

NAME: Jingxiao Liu  
ANDREWID: jingxial

```
SQL> SET pagesize 50
SQL> SET linesize 150
SQL> --Q1
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Manuf_Name FORMAT A15
SQL> COLUMN Name FORMAT A30
SQL> COLUMN "Original Price" FORMAT $990.00
SQL> COLUMN "Promotion Price" FORMAT $990.00
SQL> SELECT Manuf_Name, Product_ID, Name, BasePrice AS "Original Price",
   2      CASE Manuf_Name
   3          WHEN 'Apple' THEN 0.90*BasePrice
   4          WHEN 'Samsung' THEN 0.90*BasePrice
   5          WHEN 'HTC' THEN 0.85*BasePrice
   6          WHEN 'LG' THEN 0.85*BasePrice
   7          ELSE 0.80*BasePrice
   8      END AS "Promotion Price"
   9 FROM Manufacturer JOIN Product ON Manufacturer.Manuf_ID = Product.Manuf_ID
  10 WHERE Type = 'Accessory'
  11 ORDER BY Manuf_Name, "Promotion Price";
```

MANUF_NAME	PRODUCT_ID	NAME	Original Price	Promotion Price
Apple	87548	iPhone Charger	\$35.00	\$31.50
Apple	11256	iPhone Headset	\$60.00	\$54.00
HTC	99000	Car Holder	\$65.00	\$55.25
LG	56439	LG HBS-730	\$75.00	\$63.75
OtterBox	87546	Generic non-iPhone Charger	\$15.00	\$12.00
OtterBox	87648	S6 Commuter Case	\$48.00	\$38.40
OtterBox	87459	Bluetooth Generic Headset	\$75.00	\$60.00
OtterBox	87647	S6 Defender Case	\$84.00	\$67.20
Piel Frama	87557	S6 Carryall Bag	\$160.00	\$128.00
Piel Frama	87556	Swarovski iPhone 6 Case	\$169.00	\$135.20
Samsung	66387	S4 2100 mAH Battery	\$12.00	\$10.80
Samsung	87630	S4 Case	\$28.00	\$25.20
Samsung	87547	S4 2600mAH Battery	\$30.00	\$27.00
Samsung	99001	Screen Guard	\$30.00	\$27.00
Samsung	82320	S5 Extended Life Battery	\$80.00	\$72.00

15 rows selected.

```

SQL> --Q2
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Phone FORMAT A25
SQL> COLUMN "Earliest Contract" FORMAT A18
SQL> COLUMN "Recent Contract" FORMAT A15
SQL> SELECT Cellphone.Phone_ID || ', ' || Model AS "Phone",
2         COUNT(Contract.Contract_ID) AS "# of Contract",
3         MIN(Start_Date) AS "Earliest Contract",
4         MAX(Start_Date) AS "Recent Contract"
5 FROM     Contract JOIN Contract_Cellphone ON Contract.Contract_ID = Contract_Cellphone.Contract_ID
6         JOIN CellPhone ON CellPhone.Phone_ID = Contract_Cellphone.Phone_ID
7 GROUP BY CellPhone.Phone_ID, Model
8 HAVING   COUNT(Contract.Contract_ID) > 3;

```

Phone	# of Contract	Earliest Contract	Recent Contract
46627, HTC One S	5	10-SEP-14	05-MAR-15
65267, Bold 9780	4	02-DEC-13	05-MAR-15
87555, iPhone 5c	6	09-JUN-14	25-DEC-15

```

SQL> --Q3
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Network FORMAT A10
SQL> SELECT Data.NetworkTechnology AS "Network",
2         SUM(DECODE(Manuf_Name, 'Apple', 1)) AS "Apple",
3         SUM(DECODE(Manuf_Name, 'Samsung', 1)) AS "Samsung"
4 FROM     Contract JOIN Data ON Data.dPlan_ID = Contract.dPlan_ID
5         JOIN Contract_Cellphone cc ON cc.Contract_ID = Contract.Contract_ID
6         JOIN CellPhone ON CellPhone.Phone_ID = cc.Phone_ID
7         JOIN Product ON Product.Product_ID = CellPhone.Phone_ID
8         JOIN Manufacturer ON Product.Manuf_ID = Manufacturer.Manuf_ID
9 WHERE    Contract.End_date IS NULL
10 GROUP BY Data.NetworkTechnology;

