 05-OCT-94 | 3010 | 1309.95 | 06-OCT-94 | 3011 | 9891 | 06-OCT-94 | 3009 | 0 | 07-OCT-94 | 3012 |  | 07-OCT-94 |
| ONUM | AMOUNT   | ODATE     |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3001 | 18.96  | 03-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3003 | 767.19   | 03-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3002 | 1900.1   | 03-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3005 | 5160.45  | 03-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3006 | 1098.16  | 03-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3009 | 1713.23  | 04-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3007 | 75.75  | 04-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3008 | 4723.95  | 05-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3010 | 1309.95  | 06-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3011 | 9891   | 06-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3009 | 0  | 07-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 3012 |  | 07-OCT-94 |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| Q-6  | All customers who were either located in San Jose or had a rating above \$200.   |           |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| A    | <pre>SQL&gt; select * from customer where city='San jose' or rating&gt;200;</pre> <table><thead><tr><th>CNUM</th><th>CNAME</th><th>CITY</th><th>RATING</th><th>SNUM</th></tr></thead><tbody><tr><td>2003</td><td>Liu</td><td>San jose</td><td>300</td><td>1002</td></tr><tr><td>2006</td><td>Clemens</td><td>London</td><td>300</td><td>1007</td></tr></tbody></table>   | CNUM      | CNAME  | CITY  | RATING | SNUM  | 2003      | Liu  | San jose | 300       | 1002 | 2006   | Clemens   | London | 300     | 1007      |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| CNUM | CNAME  | CITY      | RATING | SNUM  |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 2003 | Liu  | San jose  | 300    | 1002  |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 2006 | Clemens  | London    | 300    | 1007  |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| Q-7  | All customers in San Jose, who have a rating > 200.  |           |        |       |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| A    | <pre>SQL&gt; select * from customer where city='San jose' and rating&gt;200;</pre> <table><thead><tr><th>CNUM</th><th>CNAME</th><th>CITY</th><th>RATING</th><th>SNUM</th></tr></thead><tbody><tr><td>2003</td><td>Liu</td><td>San jose</td><td>300</td><td>1002</td></tr></tbody></table>  | CNUM      | CNAME  | CITY  | RATING | SNUM  | 2003      | Liu  | San jose | 300       | 1002 |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| CNUM | CNAME  | CITY      | RATING | SNUM  |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |
| 2003 | Liu  | San jose  | 300    | 1002  |        |       |           |      |          |           |      |        |           |        |         |           |      |         |           |      |         |           |      |       |           |      |         |           |      |         |           |      |      |           |      |   |           |      |  |           |

| Q-8    | All orders for more than \$1000.   |           |        |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
|--------|--|-----------|--------|-------|--------|--------|--------|----------|-----------|------|--------|--------|---------|-----------|--------|-----------|------|---------|-----------|------|------|------|---------|-----------|------|------|------|---------|-----------|------|------|------|---------|-----------|------|------|------|------|-----------|------|------|
| A      | <pre>SQL&gt; select * from orders where amount&gt;1000;</pre> <table><thead><tr><th>ONUM</th><th>AMOUNT</th><th>ODATE</th><th>CNUM</th><th>SNUM</th></tr></thead><tbody><tr><td>3002</td><td>1900.1</td><td>03-OCT-94</td><td>2007</td><td>1003</td></tr><tr><td>3005</td><td>5160.45</td><td>03-OCT-94</td><td>2003</td><td>1002</td></tr><tr><td>3006</td><td>1098.16</td><td>03-OCT-94</td><td>2008</td><td>1002</td></tr><tr><td>3009</td><td>1713.23</td><td>04-OCT-94</td><td>2002</td><td>1003</td></tr><tr><td>3008</td><td>4723.95</td><td>05-OCT-94</td><td>2006</td><td>1001</td></tr><tr><td>3010</td><td>1309.95</td><td>06-OCT-94</td><td>2004</td><td>1002</td></tr><tr><td>3011</td><td>9891</td><td>06-OCT-94</td><td>2006</td><td>1001</td></tr></tbody></table> <pre>7 rows selected.</pre> | ONUM      | AMOUNT | ODATE | CNUM   | SNUM   | 3002   | 1900.1   | 03-OCT-94 | 2007 | 1003   | 3005   | 5160.45 | 03-OCT-94 | 2003   | 1002      | 3006 | 1098.16 | 03-OCT-94 | 2008 | 1002 | 3009 | 1713.23 | 04-OCT-94 | 2002 | 1003 | 3008 | 4723.95 | 05-OCT-94 | 2006 | 1001 | 3010 | 1309.95 | 06-OCT-94 | 2004 | 1002 | 3011 | 9891 | 06-OCT-94 | 2006 | 1001 |
| ONUM   | AMOUNT   | ODATE     | CNUM   | SNUM  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 3002   | 1900.1   | 03-OCT-94 | 2007   | 1003  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 3005   | 5160.45  | 03-OCT-94 | 2003   | 1002  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 3006   | 1098.16  | 03-OCT-94 | 2008   | 1002  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 3009   | 1713.23  | 04-OCT-94 | 2002   | 1003  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 3008   | 4723.95  | 05-OCT-94 | 2006   | 1001  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 3010   | 1309.95  | 06-OCT-94 | 2004   | 1002  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 3011   | 9891   | 06-OCT-94 | 2006   | 1001  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| Q-9    | Name and cities of all salespeople in London with a commision above 0.10.  |           |        |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| A      | <pre>SQL&gt; select sname,scity from salespeople where scity='London' and comm&gt;0.10;</pre> <table><thead><tr><th>SNAME</th><th>SCITY</th></tr></thead><tbody><tr><td>Peel</td><td>London</td></tr><tr><td>Motika</td><td>London</td></tr></tbody></table>   | SNAME     | SCITY  | Peel  | London | Motika | London |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| SNAME  | SCITY  |           |        |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| Peel   | London   |           |        |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| Motika | London   |           |        |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| Q-10   | All customers excluding those with rating <= 100 unless they are located in Rome.  |           |        |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| A      | <pre>SQL&gt; select * from customer where rating&gt;100 or city='Rome';</pre> <table><thead><tr><th>CNUM</th><th>CNAME</th><th>CITY</th><th>RATING</th><th>SNUM</th></tr></thead><tbody><tr><td>2002</td><td>Giovamne</td><td>Rome</td><td>200</td><td>1003</td></tr><tr><td>2003</td><td>Liu</td><td>San jose</td><td>300</td><td>1002</td></tr><tr><td>2006</td><td>Clemens</td><td>London</td><td>300</td><td>1007</td></tr></tbody></table>  | CNUM      | CNAME  | CITY  | RATING | SNUM   | 2002   | Giovamne | Rome      | 200  | 1003   | 2003   | Liu     | San jose  | 300    | 1002      | 2006 | Clemens | London    | 300  | 1007 |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| CNUM   | CNAME  | CITY      | RATING | SNUM  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 2002   | Giovamne   | Rome      | 200    | 1003  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 2003   | Liu  | San jose  | 300    | 1002  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 2006   | Clemens  | London    | 300    | 1007  |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| Q-11   | All salespeople either in Barcelona or in London.  |           |        |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| A      | <pre>SQL&gt; select * from salespeople where scity in('London','Barcelona');</pre> <table><thead><tr><th>SNUM</th><th>SNAME</th><th>SCITY</th><th>COMM</th></tr></thead><tbody><tr><td>1001</td><td>Peel</td><td>London</td><td>.12</td></tr><tr><td>1004</td><td>Motika</td><td>London</td><td>.11</td></tr><tr><td>1007</td><td>Rifkin</td><td>Barcelona</td><td>.15</td></tr></tbody></table>   | SNUM      | SNAME  | SCITY | COMM   | 1001   | Peel   | London   | .12       | 1004 | Motika | London | .11     | 1007      | Rifkin | Barcelona | .15  |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| SNUM   | SNAME  | SCITY     | COMM   |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 1001   | Peel   | London    | .12    |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 1004   | Motika   | London    | .11    |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |
| 1007   | Rifkin   | Barcelona | .15    |       |        |        |        |          |           |      |        |        |         |           |        |           |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |      |           |      |      |

| Q-12      | All customers without a city.   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
|-----------|---|-----------|--------|---------|--------|---------|------|---------|-----------|------|------|------|--------|-----------|------|------|------|--------|-----------|------|------|------|---------|-----------|------|------|------|---------|-----------|------|------|------|---------|-----------|------|------|------|-------|-----------|------|------|
| A         | <pre>SQL&gt; select * from customer where city is null;</pre> <table><thead><tr><th>CNUM</th><th>CNAME</th><th>CITY</th><th>RATING</th><th>SNUM</th></tr></thead><tbody><tr><td>2007</td><td>Pereria</td><td></td><td>100</td><td>1004</td></tr></tbody></table>  | CNUM      | CNAME  | CITY    | RATING | SNUM    | 2007 | Pereria |           | 100  | 1004 |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| CNUM      | CNAME   | CITY      | RATING | SNUM    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| 2007      | Pereria   |           | 100    | 1004    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| Q-13      | All orders taken on oct. 3 <sup>rd</sup> or 4 <sup>th</sup> 1994.   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| A         | <pre>SQL&gt; select * from orders where odate in('03-oct-1994','04-oct-1994');</pre> <table><thead><tr><th>ONUM</th><th>AMOUNT</th><th>ODATE</th><th>CNUM</th><th>SNUM</th></tr></thead><tbody><tr><td>3001</td><td>18.96</td><td>03-OCT-94</td><td>2002</td><td>1002</td></tr><tr><td>3003</td><td>767.19</td><td>03-OCT-94</td><td>2001</td><td>1001</td></tr><tr><td>3002</td><td>1900.1</td><td>03-OCT-94</td><td>2007</td><td>1003</td></tr><tr><td>3005</td><td>5160.45</td><td>03-OCT-94</td><td>2003</td><td>1002</td></tr><tr><td>3006</td><td>1098.16</td><td>03-OCT-94</td><td>2008</td><td>1002</td></tr><tr><td>3009</td><td>1713.23</td><td>04-OCT-94</td><td>2002</td><td>1003</td></tr><tr><td>3007</td><td>75.75</td><td>04-OCT-94</td><td>2004</td><td>1002</td></tr></tbody></table> <p>7 rows selected.</p> | ONUM      | AMOUNT | ODATE   | CNUM   | SNUM    | 3001 | 18.96   | 03-OCT-94 | 2002 | 1002 | 3003 | 767.19 | 03-OCT-94 | 2001 | 1001 | 3002 | 1900.1 | 03-OCT-94 | 2007 | 1003 | 3005 | 5160.45 | 03-OCT-94 | 2003 | 1002 | 3006 | 1098.16 | 03-OCT-94 | 2008 | 1002 | 3009 | 1713.23 | 04-OCT-94 | 2002 | 1003 | 3007 | 75.75 | 04-OCT-94 | 2004 | 1002 |
| ONUM      | AMOUNT  | ODATE     | CNUM   | SNUM    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| 3001      | 18.96   | 03-OCT-94 | 2002   | 1002    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| 3003      | 767.19  | 03-OCT-94 | 2001   | 1001    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| 3002      | 1900.1  | 03-OCT-94 | 2007   | 1003    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| 3005      | 5160.45   | 03-OCT-94 | 2003   | 1002    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| 3006      | 1098.16   | 03-OCT-94 | 2008   | 1002    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| 3009      | 1713.23   | 04-OCT-94 | 2002   | 1003    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| 3007      | 75.75   | 04-OCT-94 | 2004   | 1002    |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| (ii)      | Write the following simple SQL Queries on the University Dataset.   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| Q-1       | Find the names of all the students whose total credits are greater than 100.  |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| A         | <pre>SQL&gt; select name from student where tot_cred&gt;100;</pre> <table><thead><tr><th>NAME</th></tr></thead><tbody><tr><td>Zhang</td></tr><tr><td>Chavez</td></tr><tr><td>Tanaka</td></tr></tbody></table>   | NAME      | Zhang  | Chavez  | Tanaka |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| NAME      |   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| Zhang     |   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| Chavez    |   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| Tanaka    |   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| Q-2       | Find the course id and grades of all courses taken by any student named 'Tanaka'.   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| A         | <pre>SQL&gt; select course_id,grade from takes where id=(select id from student where name = 'Tanaka');</pre> <table><thead><tr><th>COURSE_ID</th><th>GRADE</th></tr></thead><tbody><tr><td>BIO-101</td><td>A</td></tr><tr><td>BIO-301</td><td></td></tr></tbody></table>   | COURSE_ID | GRADE  | BIO-101 | A      | BIO-301 |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| COURSE_ID | GRADE   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| BIO-101   | A   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |
| BIO-301   |   |           |        |         |        |         |      |         |           |      |      |      |        |           |      |      |      |        |           |      |      |      |         |           |      |      |      |         |           |      |      |      |         |           |      |      |      |       |           |      |      |

