```
SQL> SET pagesize 50
SQL> SET linesize 150
SQL> --Part1
SQL> --Q1.1
SQL> ALTER TABLE manufacturer ADD (website VARCHAR2(50));

Table altered.

SQL> UPDATE manufacturer SET website = 'http://www.apple.com' WHERE manuf_id = '567000';

1 row updated.

SQL> UPDATE manufacturer SET website = 'http://www.motorola.com/us' WHERE manuf_id = '567001';

1 row updated.

SQL> UPDATE manufacturer SET website = 'http://www.htc.com/us' WHERE manuf_id = '567002';

1 row updated.

SQL> UPDATE manufacturer SET website = 'http://www.samsung.com/us' WHERE manuf_id = '567003';

1 row updated.

SQL> UPDATE manufacturer SET website = 'http://www.LG.com/us' WHERE manuf_id = '567004';

1 row updated.

SQL> UPDATE manufacturer SET website = 'http://company.nokia.com' WHERE manuf_id = '567005';

1 row updated.

SQL> UPDATE manufacturer SET website = 'http://us.blackberry.com/home.html' WHERE manuf_id = '567006';

1 row updated.

SQL> UPDATE manufacturer SET website = 'http://www.otterbox.com' WHERE manuf_id = '567007';

1 row updated.

SQL> UPDATE manufacturer SET website = 'https://www.pielframa.com/es/index.htm' WHERE manuf_id = '567008';

1 row updated.

SQL> UPDATE manufacturer SET website = 'http://www.microsoft.com/en-us' WHERE manuf_id = '567009';

1 row updated.
```

```
SQL> --Q1.2
SQL> INSERT INTO product VALUES ('89001','iPhone','567000','649','749','CellPhone');

1 row created.

SQL> INSERT INTO product VALUES ('89002','iPhone','567000','769','869','CellPhone');

1 row created.

SQL> INSERT INTO product VALUES ('89003','Galaxy','567003','645','695','CellPhone');

1 row created.

SQL> INSERT INTO cellphone VALUES ('89001','iPhone 7','4G','iOS 10.0');

1 row created.

SQL> INSERT INTO cellphone VALUES ('89002','iPhone 7 Plus','4G','iOS 10.0');

1 row created.

SQL> INSERT INTO cellphone VALUES ('89003', 'Galaxy S7','4G','Andriod');

1 row created.

SQL> INSERT INTO phone_access VALUES ('89003','87647');

1 row created.

SQL> INSERT INTO phone_access VALUES ('89003','87648');

1 row created.

SQL> INSERT INTO phone_access VALUES ('89002','87548');

1 row created.

SQL> INSERT INTO phone_access VALUES ('89002','11256');

1 row created.

SQL> INSERT INTO phone_access VALUES ('89001','87459');

1 row created.

SQL> INSERT INTO phone_access VALUES ('89001','11256');

1 row created.