|     |  |
|-----|--|
| Q-3 | Find the ID and name of instructors who have taught a course in the Comp. Sci. department, even if they are themselves not from the Comp. Sci. department. To test this query, make sure you add appropriate data and include the corresponding insert statements along with your query. |
| A   | <pre>SQL&gt; select id,name from instructor where id = Any(select id from teaches where course_id like 'CS-%');    ID NAME -----  76543 Singh  98345 Kim 10101 Srinivasan  45565 Katz  83821 Brandt</pre>  |
| Q-4 | Find the courses which are offered in both 'Fall' and 'Spring' semester (not necessarily in the same year).  |
| A   | <pre>SQL&gt; select course_id from takes where semester = 'Spring' and  2  course_id in(select course_id from takes where semester = 'Fall');  no rows selected</pre>  |

## Appendix A:

Table-1: Salespeople

Create table salespeople(snum int, sname varchar2(25), scity varchar2(25), comm float);

```
SQL> desc salespeople;
```

| Name  | Null? | Type         |
|-------|-------|--------------|
| ----- | ----- | -----        |
| SNUM  |       | NUMBER(38)   |
| SNAME |       | VARCHAR2(25) |
| SCITY |       | VARCHAR2(25) |
| COMM  |       | FLOAT(126)   |

Insert into salespeople values(&snum, '&sname', '&scity', &comm);

```
SQL> select * from salespeople;
```

| SNUM             | SNAME    | SCITY     | COMM  |
|------------------|----------|-----------|-------|
| -----            | -----    | -----     | ----- |
| 1001             | Peel     | London    | .12   |
| 1002             | Serres   | San jose  | .13   |
| 1003             | Axelord  | New York  | .1    |
| 1004             | Motika   | London    | .11   |
| 1007             | Rifkin   | Barcelona | .15   |
| 1005             | Darshita | Vadodara  | .19   |
| 6 rows selected. |          |           |       |

Table-2: Customer

Create table customer(cnum int, cname varchar2(15), city varchar2(15), rating int, snum int);

```
SQL> desc customer;
```

| Name   | Null? | Type         |
|--------|-------|--------------|
| -----  | ----- | -----        |
| CNUM   |       | NUMBER(38)   |
| CNAME  |       | VARCHAR2(15) |
| CITY   |       | VARCHAR2(15) |
| RATING |       | NUMBER(38)   |
| SNUM   |       | NUMBER(38)   |

Insert into customer values(&cnum, '&cname', '&city', &rating, &snum);

```
SQL> select * from customer
2 ;
```

| CNUM | CNAME    | CITY     | RATING | SNUM |
|------|----------|----------|--------|------|
| 2001 | Hoffman  | London   | 100    | 1001 |
| 2002 | Giovamne | Rome     | 200    | 1003 |
| 2003 | Liu      | San jose | 300    | 1002 |
| 2004 | Grass    | Berlin   | 100    | 1002 |
| 2006 | Clemens  | London   | 300    | 1007 |
| 2007 | Pereria  |          | 100    | 1004 |

6 rows selected.

Table-3: Orders

Create table orders(onum int, amount float, odate date, cnum int, snum int);

```
SQL> desc orders;
```

| Name   | Null? | Type       |
|--------|-------|------------|
| ONUM   |       | NUMBER(38) |
| AMOUNT |       | FLOAT(126) |
| ODATE  |       | DATE       |
| CNUM   |       | NUMBER(38) |
| SNUM   |       | NUMBER(38) |

Insert into orders values(&onum, &amount, '&odate', &cnum, &snum);

```
SQL> select * from orders;
```

| ONUM | AMOUNT  | ODATE     | CNUM | SNUM |
|------|---------|-----------|------|------|
| 3001 | 18.96   | 03-OCT-94 | 2002 | 1002 |
| 3003 | 767.19  | 03-OCT-94 | 2001 | 1001 |
| 3002 | 1900.1  | 03-OCT-94 | 2007 | 1003 |
| 3005 | 5160.45 | 03-OCT-94 | 2003 | 1002 |
| 3006 | 1098.16 | 03-OCT-94 | 2008 | 1002 |
| 3009 | 1713.23 | 04-OCT-94 | 2002 | 1003 |
| 3007 | 75.75   | 04-OCT-94 | 2004 | 1002 |
| 3008 | 4723.95 | 05-OCT-94 | 2006 | 1001 |
| 3010 | 1309.95 | 06-OCT-94 | 2004 | 1002 |
| 3011 | 9891    | 06-OCT-94 | 2006 | 1001 |
| 3009 | 0       | 07-OCT-94 | 2005 | 1003 |
| 3012 |         | 07-OCT-94 | 2005 | 1003 |

12 rows selected.



## Appendix B: (University Schema)

Table-1: Instructor

Create table Instructor(id number(10), name varchar2(15), dept\_name varchar2(15), salary number(10));

```
SQL> desc Instructor;
```

| Name      | Null? | Type         |
|-----------|-------|--------------|
| -----     | ----- | -----        |
| ID        |       | NUMBER(10)   |
| NAME      |       | VARCHAR2(15) |
| DEPT_NAME |       | VARCHAR2(15) |
| SALARY    |       | NUMBER(10)   |

Insert into Instructor values(&id,'&name','&dept\_name',&salary);

```
SQL> select * from instructor;
```

| ID    | NAME       | DEPT_NAME  | SALARY |
|-------|------------|------------|--------|
| ----- | -----      | -----      | -----  |
| 10101 | Srinivasan | Comp. Sci. | 65000  |
| 12121 | Wu         | Finance    | 90000  |
| 15151 | Mozart     | Music      | 40000  |
| 22222 | Einstein   | Physics    | 95000  |
| 32343 | El Said    | History    | 60000  |
| 33456 | Gold       | Physics    | 87000  |
| 45565 | Katz       | Comp. Sci. | 75000  |
| 58583 | Califieri  | History    | 62000  |
| 76543 | Singh      | Finance    | 80000  |
| 76766 | Crick      | Biology    | 72000  |
| 83821 | Brandt     | Comp. Sci. | 92000  |
| ----- | -----      | -----      | -----  |
| ID    | NAME       | DEPT_NAME  | SALARY |
| ----- | -----      | -----      | -----  |
| 98345 | Kim        | Elec. Eng. | 80000  |

12 rows selected.

Table-2: Student

Create table Student(id number(10), name varchar2(15), dept\_name varchar2(15), tot\_cred number(5));

```
SQL> desc student;
```

| Name      | Null? | Type         |
|-----------|-------|--------------|
| -----     | ----- | -----        |
| ID        |       | NUMBER(10)   |
| NAME      |       | VARCHAR2(15) |
| DEPT_NAME |       | VARCHAR2(15) |
| TOT_CRED  |       | NUMBER(5)    |

Insert into Student values(&id, '&name', '&dept\_name', &tot\_cred);

```
SQL> select * from student;
```

| ID    | NAME     | DEPT_NAME  | TOT_CRED |
|-------|----------|------------|----------|
| 128   | Zhang    | Comp. Sci. | 102      |
| 12345 | Shankar  | Comp. Sci. | 32       |
| 19991 | Brandt   | History    | 80       |
| 23121 | Chavez   | Finance    | 110      |
| 44553 | Peltier  | Physics    | 56       |
| 45678 | Levy     | Physics    | 46       |
| 54321 | Williams | Comp. Sci. | 54       |
| 55739 | Sanchez  | Music      | 38       |
| 70557 | Snow     | Physics    | 0        |
| 76543 | Brown    | Comp. Sci. | 58       |
| 76653 | Aoi      | Elec. Eng. | 60       |
| 98765 | Bourikas | Elec. Eng. | 98       |
| 98988 | Tanaka   | Biology    | 120      |

13 rows selected.

Table-3: Course

Create table Course(course\_id varchar2(10), title varchar2(35), dept\_name varchar2(15), credits number(5));

```
SQL> desc course;
```

| Name      | Null? | Type         |
|-----------|-------|--------------|
| COURSE_ID |       | VARCHAR2(10) |
| TITLE     |       | VARCHAR2(35) |
| DEPT_NAME |       | VARCHAR2(15) |
| CREDITS   |       | NUMBER(5)    |

Insert into course values('&course\_id', '&title', '&dept\_name', &credits);

```
SQL> select * from course;
```

| COURSE_ID | TITLE                      | DEPT_NAME  | CREDITS |
|-----------|----------------------------|------------|---------|
| BIO-101   | INTRO. TO BIOLOGY          | BIOLOGY    | 4       |
| BIO-301   | GENETICS                   | BIOLOGY    | 4       |
| BIO-399   | COMPUTATIONAL BIOLOGY      | BIOLOGY    | 3       |
| CS-101    | INTRO. TO COMPUTER SCIENCE | COMP. SCI. | 4       |
| CS-190    | GAME DESIGN                | COMP. SCI. | 4       |
| CS-315    | ROBOTICS                   | COMP. SCI. | 3       |
| CS-319    | IMAGE PROCESSING           | COMP. SCI. | 3       |
| CS-347    | DATABASE SYSTEM CONCEPTS   | COMP. SCI. | 3       |
| EE-181    | INTRO. TO DIGITAL SYSTEMS  | ELEC. ENG. | 3       |
| FIN-201   | INVESTMENT BANKING         | FINANCE    | 3       |
| HIS-351   | WORLD HISTORY              | HISTORY    | 3       |
| MU-199    | MUSIC VIDEO PRODUCTION     | MUSIC      | 3       |
| PHY-101   | PHYSICAL PRINCIPLES        | PHYSICS    | 4       |

13 rows selected.

Table-4: Teaches

Create table Teaches(id number(10), course\_id varchar2(10), sec\_id varchar2(10), semester varchar2(10), year number(5));

```
SQL> desc teaches;
```

| Name      | Null? | Type         |
|-----------|-------|--------------|
| ID        |       | NUMBER(10)   |
| COURSE_ID |       | VARCHAR2(10) |
| SEC_ID    |       | VARCHAR2(10) |
| SEMESTER  |       | VARCHAR2(10) |
| YEAR      |       | NUMBER(5)    |

Insert into Teaches values(&id, '&course\_id', '&sec\_id', '&semester', &year);

```
SQL> select * from Teaches;
```

| ID    | COURSE_ID | SEC_ID | SEMESTER | YEAR |
|-------|-----------|--------|----------|------|
| 76543 | CS-101    | 1      | Fall     | 2009 |
| 98345 | CS-319    | 1      | Fall     | 2009 |
| 10101 | CS-101    | 1      | FALL     | 2009 |
| 10101 | CS-315    | 1      | SPRING   | 2010 |
| 10101 | CS-347    | 1      | FALL     | 2009 |
| 12121 | FIN-201   | 1      | SPRING   | 2010 |
| 15151 | MU-199    | 1      | SPRING   | 2010 |
| 22222 | PHY-101   | 1      | FALL     | 2009 |
| 32343 | HIS-351   | 1      | SPRING   | 2010 |
| 45565 | CS-101    | 1      | SPRING   | 2010 |
| 45565 | CS-319    | 1      | SPRING   | 2010 |
|       |           |        |          |      |
| ID    | COURSE_ID | SEC_ID | SEMESTER | YEAR |
| 76766 | BIO-101   | 1      | SUMMER   | 2009 |
| 76766 | BIO-301   | 1      | SUMMER   | 2010 |
| 83821 | CS-190    | 1      | SPRING   | 2009 |
| 83821 | CS-190    | 2      | SPRING   | 2009 |
| 83821 | CS-319    | 2      | SPRING   | 2010 |
| 98345 | EE-181    | 1      | SPRING   | 2009 |

17 rows selected.

Table-5: Takes

Create table Takes(id number(10), course\_id varchar2(15), sec\_id number(10), semester varchar2(15), year number(5), Grade varchar2(6));

```
SQL> desc takes;
```

| Name      | Null? | Type         |
|-----------|-------|--------------|
| ID        |       | NUMBER(10)   |
| COURSE_ID |       | VARCHAR2(15) |
| SEC_ID    |       | NUMBER(10)   |
| SEMESTER  |       | VARCHAR2(15) |
| YEAR      |       | NUMBER(5)    |
| GRADE     |       | VARCHAR2(6)  |

Insert into Teaches values(&id, '&course\_id', &sec\_id, '&semester', &year, '&grade');

```
SQL> select * from Takes;
```

| ID    | COURSE_ID | SEC_ID | SEMESTER | YEAR | GRADE |
|-------|-----------|--------|----------|------|-------|
| ----- |           |        |          |      |       |
| 128   | CS-101    | 1      | FALL     | 2009 | A     |
| 128   | CS-347    | 1      | FALL     | 2009 | A-    |
| 12345 | CS-101    | 1      | FALL     | 2009 | C     |
| 12345 | CS-190    | 2      | SPRING   | 2009 | A     |
| 12345 | CS-315    | 1      | SPRING   | 2010 | A     |
| 12345 | CS-347    | 1      | FALL     | 2009 | A     |
| 19991 | HIS-351   | 1      | SPRING   | 2010 | B     |
| 23121 | FIN-201   | 1      | SPRING   | 2010 | C+    |
| 44553 | PHY-101   | 1      | FALL     | 2009 | B-    |
| 45678 | CS-101    | 1      | FALL     | 2009 | F     |
| 45678 | CS-101    | 1      | SPRING   | 2010 | B+    |
| ----- |           |        |          |      |       |
| 45678 | CS-319    | 1      | SPRING   | 2010 | B     |
| 54321 | CS-101    | 1      | FALL     | 2009 | A-    |
| 54321 | CS-190    | 2      | SPRING   | 2009 | B+    |
| 55739 | MU-199    | 1      | SPRING   | 2010 | A-    |
| 76543 | CS-101    | 1      | FALL     | 2009 | A     |
| 76543 | CS-319    | 2      | SPRING   | 2010 | A     |
| 76653 | EE-181    | 1      | SPRING   | 2009 | C     |
| 98765 | CS-315    | 1      | SPRING   | 2010 | B     |
| 98765 | CS-101    | 1      | FALL     | 2009 | C-    |
| 98988 | BIO-101   | 1      | SUMMER   | 2009 | A     |
| 98988 | BIO-301   | 1      | SUMMER   | 2010 |       |

```
22 rows selected.
```

## Practical-2

Create the below given and insert data accordingly.

**Table-1: Job**

| job_id  | job_name          | min_sal | max_sal |
|---------|-------------------|---------|---------|
| it_prog | Programmer        | 4000    | 10000   |
| mk_mgr  | Marketing Manager | 9000    | 15000   |
| fi_mgr  | Finance Manager   | 8200    | 12000   |
| fi_acc  | Account           | 4200    | 9000    |
| lec     | Lecturer          | 6000    | 17000   |
| comp_op | Computer Operator | 1500    | 3000    |

**Table-2: Employee**

| emp_n<br>o | emp_<br>name | emp_<br>sal | emp_<br>comm | dept<br>_no | l_<br>name | dept_<br>name              | job_id  | location  | Manage<br>r_id | Hire<br>date |
|------------|--------------|-------------|--------------|-------------|------------|----------------------------|---------|-----------|----------------|--------------|
| 101        | Smith        | 800         |              | 20          | shah       | machine<br>learning        | fi_mgr  | toronto   | 105            | 09-aug-96    |
| 102        | Snehal       | 1600        | 300          | 25          | gupta      | data science               | lec     | las vegas |                | 14-mar-96    |
| 103        | Adama        | 1100        | 0            | 20          | wales      | machine<br>learning        | mk_mgr  | ontario   | 105            | 30-nov-95    |
| 104        | Aman         | 3000        |              | 15          | sharma     | virtual<br>reality         | comp_op | mexico    | 12             | 02-oct-97    |
| 105        | Anita        | 5000        | 50,000       | 10          | patel      | big data<br>analytics      | comp_op | germany   | 107            | 01-jan-98    |
| 106        | Sneha        | 2450        | 24,500       | 10          | joseph     | big data<br>analytics      | fi_acc  | melbourne | 105            | 26-sep-97    |
| 107        | Anamika      | 2975        |              | 30          | jha        | artificial<br>intelligence | it_prog | new york  |                | 15jul-97     |

**Table-3: Deposit**

| A_no | Cname | Bname      | Amount | Date      |
|------|-------|------------|--------|-----------|
| 101  | Anil  | Andheri    | 7000   | 01-JAN-06 |
| 102  | Sunil | Virar      | 5000   | 15-JUL-06 |
| 103  | Jay   | Villeparle | 6500   | 12-MAR-06 |
| 104  | Vijay | Andheri    | 8000   | 17-SEP-06 |
| 105  | Keyur | Dadar      | 7500   | 19-NOV-06 |
| 106  | Mayur | Borivali   | 5500   | 21-DEC-06 |

**Table-4: Borrow**

| Loanno | Cname | Bname       | Amount  |
|--------|-------|-------------|---------|
| 201    | Anil  | Ville parle | 1000.00 |
| 206    | Sunil | Ahmedabad   | 5000.00 |
| 311    | Jay   | Ahmedabad   | 3000.00 |
| 321    | Vijay | Virar       | 2000.00 |
| 375    | Keyur | Dadar       | 8000.00 |
| 481    | Mayur | Borivali    | 3000.00 |

(i) **Perform following queries**

Q-1 Retrieve all data from employee, jobs and deposit.

A

(a) Employee table

SQL&gt; select \* from employee;

| EMP_NO | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE      |
|--------|----------|---------|----------|---------|--------|-------------------------|---------|-----------|------------|---------------|
| 101    | Smith    | 800     |          | 20      | Shah   | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96     |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta  | Data Science            | lec     | Las Vegas |            | 14-MAR-96     |
| 103    | Adama    | 1100    | 0        | 20      | Wales  | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95     |
| 104    | Aman     | 3000    |          | 15      | Sharma | Virtual Reality         | comp_op | Mexico    |            | 12 02-OCT-97  |
| 105    | Anita    | 5000    | 50000    | 10      | Patel  | Big Data Analytics      | comp_op | Germany   |            | 107 01-JAN-98 |
| 106    | Sneha    | 2450    | 24500    | 10      | Joseph | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97     |
| 107    | Anamika  | 2975    |          | 30      | Jha    | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97     |

7 rows selected.

(b) Job table

SQL&gt; select \* from job;

| JOB_ID  | JOB_TITLE         | MIN_SAL | MAX_SAL |
|---------|-------------------|---------|---------|
| it_prog | Programmer        | 4000    | 10000   |
| mk_mgr  | Marketing manager | 9000    | 15000   |
| fi_mgr  | Finance manager   | 8200    | 12000   |
| fi_acc  | Account           | 4200    | 9000    |
| lec     | Lecturer          | 6000    | 17000   |
| comp_op | Computer operator | 1500    | 3000    |

6 rows selected.