```

```
SQL> --Part2
SQL> --Q2.1
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Customer FORMAT A30
SQL> COLUMN Model FORMAT A20
SQL> COLUMN Manuf_Name FORMAT A15
SQL> COLUMN PaidPrice FORMAT $9,999
SQL> SELECT DISTINCT ID || ' - ' || Lname || ', ' || Fname AS "Customer", Model, PaidPrice, manufacturer.Manuf_ID, Manuf_Name
  2  FROM customer JOIN contract ON customer.ID = contract.Customer_ID
  3    JOIN contract_cellphone cc ON cc.Contract_ID = contract.Contract_ID
  4    JOIN cellphone ON cellphone.Phone_ID = cc.Phone_ID
  5    JOIN product ON product.Product_ID = cellphone.Phone_ID
  6    JOIN manufacturer ON manufacturer.Manuf_ID = product.Manuf_ID
  7  WHERE PaidPrice > 300
  8    AND End_Date IS NULL
  9  ORDER BY Manuf_ID, Model;
```

Customer	MODEL	PAIDPRICE	MANUF_ID	MANUF_NAME
1008 - Blayney, Alessandro	iPhone 5c	$350	567000	Apple
1011 - Dutton, Lettie	iPhone 5c	$350	567000	Apple
1016 - Jones, Zach	iPhone 5c	$350	567000	Apple
1020 - Freeman, Mary	iPhone 5c	$360	567000	Apple
1015 - Wolfe, Emily	iPhone 6S Plus	$749	567000	Apple
1001 - Smith, Peter	iPhone 6S Plus	$755	567000	Apple
1002 - Jones, Cynthia	Droid 2	$320	567001	Motorola
1015 - Wolfe, Emily	Droid 2	$320	567001	Motorola
1001 - Smith, Peter	Galaxy S II Plus	$345	567003	Samsung
1003 - Archer, Simons	Galaxy S II Plus	$345	567003	Samsung
1014 - Whittaker, John	Galaxy S II Plus	$345	567003	Samsung
1009 - Lopez, Sasha	Galaxy S4 GT-i9500	$320	567003	Samsung
1003 - Archer, Simons	Galaxy S4 GT-i9500	$350	567003	Samsung
1013 - Banerjee, Arun	Galaxy S5	$500	567003	Samsung
1013 - Banerjee, Arun	Galaxy S6	$580	567003	Samsung
1001 - Smith, Peter	Galaxy S6	$590	567003	Samsung

```
16 rows selected.
```

```
SQL> --Q2.2
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Customer FORMAT A30
SQL> COLUMN Start_date FORMAT A15
SQL> COLUMN End_date FORMAT A15
SQL> SELECT ID || ' - ' || Lname || ', ' || Fname
  2       AS "Customer",
  3       Start_Date, End_Date
  4  FROM    customer JOIN contract ON customer.ID = contract.Customer_ID
  5  WHERE   vPlan_ID IS NOT NULL
  6  INTERSECT
  7  SELECT ID || ' - ' || Lname || ', ' || Fname
  8       AS "Customer",
  9       Start_Date, End_Date
 10  FROM    customer JOIN contract ON customer.ID = contract.Customer_ID
 11  WHERE   tPlan_ID IS NOT NULL
 12  INTERSECT
 13  SELECT ID || ' - ' || Lname || ', ' || Fname
 14       AS "Customer",
 15       Start_Date, End_Date
 16  FROM    customer JOIN contract ON customer.ID = contract.Customer_ID
 17  WHERE   dPlan_ID IS NOT NULL;

Customer                        START_DATE      END_DATE
------------------------------- --------------- ---------------
1001 - Smith, Peter             02-DEC-13       15-DEC-14
1001 - Smith, Peter             15-DEC-14
1003 - Archer, Simons           06-AUG-14
1004 - Lee, Mimi                04-NOV-14       03-JAN-16
1005 - Drake, Lu                01-DEC-14
1007 - Jacob, Charlie           05-MAR-15
1010 - Mohammed, Sharif         05-DEC-14
1011 - Dutton, Lettie           09-JUN-14
1013 - Banerjee, Arun           01-DEC-14       04-FEB-16
1013 - Banerjee, Arun           04-FEB-16
1014 - Whittaker, John          24-DEC-14
1015 - Wolfe, Emily             15-AUG-14       02-FEB-15
1015 - Wolfe, Emily             15-AUG-14
1015 - Wolfe, Emily             02-FEB-15
1017 - Jefferson, Alvin         01-JAN-15
1019 - Diego, Sandy             20-SEP-14
1020 - Freeman, Mary            25-DEC-15

17 rows selected.