|                   | <p>(c) Deposit Table</p> <pre>SQL&gt; select * from deposit;</pre> <table><thead><tr><th>A_NO</th><th>CNAME</th><th>BNAME</th><th>AMOUNT</th><th>A_DATE</th></tr></thead><tbody><tr><td>101</td><td>Anil</td><td>Andheri</td><td>7000</td><td>01-JAN-06</td></tr><tr><td>102</td><td>Sunil</td><td>Virar</td><td>5000</td><td>15-JUL-06</td></tr><tr><td>103</td><td>Jay</td><td>Villeparle</td><td>6500</td><td>12-MAR-06</td></tr><tr><td>104</td><td>Vijay</td><td>Andheri</td><td>8000</td><td>17-SEP-06</td></tr><tr><td>105</td><td>Keyur</td><td>Dadar</td><td>7500</td><td>19-NOV-06</td></tr><tr><td>106</td><td>Mayur</td><td>Borivali</td><td>5500</td><td>21-DEC-06</td></tr></tbody></table> <p>6 rows selected.</p> | A_NO          | CNAME             | BNAME           | AMOUNT  | A_DATE   | 101  | Anil | Andheri | 7000 | 01-JAN-06 | 102 | Sunil | Virar | 5000 | 15-JUL-06 | 103 | Jay | Villeparle | 6500 | 12-MAR-06 | 104 | Vijay | Andheri | 8000 | 17-SEP-06 | 105 | Keyur | Dadar | 7500 | 19-NOV-06 | 106 | Mayur | Borivali | 5500 | 21-DEC-06 |
|-------------------|---|---------------|-------------------|-----------------|---------|----------|------|------|---------|------|-----------|-----|-------|-------|------|-----------|-----|-----|------------|------|-----------|-----|-------|---------|------|-----------|-----|-------|-------|------|-----------|-----|-------|----------|------|-----------|
| A_NO              | CNAME   | BNAME         | AMOUNT            | A_DATE          |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| 101               | Anil  | Andheri       | 7000              | 01-JAN-06       |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| 102               | Sunil   | Virar         | 5000              | 15-JUL-06       |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| 103               | Jay   | Villeparle    | 6500              | 12-MAR-06       |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| 104               | Vijay   | Andheri       | 8000              | 17-SEP-06       |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| 105               | Keyur   | Dadar         | 7500              | 19-NOV-06       |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| 106               | Mayur   | Borivali      | 5500              | 21-DEC-06       |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| Q-2               | Give details of account no. and deposited rupees of customers having account opened between dates 01-01-06 and 25-07-06.  |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| A                 | <pre>SQL&gt; select A_no,Amount from deposit where A_date&gt;='01-jan-2006' and A_date&lt;='25-jul-2006';</pre> <table><thead><tr><th>A_NO</th><th>AMOUNT</th></tr></thead><tbody><tr><td>101</td><td>7000</td></tr><tr><td>102</td><td>5000</td></tr><tr><td>103</td><td>6500</td></tr></tbody></table>  | A_NO          | AMOUNT            | 101             | 7000    | 102      | 5000 | 103  | 6500    |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| A_NO              | AMOUNT  |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| 101               | 7000  |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| 102               | 5000  |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| 103               | 6500  |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| Q-3               | Display all jobs with minimum salary is greater than 4000.  |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| A                 | <pre>SQL&gt; select job_title from job where min_sal&gt;4000;</pre> <table><thead><tr><th>JOB_TITLE</th></tr></thead><tbody><tr><td>Marketing manager</td></tr><tr><td>Finance manager</td></tr><tr><td>Account</td></tr><tr><td>Lecturer</td></tr></tbody></table>   | JOB_TITLE     | Marketing manager | Finance manager | Account | Lecturer |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| JOB_TITLE         |   |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| Marketing manager |   |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| Finance manager   |   |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| Account           |   |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| Lecturer          |   |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| Q-4               | Display name and salary of employee whose department no is 20. Give alias name to name of employee.   |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| A                 | <pre>SQL&gt; select emp_name as employee_name,emp_sal from employee where dept_no=20;</pre> <table><thead><tr><th>EMPLOYEE_NAME</th><th>EMP_SAL</th></tr></thead><tbody><tr><td>Smith</td><td>800</td></tr><tr><td>Adama</td><td>1100</td></tr></tbody></table>   | EMPLOYEE_NAME | EMP_SAL           | Smith           | 800     | Adama    | 1100 |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| EMPLOYEE_NAME     | EMP_SAL   |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| Smith             | 800   |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |
| Adama             | 1100  |               |                   |                 |         |          |      |      |         |      |           |     |       |       |      |           |     |     |            |      |           |     |       |         |      |           |     |       |       |      |           |     |       |          |      |           |



| Q-5     | Display employee no, name and department details of those employee whose department lies in (10, 20).  |                    |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
|---------|--|--------------------|-----------|-----------|----------|--------------------|------------------|-----------|------------|------------------|------------|----------|-----------------|-------|-------|--------------------|-----|-------|--------------------|--------|---------|-----|-----------|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|
| A       | <pre>SQL&gt; select emp_no,emp_name,dept_name from employee where dept_no&gt;=10 and dept_no&lt;=20;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>DEPT_NAME</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>Machine Learning</td></tr><tr><td>103</td><td>Adama</td><td>Machine Learning</td></tr><tr><td>104</td><td>Aman</td><td>Virtual Reality</td></tr><tr><td>105</td><td>Anita</td><td>Big Data Analytics</td></tr><tr><td>106</td><td>Sneha</td><td>Big Data Analytics</td></tr></tbody></table>  | EMP_NO             | EMP_NAME  | DEPT_NAME | 101      | Smith              | Machine Learning | 103       | Adama      | Machine Learning | 104        | Aman     | Virtual Reality | 105   | Anita | Big Data Analytics | 106 | Sneha | Big Data Analytics |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| EMP_NO  | EMP_NAME   | DEPT_NAME          |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| 101     | Smith  | Machine Learning   |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| 103     | Adama  | Machine Learning   |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| 104     | Aman   | Virtual Reality    |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| 105     | Anita  | Big Data Analytics |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| 106     | Sneha  | Big Data Analytics |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| Q-6     | Display the non-null values of employees.  |                    |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| A       | <pre>SQL&gt; select * from employee where emp_comm is not null and manager_id is not null;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th></tr></thead><tbody><tr><td>103</td><td>Adama</td><td>1100</td><td>0</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td></tr></tbody></table> | EMP_NO             | EMP_NAME  | EMP_SAL   | EMP_COMM | DEPT_NO            | L_NAME           | DEPT_NAME | JOB_ID     | LOCATION         | MANAGER_ID | HIREDATE | 103             | Adama | 1100  | 0                  | 20  | Wales | Machine Learning   | mk_mgr | Ontario | 105 | 30-NOV-95 | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |
| EMP_NO  | EMP_NAME   | EMP_SAL            | EMP_COMM  | DEPT_NO   | L_NAME   | DEPT_NAME          | JOB_ID           | LOCATION  | MANAGER_ID | HIREDATE         |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| 103     | Adama  | 1100               | 0         | 20        | Wales    | Machine Learning   | mk_mgr           | Ontario   | 105        | 30-NOV-95        |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| 105     | Anita  | 5000               | 50000     | 10        | Patel    | Big Data Analytics | comp_op          | Germany   | 107        | 01-JAN-98        |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| 106     | Sneha  | 2450               | 24500     | 10        | Joseph   | Big Data Analytics | fi_acc           | Melbourne | 105        | 26-SEP-97        |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| Q-7     | Display name of customer along with its account no (both columns should be displayed as one) whose amount is not equal to 8000 Rs.   |                    |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| A       | <pre>SQL&gt; select a_no    '-'    Cname as Customer_Details from deposit;</pre> <p>CUSTOMER_DETAILS</p> <pre>----- 101-Anil 102-Sunil 103-Jay 104-Vijay 105-Keyur 106-Mayur  6 rows selected.</pre>   |                    |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| Q-8     | Display the content of job details with minimum salary either 2000 or 4000.  |                    |           |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| A       | <pre>SQL&gt; select * from job where min_sal in(2000,4000);</pre> <table><thead><tr><th>JOB_ID</th><th>JOB_TITLE</th><th>MIN_SAL</th><th>MAX_SAL</th></tr></thead><tbody><tr><td>it_prog</td><td>Programmer</td><td>4000</td><td>10000</td></tr></tbody></table>   | JOB_ID             | JOB_TITLE | MIN_SAL   | MAX_SAL  | it_prog            | Programmer       | 4000      | 10000      |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| JOB_ID  | JOB_TITLE  | MIN_SAL            | MAX_SAL   |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |
| it_prog | Programmer   | 4000               | 10000     |           |          |                    |                  |           |            |                  |            |          |                 |       |       |                    |     |       |                    |        |         |     |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |

| (ii)   | To study various options of LIKE predicate.   |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
|--------|---|---------|----------|---------|----------|-------------------------|---------|-----------|------------|--------------|------------|----------|-----|-------|-----|--|----|------|------------------|--------|---------|-----|-----------|-----|--------|------|-----|----|-------|--------------|-----|-----------|--|-----------|-----|------|------|--|----|--------|-----------------|---------|--------|--|--------------|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|-----|---------|------|--|----|-----|-------------------------|---------|----------|--|-----------|
| Q-1    | Display all employee whose name start with ‘A’ and third character is ‘a’.  |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; select emp_name from employee where emp_name like 'A_a%';</pre> <pre>EMP_NAME ----- Adama Aman Anamika</pre>   |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-2    | Display name, number and salary of those employees whose name is 5 characters long and first three characters are ‘Ani’.  |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; select emp_name,emp_no,emp_sal from employee where emp_name like 'Ani__';</pre> <pre>EMP_NAME      EMP_NO  EMP_SAL ----- Anita          105    5000</pre>  |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-3    | Display all information of employee whose second character of name is either ‘M’ or ‘N’.  |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; select * from employee where emp_name like '_m%' or emp_name like '_n%';</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>20</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>15</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td></td><td>12-02-OCT-97</td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td></tr></tbody></table> <pre>6 rows selected.</pre> | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION     | MANAGER_ID | HIREDATE | 101 | Smith | 800 |  | 20 | Shah | Machine Learning | fi_mgr | Toronto | 105 | 09-AUG-96 | 102 | Snehal | 1600 | 300 | 25 | Gupta | Data Science | lec | Las Vegas |  | 14-MAR-96 | 104 | Aman | 3000 |  | 15 | Sharma | Virtual Reality | comp_op | Mexico |  | 12-02-OCT-97 | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |
| EMP_NO | EMP_NAME  | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE     |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 101    | Smith   | 800     |          | 20      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96    |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 102    | Snehal  | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96    |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 104    | Aman  | 3000    |          | 15      | Sharma   | Virtual Reality         | comp_op | Mexico    |            | 12-02-OCT-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 105    | Anita   | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98    |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 106    | Sneha   | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97    |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 107    | Anamika   | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97    |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-4    | Find the list of all customer name whose branch is in ‘andheri’ or ‘dadar’ or ‘virar’.  |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; select cname from deposit where bname in('Andheri','Dadar','Virar');</pre> <pre>CNAME ----- Anil Sunil Vijay Keyur</pre>   |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-5    | Display the job name whose first three character in job id field is ‘FI’.   |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; select job_title from job where job_id like 'fi_%';</pre> <pre>JOB_TITLE ----- Finance manager Account</pre>   |         |          |         |          |                         |         |           |            |              |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |

| Q-6               | Display the title/name of job who's last three character are ‘_MGR’ and their maximum salary is greater than Rs 12000.  |           |                   |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
|-------------------|---|-----------|-------------------|---------|----------|-------------------------|------------|-----------|------------|--------------|-------------------|----------|-------|--------|-----------------|------|-------|--------|--------------|------|-----------|---------|-------------------|------|------|------|--|----|--------|-----------------|---------|--------|--|--------------|-----|---------|------|--|----|-----|-------------------------|---------|----------|--|-----------|
| A                 | <pre>SQL&gt; select job_title from job where job_id like '%mgr' and max_sal&gt;12000;</pre> <table><thead><tr><th>JOB_TITLE</th></tr></thead><tbody><tr><td>Marketing manager</td></tr></tbody></table>   | JOB_TITLE | Marketing manager |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| JOB_TITLE         |   |           |                   |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| Marketing manager |   |           |                   |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| Q-7               | Display the non-null values of employees and also employee name second character should be ‘n’ and string should be 5-character long.   |           |                   |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| A                 | <pre>SQL&gt; select job_title from job where job_id like '%mgr' and max_sal&gt;12000;</pre> <table><thead><tr><th>JOB_TITLE</th></tr></thead><tbody><tr><td>Marketing manager</td></tr></tbody></table>   | JOB_TITLE | Marketing manager |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| JOB_TITLE         |   |           |                   |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| Marketing manager |   |           |                   |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| Q-8               | Display the null values of employee and also employee name’s third character should be ‘a’.   |           |                   |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| A                 | <pre>SQL&gt; select * from employee where emp_name like '_a%' and emp_comm is null or manager_id is null;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th></tr></thead><tbody><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>15</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td></td><td>12 02-OCT-97</td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td></tr></tbody></table> | EMP_NO    | EMP_NAME          | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME     | DEPT_NAME | JOB_ID     | LOCATION     | MANAGER_ID        | HIREDATE | 102   | Snehal | 1600            | 300  | 25    | Gupta  | Data Science | lec  | Las Vegas |         | 14-MAR-96         | 104  | Aman | 3000 |  | 15 | Sharma | Virtual Reality | comp_op | Mexico |  | 12 02-OCT-97 | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |
| EMP_NO            | EMP_NAME  | EMP_SAL   | EMP_COMM          | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE     |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| 102               | Snehal  | 1600      | 300               | 25      | Gupta    | Data Science            | lec        | Las Vegas |            | 14-MAR-96    |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| 104               | Aman  | 3000      |                   | 15      | Sharma   | Virtual Reality         | comp_op    | Mexico    |            | 12 02-OCT-97 |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| 107               | Anamika   | 2975      |                   | 30      | Jha      | Artificial Intelligence | it_prog    | New York  |            | 15-JUL-97    |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| Q-9               | What will be output if you are giving LIKE predicate as ‘%\_%’ ESCAPE ‘\’   |           |                   |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| A                 | <pre>SQL&gt; select * from job where job_id like '%\_%' escape '\';</pre> <table><thead><tr><th>JOB_ID</th><th>JOB_TITLE</th><th>MIN_SAL</th><th>MAX_SAL</th></tr></thead><tbody><tr><td>it_prog</td><td>Programmer</td><td>4000</td><td>10000</td></tr><tr><td>mk_mgr</td><td>Marketing manager</td><td>9000</td><td>15000</td></tr><tr><td>fi_mgr</td><td>Finance manager</td><td>8200</td><td>12000</td></tr><tr><td>fi_acc</td><td>Account</td><td>4200</td><td>9000</td></tr><tr><td>comp_op</td><td>Computer operator</td><td>1500</td><td>3000</td></tr></tbody></table>   | JOB_ID    | JOB_TITLE         | MIN_SAL | MAX_SAL  | it_prog                 | Programmer | 4000      | 10000      | mk_mgr       | Marketing manager | 9000     | 15000 | fi_mgr | Finance manager | 8200 | 12000 | fi_acc | Account      | 4200 | 9000      | comp_op | Computer operator | 1500 | 3000 |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| JOB_ID            | JOB_TITLE   | MIN_SAL   | MAX_SAL           |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| it_prog           | Programmer  | 4000      | 10000             |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| mk_mgr            | Marketing manager   | 9000      | 15000             |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| fi_mgr            | Finance manager   | 8200      | 12000             |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| fi_acc            | Account   | 4200      | 9000              |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |
| comp_op           | Computer operator   | 1500      | 3000              |         |          |                         |            |           |            |              |                   |          |       |        |                 |      |       |        |              |      |           |         |                   |      |      |      |  |    |        |                 |         |        |  |              |     |         |      |  |    |     |                         |         |          |  |           |

## Appendix:

Table-1: Job

Create Table Job (job\_id varchar2(15), job\_title varchar2(30), min\_sal number(7,2), max\_sal number(7,2));

```
SQL> desc job;
Name                                Null?    Type
-----
JOB_ID                              VARCHAR2(15)
JOB_TITLE                           VARCHAR2(30)
MIN_SAL                             NUMBER(7,2)
MAX_SAL                             NUMBER(7,2)
```

Insert into job values('&job\_id', '&job\_title', &min\_sal, &max\_sal);

```
SQL> select * from job;

JOB_ID      JOB_TITLE                MIN_SAL    MAX_SAL
-----
it_prog     Programmer                4000       10000
mk_mgr      Marketing manager        9000       15000
fi_mgr      Finance manager          8200       12000
fi_acc      Account                  4200        9000
lec         Lecturer                 6000       17000
comp_op     Computer operator        1500        3000

6 rows selected.
```

Table-2: Employee

Create table Employee (emp\_no number(3), emp\_name varchar2(30), emp\_sal number(8,2), emp\_comm number(6,1), dept\_no number(3), l\_name varchar2(15), dept\_name varchar(30), job\_id varchar(10), location varchar(15), manager\_id number(5), hiredate date);

```
SQL> desc employee;
Name                                Null?    Type
-----
EMP_NO                              NUMBER(3)
EMP_NAME                           VARCHAR2(30)
EMP_SAL                             NUMBER(8,2)
EMP_COMM                           NUMBER(6,1)
DEPT_NO                             NUMBER(3)
L_NAME                             VARCHAR2(15)
DEPT_NAME                           VARCHAR2(30)
JOB_ID                              VARCHAR2(10)
LOCATION                             VARCHAR2(15)
MANAGER_ID                          NUMBER(5)
HIREDATE                           DATE
```

Insert into customer values(&emp\_no, '&emp\_no', &emp\_sal, &emp\_comm, &dept\_no, '&l\_name', '&dept\_name', '&job\_id', '&location', &manager\_id, '&hiredate');

```
SQL> select * from employee;
```

| EMP_NO | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE      |
|--------|----------|---------|----------|---------|--------|-------------------------|---------|-----------|------------|---------------|
| 101    | Smith    | 800     |          | 10      | Shah   | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96     |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta  | Data Science            | lec     | Las Vegas |            | 14-MAR-96     |
| 103    | Darshita | 1100    | 500      | 20      | Wales  | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95     |
| 104    | Aman     | 3000    |          | 10      | Sharma | Virtual Reality         | comp_op | Mexico    |            | 12-02-OCT-97  |
| 105    | Anita    | 5000    | 50000    | 10      | Patel  | Big Data Analytics      | comp_op | Germany   |            | 107-01-JAN-98 |
| 106    | Sneha    | 2450    | 24500    | 10      | Joseph | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97     |
| 107    | Anamika  | 2975    |          | 30      | Jha    | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97     |

7 rows selected.

Table-3: Deposit

Create table deposit(A\_no varchar2(5), cname varchar2(15), bname varchar2(10), amount number(7,2), A\_date date);

```
SQL> desc deposit;
```

| Name   | Null? | Type         |
|--------|-------|--------------|
| A_NO   |       | VARCHAR2(5)  |
| CNAME  |       | VARCHAR2(15) |
| BNAME  |       | VARCHAR2(10) |
| AMOUNT |       | NUMBER(7,2)  |
| A_DATE |       | DATE         |

Insert into deposit(&A\_no, '&cname', '&bname', &amount, '&A\_date');

```
SQL> select * from deposit;
```

| A_NO | CNAME | BNAME      | AMOUNT | A_DATE    |
|------|-------|------------|--------|-----------|
| 101  | Anil  | Andheri    | 7000   | 01-JAN-06 |
| 102  | Sunil | Virar      | 5000   | 15-JUL-06 |
| 103  | Jay   | Villeparle | 6500   | 12-MAR-06 |
| 104  | Vijay | Andheri    | 8000   | 17-SEP-06 |
| 105  | Keyur | Dadar      | 7500   | 19-NOV-06 |
| 106  | Mayur | Borivali   | 5500   | 21-DEC-06 |

6 rows selected.

Table-4: Borrow

Create table Borrow(loanno varchar2(6), cname varchar2(15), bname varchar2(15), amount number(7,2));

```
SQL> desc borrow;
Name                               Null?    Type
-----
LOANNO                             VARCHA2(6)
CNAME                             VARCHA2(15)
BNAME                             VARCHA2(15)
AMOUNT                             NUMBER(7,2)
```

Insert into Borrow('&loanno', '&cname', '&bname', &amount);

```
SQL> select * from borrow;

LOANNO CNAME          BNAME          AMOUNT
-----
201    Anil        Vrce           1000
206    Mehul       Ajni           5000
311    Sunil        Dharampeth     3000
321    Madhuri     Andheri        2000
375    Prmod         Virar          8000
481    Kranti        Nehru Place    3000

6 rows selected.
```

| Practical-3  |   |
|--|---|
| Perform various data manipulation commands, aggregate functions and sorting concepts on all created tables |   |
| Q-1  | List total deposit from deposit.  |
| A  | <pre>SQL&gt; select Sum(amount) from deposit;  SUM(AMOUNT) -----       39500</pre>                      |
| Q-2  | List total loan from karolbagh branch.  |
| A  | <pre>SQL&gt; select Sum(amount) from borrow where bname='Karolbagh';  SUM(AMOUNT) -----</pre>           |
| Q-3  | Give maximum loan from branch vrce.   |
| A  | <pre>SQL&gt; select max(amount) from borrow where bname='Vrce';  MAX(AMOUNT) -----        1000</pre>    |
| Q-4  | Count total number of customers.  |
| A  | <pre>SQL&gt; select count(cname) from deposit;  COUNT(CNAME) -----            6</pre>                   |
| Q-5  | Count total number of customer's cities.  |
| A  | <pre>SQL&gt; select count( distinct bname) from deposit;  COUNT(DISTINCTBNAME) -----            5</pre> |

| Q-6    | Create table supplier from employee with all the columns.   |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
|--------|---|---------|----------|---------|----------|-------------------------|---------|-----------|------------|-----------|------------|----------|-------|-------|-------|-----|---------|------|------------------|--------|---------|-----|-----------|-----|--------|------|-----|----|-------|--------------|-----|-----------|--|-----------|-----|-------|------|---|----|-------|------------------|--------|---------|-----|-----------|-----|------|------|--|----|--------|-----------------|---------|--------|----|-----------|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|-----|---------|------|--|----|-----|-------------------------|---------|----------|--|-----------|
| A      | <pre>SQL&gt; create table supplier as(select * from employee);</pre> <p>Table created.</p> <pre>SQL&gt; select * from supplier;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>20</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td></tr><tr><td>103</td><td>Adama</td><td>1100</td><td>0</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>15</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td></tr></tbody></table> <p>7 rows selected.</p> | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | 101   | Smith | 800   |     | 20      | Shah | Machine Learning | fi_mgr | Toronto | 105 | 09-AUG-96 | 102 | Snehal | 1600 | 300 | 25 | Gupta | Data Science | lec | Las Vegas |  | 14-MAR-96 | 103 | Adama | 1100 | 0 | 20 | Wales | Machine Learning | mk_mgr | Ontario | 105 | 30-NOV-95 | 104 | Aman | 3000 |  | 15 | Sharma | Virtual Reality | comp_op | Mexico | 12 | 02-OCT-97 | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |
| EMP_NO | EMP_NAME  | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 101    | Smith   | 800     |          | 20      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 102    | Snehal  | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 103    | Adama   | 1100    | 0        | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 104    | Aman  | 3000    |          | 15      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 105    | Anita   | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 106    | Sneha   | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 107    | Anamika   | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-7    | Create table sup1 from employee with first two columns.   |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; create table sup1 as(select emp_no,emp_name from employee);</pre> <p>Table created.</p> <pre>SQL&gt; select * from sup1;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th></tr></thead><tbody><tr><td>101</td><td>Smith</td></tr><tr><td>102</td><td>Snehal</td></tr><tr><td>103</td><td>Adama</td></tr><tr><td>104</td><td>Aman</td></tr><tr><td>105</td><td>Anita</td></tr><tr><td>106</td><td>Sneha</td></tr><tr><td>107</td><td>Anamika</td></tr></tbody></table> <p>7 rows selected.</p>   | EMP_NO  | EMP_NAME | 101     | Smith    | 102                     | Snehal  | 103       | Adama      | 104       | Aman       | 105      | Anita | 106   | Sneha | 107 | Anamika |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| EMP_NO | EMP_NAME  |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 101    | Smith   |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 102    | Snehal  |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 103    | Adama   |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 104    | Aman  |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 105    | Anita   |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 106    | Sneha   |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 107    | Anamika   |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-8    | Create table sup2 from employee with no data.   |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; create table sup2 as(select * from employee where 1=0);</pre> <p>Table created.</p> <pre>SQL&gt; select * from sup2;</pre> <p>no rows selected</p>   |         |          |         |          |                         |         |           |            |           |            |          |       |       |       |     |         |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |



| Q-9    | Insert the data into sup2 from employee whose second character should be 'n' and string should be 5 characters long in employee name field.  |         |          |         |          |                         |         |           |            |           |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
|--------|--|---------|----------|---------|----------|-------------------------|---------|-----------|------------|-----------|------------|----------|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|-----|--------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|-----|------|------|--|----|--------|-----------------|---------|--------|----|-----------|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|-----|---------|------|--|----|-----|-------------------------|---------|----------|--|-----------|
| A      | <pre>SQL&gt; insert into sup2 (select * from employee where emp_name like '_n_'); 2 rows created.  SQL&gt; select * from sup2;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th></tr></thead><tbody><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td></tr></tbody></table>  | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 | 106 | Sneha  | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-10   | Delete all the rows from sup1.   |         |          |         |          |                         |         |           |            |           |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; select * from sup1;  EMP_NO EMP_NAME ----- 101 Smith 102 Snehal 103 Adama 104 Aman 105 Anita 106 Sneha 107 Anamika  7 rows selected.  SQL&gt; truncate table sup1;  Table truncated.  SQL&gt; select * from sup1;  no rows selected</pre>   |         |          |         |          |                         |         |           |            |           |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-11   | Delete the detail of supplier whose sup_no is 103.   |         |          |         |          |                         |         |           |            |           |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; delete from supplier where emp_no = 103; 1 row deleted.  SQL&gt; select * from supplier;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>20</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>15</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td></tr></tbody></table> <pre>6 rows selected.</pre> | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | 101 | Smith | 800  |       | 20 | Shah  | Machine Learning   | fi_mgr  | Toronto | 105 | 09-AUG-96 | 102 | Snehal | 1600 | 300   | 25 | Gupta  | Data Science       | lec    | Las Vegas |     | 14-MAR-96 | 104 | Aman | 3000 |  | 15 | Sharma | Virtual Reality | comp_op | Mexico | 12 | 02-OCT-97 | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 101    | Smith  | 800     |          | 20      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 104    | Aman   | 3000    |          | 15      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |

| Q-12   | Rename the table sup2.  |         |          |         |          |                         |         |           |            |              |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
|--------|---|---------|----------|---------|----------|-------------------------|---------|-----------|------------|--------------|------------|----------|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|-----|--------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|-----|-------|------|---|----|-------|------------------|--------|---------|-----|-----------|-----|------|------|--|----|--------|-----------------|---------|--------|--|--------------|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|-----|---------|------|--|----|-----|-------------------------|---------|----------|--|-----------|
| A      | <pre>SQL&gt; alter table sup2 rename to supplier2;</pre> <p>Table altered.</p> <pre>SQL&gt; select * from supplier2;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th></tr></thead><tbody><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td></tr></tbody></table>   | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION     | MANAGER_ID | HIREDATE | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 | 106 | Sneha  | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| EMP_NO | EMP_NAME  | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE     |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 105    | Anita   | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98    |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 106    | Sneha   | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97    |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-13   | Destroy table sup1 with all the data.   |         |          |         |          |                         |         |           |            |              |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; drop table sup1;</pre> <p>Table dropped.</p> <pre>SQL&gt; select * from sup1;</pre> <pre>select * from sup1</pre> <pre>      *</pre> <p>ERROR at line 1:<br/>ORA-00942: table or view does not exist</p>   |         |          |         |          |                         |         |           |            |              |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| Q-14   | Update the value dept_no to 10 where second character of emp. name is ‘m’.  |         |          |         |          |                         |         |           |            |              |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| A      | <pre>SQL&gt; update employee set dept_no = 10 where emp_name like '_m%';</pre> <p>2 rows updated.</p> <pre>SQL&gt; select * from employee;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td></tr><tr><td>103</td><td>Adama</td><td>1100</td><td>0</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td></td><td>12-02-OCT-97</td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td></tr></tbody></table> <p>7 rows selected.</p> | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION     | MANAGER_ID | HIREDATE | 101 | Smith | 800  |       | 10 | Shah  | Machine Learning   | fi_mgr  | Toronto | 105 | 09-AUG-96 | 102 | Snehal | 1600 | 300   | 25 | Gupta  | Data Science       | lec    | Las Vegas |     | 14-MAR-96 | 103 | Adama | 1100 | 0 | 20 | Wales | Machine Learning | mk_mgr | Ontario | 105 | 30-NOV-95 | 104 | Aman | 3000 |  | 10 | Sharma | Virtual Reality | comp_op | Mexico |  | 12-02-OCT-97 | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |
| EMP_NO | EMP_NAME  | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE     |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 101    | Smith   | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96    |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 102    | Snehal  | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96    |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 103    | Adama   | 1100    | 0        | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95    |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 104    | Aman  | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    |            | 12-02-OCT-97 |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 105    | Anita   | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98    |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 106    | Sneha   | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97    |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |
| 107    | Anamika   | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97    |            |          |     |       |      |       |    |       |                    |         |         |     |           |     |        |      |       |    |        |                    |        |           |     |           |     |       |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |  |              |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |

| Q-15   | Update the value of employee name whose employee number is 103.  |         |          |         |          |                         |         |           |            |           |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
|--------|--|---------|----------|---------|----------|-------------------------|---------|-----------|------------|-----------|------------|----------|-----|-------|-----|--|----|------|------------------|--------|---------|-----|-----------|-----|--------|------|-----|----|-------|--------------|-----|-----------|--|-----------|-----|----------|------|---|----|-------|------------------|--------|---------|-----|-----------|-----|------|------|--|----|--------|-----------------|---------|--------|----|-----------|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|-----|---------|------|--|----|-----|-------------------------|---------|----------|--|-----------|--------|----------|---------|----------|---------|--------|-----------|--------|----------|------------|----------|-------|-------|-------|-----|----|------|------------------|------------------|---------|---------|-----------|-----------|--------|------|--------|------|-------|--------------|-------|--------------|-----|-----------|-----|-----------|------|-----|----------|-------|------------------|--------|---------|------------------|-----------|---------|------|-----------|--|-----|--------|-----------------|---------|--------|--------|-----------------|---------|--------|------|-----------|----|-------|--------------------|---------|---------|-----|-----------|--------------------|---------|---------|-------|-----------|--------|--------------------|--------|-----------|-------|-----------|--------|--------------------|--------|-----------|-----|-----------|-------------------------|---------|----------|------|-----------|----|-----|-------------------------|---------|----------|--|-----------|--|
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| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 101    | Smith  | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 103    | Adama  | 1100    | 0        | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 104    | Aman   | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 101    | Smith  | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 103    | Darshita   | 1100    | 0        | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 104    | Aman   | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| Q-16   | Add one column phone to employee with size of column is 10.  |         |          |         |          |                         |         |           |            |           |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| A      | <pre>SQL&gt; select * from employee;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>0</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td></tr></tbody></table> <p>7 rows selected.</p> <pre>SQL&gt; Alter table employee 2 add phone varchar2(10);</pre> <p>Table altered.</p> <pre>SQL&gt; select * from employee;</pre> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th><th>PHONE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td><td></td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td><td></td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>0</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td><td></td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td><td></td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td><td></td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td><td></td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td><td></td></tr></tbody></table> <p>7 rows selected.</p> | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | 101 | Smith | 800 |  | 10 | Shah | Machine Learning | fi_mgr | Toronto | 105 | 09-AUG-96 | 102 | Snehal | 1600 | 300 | 25 | Gupta | Data Science | lec | Las Vegas |  | 14-MAR-96 | 103 | Darshita | 1100 | 0 | 20 | Wales | Machine Learning | mk_mgr | Ontario | 105 | 30-NOV-95 | 104 | Aman | 3000 |  | 10 | Sharma | Virtual Reality | comp_op | Mexico | 12 | 02-OCT-97 | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 | EMP_NO | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME | DEPT_NAME | JOB_ID | LOCATION | MANAGER_ID | HIREDATE | PHONE | 101   | Smith | 800 |    | 10   | Shah             | Machine Learning | fi_mgr  | Toronto | 105       | 09-AUG-96 |        | 102  | Snehal | 1600 | 300   | 25           | Gupta | Data Science | lec | Las Vegas |     | 14-MAR-96 |      | 103 | Darshita | 1100  | 0                | 20     | Wales   | Machine Learning | mk_mgr    | Ontario | 105  | 30-NOV-95 |  | 104 | Aman   | 3000            |         | 10     | Sharma | Virtual Reality | comp_op | Mexico | 12   | 02-OCT-97 |    | 105   | Anita              | 5000    | 50000   | 10  | Patel     | Big Data Analytics | comp_op | Germany | 107   | 01-JAN-98 |        | 106                | Sneha  | 2450      | 24500 | 10        | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |                         | 107     | Anamika  | 2975 |           | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |  |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 101    | Smith  | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 103    | Darshita   | 1100    | 0        | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 104    | Aman   | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE      |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 101    | Smith  | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 103    | Darshita   | 1100    | 0        | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 104    | Aman   | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |     |       |     |  |    |      |                  |        |         |     |           |     |        |      |     |    |       |              |     |           |  |           |     |          |      |   |    |       |                  |        |         |     |           |     |      |      |  |    |        |                 |         |        |    |           |     |       |      |       |    |       |                    |         |         |     |           |     |       |      |       |    |        |                    |        |           |     |           |     |         |      |  |    |     |                         |         |          |  |           |        |          |         |          |         |        |           |        |          |            |          |       |       |       |     |    |      |                  |                  |         |         |           |           |        |      |        |      |       |              |       |              |     |           |     |           |      |     |          |       |                  |        |         |                  |           |         |      |           |  |     |        |                 |         |        |        |                 |         |        |      |           |    |       |                    |         |         |     |           |                    |         |         |       |           |        |                    |        |           |       |           |        |                    |        |           |     |           |                         |         |          |      |           |    |     |                         |         |          |  |           |  |