```

```
SQL> --Q2.3
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Customer FORMAT A30
SQL> SELECT ID || ' - ' || Lname || ', ' || Fname AS "Customer"
  2  FROM   customer JOIN contract ON customer.ID = contract.Customer_ID
  3  LEFT OUTER JOIN voice ON voice.vPlan_ID = contract.vPlan_ID
  4  LEFT OUTER JOIN text ON text.tPlan_ID = contract.tPlan_ID
  5  LEFT OUTER JOIN data ON data.dPlan_ID = contract.dPlan_ID
  6  WHERE  contract.End_Date IS NULL
  7    AND  0.1 < ANY(voice.OverageFee, text.MmsOverage,text.TextOverage, data.OverageFee);

Customer
------------------------------
1013 - Banerjee, Arun
1015 - Wolfe, Emily
1020 - Freeman, Mary
1019 - Diego, Sandy
1007 - Jacob, Charlie

SQL> --Q2.4
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Customer FORMAT A30
SQL> COLUMN Model FORMAT A20
SQL> SELECT DISTINCT ID || ' - ' || Lname || ', ' || Fname AS "Customer", cellphone.Phone_ID, Model
  2  FROM   customer JOIN contract ON customer.ID = contract.Customer_ID
  3  JOIN contract_cellphone cc ON cc.Contract_ID = contract.Contract_ID
  4  JOIN cellphone ON cellphone.Phone_ID = cc.Phone_ID
  5  WHERE  dPlan_ID IS NOT NULL
  6    AND  NetworkTechnology = '3G';

Customer                         PHONE_ID MODEL
------------------------------ ---------- --------------------
1003 - Archer, Simons               11243 Galaxy S II Plus
1015 - Wolfe, Emily                 58667 Droid 2
1013 - Banerjee, Arun               58667 Droid 2
1001 - Smith, Peter                 65267 Bold 9780
1007 - Jacob, Charlie               65267 Bold 9780
1014 - Whittaker, John              11243 Galaxy S II Plus

6 rows selected.
```

```
SQL> --Q2.5
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Customer FORMAT A30
SQL> COLUMN Address FORMAT A50
SQL> SELECT ID || ' - ' || Lname || ', ' || Fname AS "Customer",
  2     Street || ', ' || CITY || ', ' || State || ', ' || ZipCode AS "Address",
  3     Phone
  4  FROM   customer JOIN contract ON customer.ID = contract.Customer_ID
  5  JOIN contract_cellphone cc ON cc.Contract_ID = contract.Contract_ID
  6  JOIN cellphone ON cellphone.Phone_ID = cc.Phone_ID
  7  WHERE  dPlan_ID IS NULL
  8    AND  NetworkTechnology <> 'NO';

Customer                        Address                                            PHONE
------------------------------  -------------------------------------------------  ------------
1001 - Smith, Peter             2201 Baker St, Pittsburgh, PA, 15212               303-539-5395
1006 - Simons, Thomas           123 Hershey Way, Erie, PA, 16501                   813-786-4003
1012 - Long, David              101 Broadway, New York City, NY, 10010             212-434-7898
1002 - Jones, Cynthia           4431 Main Street, Los Angeles, CA, 90210           415-334-5566
1018 - Garcia, Juan             43 W. 4th Street, New York City, NY, 10039         201-456-3211
1009 - Lopez, Sasha             547 Palo Alto Drive, San Jose, CA, 91745           949-098-3453
1005 - Drake, Lu                1667 Bleeker Street, New York City, NY, 10020      216-675-3453
1008 - Blayney, Alessandro      12 Liberty Way, Philadelphia, PA, 19118            512-009-8798

8 rows selected.

SQL> --Q2.6
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN NetworkTechnology FORMAT A20
SQL> COLUMN Model FORMAT A20
SQL> COLUMN Manuf_Name FORMAT A15
SQL> SELECT cellphone.Phone_ID, Model, NetworkTechnology, OS, Manuf_Name
  2  FROM   customer JOIN contract ON customer.ID = contract.Customer_ID
  3  JOIN contract_cellphone cc ON cc.Contract_ID = contract.Contract_ID
  4  JOIN cellphone ON cellphone.Phone_ID = cc.Phone_ID
  5  JOIN product ON product.Product_ID = cellphone.Phone_ID
  6  JOIN manufacturer ON manufacturer.Manuf_ID = Product.Manuf_ID
  7  WHERE  Fname = 'Peter'
  8    AND  Lname = 'Smith';

  PHONE_ID MODEL                NETWORKTECHNOLOGY    OS                   MANUF_NAME
---------- -------------------- -------------------- -------------------- ---------------
     87880 iPhone 6S Plus       4G                   iOS 9.2              Apple
     87580 Galaxy S6            4G                   Android              Samsung
     11243 Galaxy S II Plus     3G                   Android              Samsung
     65267 Bold 9780            3G                   Blackberry           Blackberry
     65267 Bold 9780            3G                   Blackberry           Blackberry
     65267 Bold 9780            3G                   Blackberry           Blackberry

6 rows selected.
```

```
SQL> --Q2.7
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Customer FORMAT A30
SQL> COLUMN Address FORMAT A50
SQL> SELECT ID || ' - ' || Lname || ', ' || Fname AS "Customer",
  2       Street || ', ' || CITY || ', ' || State || ', ' || ZipCode AS "Address"
  3  FROM    customer JOIN contract ON contract.Customer_ID = customer.ID
  4  JOIN contract_cellphone cc ON cc.Contract_ID = contract.Contract_ID
  5  JOIN cellphone ON cellphone.Phone_ID = cc.Phone_ID
  6  WHERE  dPlan_ID IS NULL
  7    AND  City = 'Erie'
  8    AND  State = 'PA'
  9    AND  NetworkTechnology = '4G';

Customer                       Address
------------------------------ --------------------------------------------------
1006 - Simons, Thomas          123 Hershey Way, Erie, PA, 16501

SQL> --Q2.8
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Name FORMAT A20
SQL> COLUMN hasvoicemail FORMAT A15
SQL> COLUMN hasthreeway FORMAT A15
SQL> COLUMN Overagefee FORMAT $90.90
SQL> SELECT Lname || ', ' || Fname AS "Name", voice.vPlan_ID, NumMin, hasvoicemail, hasthreeway, Overagefee
  2  FROM    customer JOIN contract ON contract.Customer_ID = customer.ID
  3  JOIN voice ON voice.vPlan_ID = contract.vPlan_ID
  4  WHERE  City = 'New York City'
  5    AND  contract.end_date IS NULL;

Name                   VPLAN_ID    NUMMIN HASVOICEMAIL    HASTHREEWAY     OVERAGEFEE
-------------------- ---------- ---------- --------------- --------------- ----------
Long, David              109805       600 Yes             No                   $0.05
Drake, Lu                109809      1200 No              No                   $0.10
Garcia, Juan             109813       900 No              Yes                  $0.05
```

```
SQL> --Q2.9
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Customer FORMAT A30
SQL> SELECT ID || ' - ' || Lname || ', ' || Fname AS "Customer", dataLimit AS PLanLimit, 'DATA' AS "Type"
  2  FROM    customer JOIN contract ON contract.Customer_ID = customer.ID
  3  JOIN data ON data.dPlan_ID = contract.dPlan_ID
  4  WHERE   contract.dPlan_ID IS NOT NULL
  5    AND   contract.start_date >= SYSDATE - 365
  6    AND   contract.end_date IS NULL
  7  UNION
  8  SELECT ID || ' - ' || Lname || ', ' || Fname AS "Customer", textLimit AS PlanLimit, 'TEXT' AS "Type"
  9  FROM    customer JOIN contract ON contract.Customer_ID = customer.ID
 10  JOIN text ON text.tPlan_ID = contract.tPlan_ID
 11  WHERE   contract.tPlan_ID IS NOT NULL
 12    AND   contract.start_date >= SYSDATE - 365
 13    AND   contract.end_date IS NULL;

Customer                       PLANLIMIT Type
------------------------------ ---------- ----
1013 - Banerjee, Arun               2500 TEXT
1013 - Banerjee, Arun               3000 DATA
1020 - Freeman, Mary                2500 TEXT
1020 - Freeman, Mary                3000 DATA


SQL> SPOOL OUT
```