| Q-17   | Modify the column emp_name to hold maximum of 30 characters  |         |          |         |          |                         |         |           |            |           |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
|--------|--|---------|----------|---------|----------|-------------------------|---------|-----------|------------|-----------|------------|----------|-------|-----|-------|------|--|----|--------|------------------|---------|---------|-----|-----------|--|-----|---------|------|-----|----|-------|-------------------------|---------|-----------|--|-----------|--|-----|----------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|--|-----|----------|------|-----|----|--------|------------------|---------|---------|-----|-----------|--|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|--|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|--|-----|---------|------|-----|----|-------|-------------------------|---------|-----------|--|-----------|--|--------|----------|---------|----------|---------|--------|-----------|--------|----------|------------|----------|-------|-----|-------|-----|--|----|------|------------------|--------|---------|-----|-----------|--|-----|--------|------|-----|----|-------|--------------|-----|-----------|--|-----------|--|-----|----------|------|---|----|-------|------------------|--------|---------|-----|-----------|--|-----|------|------|--|----|--------|-----------------|---------|--------|----|-----------|--|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|--|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|--|-----|---------|------|--|----|-----|-------------------------|---------|----------|--|-----------|--|
| A      | <div><pre>SQL&gt; select * from employee;</pre><table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th><th>PHONE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td><td></td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td><td></td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>0</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td><td></td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td><td></td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td><td></td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td><td></td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td><td></td></tr></tbody></table><pre>7 rows selected.  SQL&gt; alter table employee 2 modify emp_name varchar2(30);  Table altered.  SQL&gt; select * from employee;</pre><table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th><th>PHONE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td><td></td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td><td></td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>0</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td><td></td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td><td></td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td><td></td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td><td></td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td><td></td></tr></tbody></table><pre>7 rows selected.</pre></div> | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | PHONE | 101 | Smith | 800  |  | 10 | Shah   | Machine Learning | fi_mgr  | Toronto | 105 | 09-AUG-96 |  | 102 | Snehal  | 1600 | 300 | 25 | Gupta | Data Science            | lec     | Las Vegas |  | 14-MAR-96 |  | 103 | Darshita | 1100 | 0     | 20 | Wales | Machine Learning   | mk_mgr  | Ontario | 105 | 30-NOV-95 |  | 104 | Aman     | 3000 |     | 10 | Sharma | Virtual Reality  | comp_op | Mexico  | 12  | 02-OCT-97 |  | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 |  | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |  | 107 | Anamika | 2975 |     | 30 | Jha   | Artificial Intelligence | it_prog | New York  |  | 15-JUL-97 |  | EMP_NO | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME | DEPT_NAME | JOB_ID | LOCATION | MANAGER_ID | HIREDATE | PHONE | 101 | Smith | 800 |  | 10 | Shah | Machine Learning | fi_mgr | Toronto | 105 | 09-AUG-96 |  | 102 | Snehal | 1600 | 300 | 25 | Gupta | Data Science | lec | Las Vegas |  | 14-MAR-96 |  | 103 | Darshita | 1100 | 0 | 20 | Wales | Machine Learning | mk_mgr | Ontario | 105 | 30-NOV-95 |  | 104 | Aman | 3000 |  | 10 | Sharma | Virtual Reality | comp_op | Mexico | 12 | 02-OCT-97 |  | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 |  | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |  | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |  |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE      |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 101    | Smith  | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 103    | Darshita   | 1100    | 0        | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 104    | Aman   | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE      |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 101    | Smith  | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 103    | Darshita   | 1100    | 0        | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 104    | Aman   | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| Q-18   | Count the total no as well as distinct rows in dept_no column with a condition of salary greater than 1000 of employee.  |         |          |         |          |                         |         |           |            |           |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| A      | <div><pre>SQL&gt; select count(distinct dept_no) from employee where emp_sal&gt;1000;  COUNT(DISTINCTDEPT_NO) ----- 4</pre></div>  |         |          |         |          |                         |         |           |            |           |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| Q-19   | Display the detail of all employees in ascending order, descending order of their name and no.   |         |          |         |          |                         |         |           |            |           |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| A      | <div><p>i) Details of employees in ascending order of their name</p><pre>SQL&gt; select * from employee order by emp_name;</pre><table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th><th>PHONE</th></tr></thead><tbody><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td><td></td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td><td></td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td><td></td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>500</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td><td></td></tr><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td><td></td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td><td></td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td><td></td></tr></tbody></table><pre>7 rows selected.</pre></div>   | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | PHONE | 104 | Aman  | 3000 |  | 10 | Sharma | Virtual Reality  | comp_op | Mexico  | 12  | 02-OCT-97 |  | 107 | Anamika | 2975 |     | 30 | Jha   | Artificial Intelligence | it_prog | New York  |  | 15-JUL-97 |  | 105 | Anita    | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 |  | 103 | Darshita | 1100 | 500 | 20 | Wales  | Machine Learning | mk_mgr  | Ontario | 105 | 30-NOV-95 |  | 101 | Smith | 800  |       | 10 | Shah  | Machine Learning   | fi_mgr  | Toronto | 105 | 09-AUG-96 |  | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |  | 102 | Snehal  | 1600 | 300 | 25 | Gupta | Data Science            | lec     | Las Vegas |  | 14-MAR-96 |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE      |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 104    | Aman   | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 103    | Darshita   | 1100    | 500      | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 101    | Smith  | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |       |     |       |      |  |    |        |                  |         |         |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |     |    |       |                         |         |           |  |           |  |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |   |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |

## ii) Details of employees in descending order of their name

```
SQL> select * from employee order by emp_name desc;
```

| EMP_NO | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE |
|--------|----------|---------|----------|---------|--------|-------------------------|---------|-----------|------------|-----------|-------|
| 102    | Snehal   | 1600    | 300      | 25      | Gupta  | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |       |
| 106    | Sneha    | 2450    | 24500    | 10      | Joseph | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |       |
| 101    | Smith    | 800     |          | 10      | Shah   | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |       |
| 103    | Darshita | 1100    | 500      | 20      | Wales  | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |       |
| 105    | Anita    | 5000    | 50000    | 10      | Patel  | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |       |
| 107    | Anamika  | 2975    |          | 30      | Jha    | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |       |
| 104    | Aman     | 3000    |          | 10      | Sharma | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |       |

7 rows selected.

## iii) Details of employees in ascending order of their no

```
SQL> select * from employee order by emp_no;
```

| EMP_NO | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE |
|--------|----------|---------|----------|---------|--------|-------------------------|---------|-----------|------------|-----------|-------|
| 101    | Smith    | 800     |          | 10      | Shah   | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |       |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta  | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |       |
| 103    | Darshita | 1100    | 500      | 20      | Wales  | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |       |
| 104    | Aman     | 3000    |          | 10      | Sharma | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |       |
| 105    | Anita    | 5000    | 50000    | 10      | Patel  | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |       |
| 106    | Sneha    | 2450    | 24500    | 10      | Joseph | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |       |
| 107    | Anamika  | 2975    |          | 30      | Jha    | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |       |

7 rows selected.

## iv) Details of employees in descending order of their name

```
SQL> select * from employee order by emp_no desc;
```

| EMP_NO | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE |
|--------|----------|---------|----------|---------|--------|-------------------------|---------|-----------|------------|-----------|-------|
| 107    | Anamika  | 2975    |          | 30      | Jha    | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |       |
| 106    | Sneha    | 2450    | 24500    | 10      | Joseph | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |       |
| 105    | Anita    | 5000    | 50000    | 10      | Patel  | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |       |
| 104    | Aman     | 3000    |          | 10      | Sharma | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |       |
| 103    | Darshita | 1100    | 500      | 20      | Wales  | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |       |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta  | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |       |
| 101    | Smith    | 800     |          | 10      | Shah   | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |       |

7 rows selected.

| Q-20                   | Display the dept_no in ascending order and accordingly display emp_comm in descending order.  |         |          |         |          |                         |         |           |            |           |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
|------------------------|---|---------|----------|---------|----------|-------------------------|---------|-----------|------------|-----------|------------|----------|-------|-----|-------|-----|--|----|------|------------------|--------|---------|-----|-----------|--|-----|--------|------|-----|----|--------|-----------------|---------|-----------|----|-----------|--|-----|----------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|--|-----|-------|------|-------|----|--------|--------------------|---------|-----------|-----|-----------|--|-----|----------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|--|-----|--------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|--|-----|---------|------|--|----|-----|-------------------------|---------|----------|--|-----------|--|------------------------|---|--------|----------|---------|----------|---------|--------|-----------|--------|----------|------------|----------|-------|-----|-------|-----|--|----|------|------------------|--------|---------|-----|-----------|--|-----|--------|------|-----|----|-------|--------------|-----|-----------|--|-----------|--|-----|----------|------|-----|----|-------|------------------|--------|---------|-----|-----------|--|-----|------|------|--|----|--------|-----------------|---------|--------|----|-----------|--|-----|-------|------|-------|----|-------|--------------------|---------|---------|-----|-----------|--|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|--|-----|---------|------|--|----|-----|-------------------------|---------|----------|--|-----------|--|
| A                      | <div>SQL&gt; select * from employee order by dept_no asc,emp_comm desc;</div> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th><th>PHONE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td><td></td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td><td></td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td><td></td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td><td></td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>500</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td><td></td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td><td></td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td><td></td></tr></tbody></table> <div>7 rows selected.</div>   | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | PHONE | 101 | Smith | 800 |  | 10 | Shah | Machine Learning | fi_mgr | Toronto | 105 | 09-AUG-96 |  | 104 | Aman   | 3000 |     | 10 | Sharma | Virtual Reality | comp_op | Mexico    | 12 | 02-OCT-97 |  | 105 | Anita    | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 |  | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc  | Melbourne | 105 | 26-SEP-97 |  | 103 | Darshita | 1100 | 500   | 20 | Wales | Machine Learning   | mk_mgr  | Ontario | 105 | 30-NOV-95 |  | 102 | Snehal | 1600 | 300   | 25 | Gupta  | Data Science       | lec    | Las Vegas |     | 14-MAR-96 |  | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| EMP_NO                 | EMP_NAME  | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE      |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 101                    | Smith   | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 104                    | Aman  | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 105                    | Anita   | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 106                    | Sneha   | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 103                    | Darshita  | 1100    | 500      | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 102                    | Snehal  | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 107                    | Anamika   | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| Q-21                   | Update the value of emp_comm to 500 where dept_no is 20.  |         |          |         |          |                         |         |           |            |           |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| A                      | <div>SQL&gt; select * from employee;</div> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th><th>PHONE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td><td></td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td><td></td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>0</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td><td></td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td><td></td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td><td></td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td><td></td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td><td></td></tr></tbody></table> <div>7 rows selected.</div> <div>SQL&gt; select count(distinct dept_no) from employee where emp_sal&gt;1000;</div> <table><thead><tr><th>COUNT(DISTINCTDEPT_NO)</th></tr></thead><tbody><tr><td>4</td></tr></tbody></table> <div>SQL&gt; update employee set emp_comm=500 where dept_no=20;</div> <div>1 row updated.</div> <div>SQL&gt; select * from employee;</div> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th><th>PHONE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td><td></td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td><td></td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>500</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td><td></td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td><td></td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td><td></td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td><td></td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td><td></td></tr></tbody></table> <div>7 rows selected.</div> | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | PHONE | 101 | Smith | 800 |  | 10 | Shah | Machine Learning | fi_mgr | Toronto | 105 | 09-AUG-96 |  | 102 | Snehal | 1600 | 300 | 25 | Gupta  | Data Science    | lec     | Las Vegas |    | 14-MAR-96 |  | 103 | Darshita | 1100 | 0     | 20 | Wales | Machine Learning   | mk_mgr  | Ontario | 105 | 30-NOV-95 |  | 104 | Aman  | 3000 |       | 10 | Sharma | Virtual Reality    | comp_op | Mexico    | 12  | 02-OCT-97 |  | 105 | Anita    | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 |  | 106 | Sneha  | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |  | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |  | COUNT(DISTINCTDEPT_NO) | 4 | EMP_NO | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME | DEPT_NAME | JOB_ID | LOCATION | MANAGER_ID | HIREDATE | PHONE | 101 | Smith | 800 |  | 10 | Shah | Machine Learning | fi_mgr | Toronto | 105 | 09-AUG-96 |  | 102 | Snehal | 1600 | 300 | 25 | Gupta | Data Science | lec | Las Vegas |  | 14-MAR-96 |  | 103 | Darshita | 1100 | 500 | 20 | Wales | Machine Learning | mk_mgr | Ontario | 105 | 30-NOV-95 |  | 104 | Aman | 3000 |  | 10 | Sharma | Virtual Reality | comp_op | Mexico | 12 | 02-OCT-97 |  | 105 | Anita | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 |  | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |  | 107 | Anamika | 2975 |  | 30 | Jha | Artificial Intelligence | it_prog | New York |  | 15-JUL-97 |  |
| EMP_NO                 | EMP_NAME  | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE      |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 101                    | Smith   | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 102                    | Snehal  | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 103                    | Darshita  | 1100    | 0        | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 104                    | Aman  | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 105                    | Anita   | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 106                    | Sneha   | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 107                    | Anamika   | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| COUNT(DISTINCTDEPT_NO) |   |         |          |         |          |                         |         |           |            |           |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 4                      |   |         |          |         |          |                         |         |           |            |           |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| EMP_NO                 | EMP_NAME  | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE      |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 101                    | Smith   | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 102                    | Snehal  | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 103                    | Darshita  | 1100    | 500      | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 104                    | Aman  | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 105                    | Anita   | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 106                    | Sneha   | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |
| 107                    | Anamika   | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |        |                 |         |           |    |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |         |           |     |           |  |     |          |      |       |    |       |                    |         |         |     |           |  |     |        |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |                        |   |        |          |         |          |         |        |           |        |          |            |          |       |     |       |     |  |    |      |                  |        |         |     |           |  |     |        |      |     |    |       |              |     |           |  |           |  |     |          |      |     |    |       |                  |        |         |     |           |  |     |      |      |  |    |        |                 |         |        |    |           |  |     |       |      |       |    |       |                    |         |         |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |         |      |  |    |     |                         |         |          |  |           |  |

| Q-22   | Display the emp_comm in ascending order with null value first and accordingly sort employee salary in descending order.  |         |          |         |          |                         |         |           |            |           |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
|--------|--|---------|----------|---------|----------|-------------------------|---------|-----------|------------|-----------|------------|----------|-------|-----|--------|------|-----|----|-------|------------------|--------|-----------|-----|-----------|--|-----|----------|------|-----|----|--------|------------------|---------|---------|-----|-----------|--|-----|---------|------|-------|----|--------|-------------------------|---------|-----------|-----|-----------|--|-----|--------|------|-------|----|-------|--------------------|---------|-----------|-----|-----------|--|-----|----------|------|-----|----|-------|-------------------------|---------|----------|-----|-----------|--|-----|-------|------|-------|----|--------|--------------------|--------|-----------|-----|-----------|--|-----|-------|------|-------|----|--------|--------------------|---------|---------|-----|-----------|--|
| A      | <div>SQL&gt; select * from employee order by emp_comm asc nulls first;</div> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th><th>PHONE</th></tr></thead><tbody><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td><td></td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td><td></td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td><td></td></tr><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td><td></td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>500</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td><td></td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td><td></td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td><td></td></tr></tbody></table> <div>7 rows selected.</div> | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | PHONE | 101 | Smith  | 800  |     | 10 | Shah  | Machine Learning | fi_mgr | Toronto   | 105 | 09-AUG-96 |  | 104 | Aman     | 3000 |     | 10 | Sharma | Virtual Reality  | comp_op | Mexico  | 12  | 02-OCT-97 |  | 107 | Anamika | 2975 |       | 30 | Jha    | Artificial Intelligence | it_prog | New York  |     | 15-JUL-97 |  | 102 | Snehal | 1600 | 300   | 25 | Gupta | Data Science       | lec     | Las Vegas |     | 14-MAR-96 |  | 103 | Darshita | 1100 | 500 | 20 | Wales | Machine Learning        | mk_mgr  | Ontario  | 105 | 30-NOV-95 |  | 106 | Sneha | 2450 | 24500 | 10 | Joseph | Big Data Analytics | fi_acc | Melbourne | 105 | 26-SEP-97 |  | 105 | Anita | 5000 | 50000 | 10 | Patel  | Big Data Analytics | comp_op | Germany | 107 | 01-JAN-98 |  |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE      |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 101    | Smith  | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 104    | Aman   | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 103    | Darshita   | 1100    | 500      | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| Q-23   | Display the emp_comm in ascending order with null value last and accordingly sort emp_no in descending order.  |         |          |         |          |                         |         |           |            |           |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| A      | <div>SQL&gt; select * from employee order by emp_comm asc nulls last;</div> <table><thead><tr><th>EMP_NO</th><th>EMP_NAME</th><th>EMP_SAL</th><th>EMP_COMM</th><th>DEPT_NO</th><th>L_NAME</th><th>DEPT_NAME</th><th>JOB_ID</th><th>LOCATION</th><th>MANAGER_ID</th><th>HIREDATE</th><th>PHONE</th></tr></thead><tbody><tr><td>102</td><td>Snehal</td><td>1600</td><td>300</td><td>25</td><td>Gupta</td><td>Data Science</td><td>lec</td><td>Las Vegas</td><td></td><td>14-MAR-96</td><td></td></tr><tr><td>103</td><td>Darshita</td><td>1100</td><td>500</td><td>20</td><td>Wales</td><td>Machine Learning</td><td>mk_mgr</td><td>Ontario</td><td>105</td><td>30-NOV-95</td><td></td></tr><tr><td>106</td><td>Sneha</td><td>2450</td><td>24500</td><td>10</td><td>Joseph</td><td>Big Data Analytics</td><td>fi_acc</td><td>Melbourne</td><td>105</td><td>26-SEP-97</td><td></td></tr><tr><td>105</td><td>Anita</td><td>5000</td><td>50000</td><td>10</td><td>Patel</td><td>Big Data Analytics</td><td>comp_op</td><td>Germany</td><td>107</td><td>01-JAN-98</td><td></td></tr><tr><td>107</td><td>Anamika</td><td>2975</td><td></td><td>30</td><td>Jha</td><td>Artificial Intelligence</td><td>it_prog</td><td>New York</td><td></td><td>15-JUL-97</td><td></td></tr><tr><td>101</td><td>Smith</td><td>800</td><td></td><td>10</td><td>Shah</td><td>Machine Learning</td><td>fi_mgr</td><td>Toronto</td><td>105</td><td>09-AUG-96</td><td></td></tr><tr><td>104</td><td>Aman</td><td>3000</td><td></td><td>10</td><td>Sharma</td><td>Virtual Reality</td><td>comp_op</td><td>Mexico</td><td>12</td><td>02-OCT-97</td><td></td></tr></tbody></table> <div>7 rows selected.</div>  | EMP_NO  | EMP_NAME | EMP_SAL | EMP_COMM | DEPT_NO                 | L_NAME  | DEPT_NAME | JOB_ID     | LOCATION  | MANAGER_ID | HIREDATE | PHONE | 102 | Snehal | 1600 | 300 | 25 | Gupta | Data Science     | lec    | Las Vegas |     | 14-MAR-96 |  | 103 | Darshita | 1100 | 500 | 20 | Wales  | Machine Learning | mk_mgr  | Ontario | 105 | 30-NOV-95 |  | 106 | Sneha   | 2450 | 24500 | 10 | Joseph | Big Data Analytics      | fi_acc  | Melbourne | 105 | 26-SEP-97 |  | 105 | Anita  | 5000 | 50000 | 10 | Patel | Big Data Analytics | comp_op | Germany   | 107 | 01-JAN-98 |  | 107 | Anamika  | 2975 |     | 30 | Jha   | Artificial Intelligence | it_prog | New York |     | 15-JUL-97 |  | 101 | Smith | 800  |       | 10 | Shah   | Machine Learning   | fi_mgr | Toronto   | 105 | 09-AUG-96 |  | 104 | Aman  | 3000 |       | 10 | Sharma | Virtual Reality    | comp_op | Mexico  | 12  | 02-OCT-97 |  |
| EMP_NO | EMP_NAME   | EMP_SAL | EMP_COMM | DEPT_NO | L_NAME   | DEPT_NAME               | JOB_ID  | LOCATION  | MANAGER_ID | HIREDATE  | PHONE      |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 102    | Snehal   | 1600    | 300      | 25      | Gupta    | Data Science            | lec     | Las Vegas |            | 14-MAR-96 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 103    | Darshita   | 1100    | 500      | 20      | Wales    | Machine Learning        | mk_mgr  | Ontario   | 105        | 30-NOV-95 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 106    | Sneha  | 2450    | 24500    | 10      | Joseph   | Big Data Analytics      | fi_acc  | Melbourne | 105        | 26-SEP-97 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 105    | Anita  | 5000    | 50000    | 10      | Patel    | Big Data Analytics      | comp_op | Germany   | 107        | 01-JAN-98 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 107    | Anamika  | 2975    |          | 30      | Jha      | Artificial Intelligence | it_prog | New York  |            | 15-JUL-97 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 101    | Smith  | 800     |          | 10      | Shah     | Machine Learning        | fi_mgr  | Toronto   | 105        | 09-AUG-96 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |
| 104    | Aman   | 3000    |          | 10      | Sharma   | Virtual Reality         | comp_op | Mexico    | 12         | 02-OCT-97 |            |          |       |     |        |      |     |    |       |                  |        |           |     |           |  |     |          |      |     |    |        |                  |         |         |     |           |  |     |         |      |       |    |        |                         |         |           |     |           |  |     |        |      |       |    |       |                    |         |           |     |           |  |     |          |      |     |    |       |                         |         |          |     |           |  |     |       |      |       |    |        |                    |        |           |     |           |  |     |       |      |       |    |        |                    |         |         |     |           |  |

## Appendix:

Same as Practical-2