```

Network	Apple	Samsung
3G	3	4
4G	3	2

```

SQL> --Q4
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN "CUSTOMER" FORMAT A30
SQL> SELECT Customer_ID || '-' || Lname || ', ' || Fname AS "CUSTOMER",
2         COUNT(Phone_ID) AS "# of Phones",
3         COUNT(DISTINCT Contract.Contract_ID) AS "# of Contract"
4 FROM   Customer JOIN Contract ON Contract.Customer_ID = Customer.ID
5        JOIN Contract_Cellphone cc ON cc.Contract_ID = Contract.Contract_ID
6 GROUP BY Customer_ID || '-' || Lname || ', ' || Fname
7 ORDER BY 2 DESC, 3 DESC;

```

CUSTOMER	# of Phones	# of Contract
1001-Smith, Peter	6	3
1015-Wolfe, Emily	3	3
1013-Banerjee, Arun	3	2
1005-Drake, Lu	2	2
1011-Dutton, Lettie	2	1
1007-Jacob, Charlie	2	1
1003-Archer, Simons	2	1
1002-Jones, Cynthia	1	1
1018-Garcia, Juan	1	1
1014-Whittaker, John	1	1
1008-Blayney, Alessandro	1	1
1020-Freeman, Mary	1	1
1012-Long, David	1	1
1009-Lopez, Sasha	1	1
1006-Simons, Thomas	1	1
1016-Jones, Zach	1	1
1010-Mohammed, Sharif	1	1
1017-Jefferson, Alvin	1	1
1004-Lee, Mimi	1	1
1019-Diego, Sandy	1	1

20 rows selected.

```

SQL> --Q5
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Plan_Type FORMAT A10
SQL> SELECT Plan.Plan_ID, Plan.Plan_Type
  2 FROM   Plan
  3 MINUS
  4 SELECT DISTINCT Plan.Plan_ID, Plan.Plan_Type
  5 FROM     Customer JOIN Contract ON Contract.Customer_ID = Customer.ID
  6          JOIN Plan ON Plan.Plan_ID = Contract.vPlan_ID
  7          OR Plan.Plan_ID = Contract.tPlan_ID
  8          OR Plan.Plan_ID = Contract.dPlan_ID;

```

```

PLAN_ID PLAN_TYPE
-----
109806 text
109807 text
109818 data

```

```

SQL> --Q6
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Manuf_Name FORMAT A15
SQL> COLUMN Model FORMAT A25
SQL> SELECT Manuf_Name, Model,
  2      COUNT(DISTINCT Contract.Contract_ID) AS "# of Contracts",
  3      COUNT(DISTINCT Customer_ID) AS "# of Customers",
  4      COUNT(DISTINCT CASE
  5          WHEN end_date IS NULL
  6          THEN Customer_ID
  7          ELSE NULL END) AS "Current Customer"
  8 FROM   Contract JOIN Contract_Cellphone cc ON cc.Contract_ID = Contract.Contract_ID
  9          JOIN CellPhone ON CellPhone.Phone_ID = cc.Phone_ID
 10          JOIN Product ON Product.Product_ID = CellPhone.Phone_ID
 11          JOIN Manufacturer ON Manufacturer.Manuf_ID = Product.Manuf_ID
 12 GROUP BY Manuf_Name, Model
 13 ORDER BY "# of Contracts" DESC;

```

MANUF_NAME	MODEL	# of Contracts	# of Customers	Current Customer
HTC	HTC One S	5	5	5
Apple	iPhone 5c	5	5	4
Samsung	Galaxy S4 GT-i9500	3	3	2
Samsung	Galaxy S II Plus	3	3	3
Motorola	Droid 2	3	3	2
Blackberry	Bold 9780	2	2	1
Nokia	Lumia 900	2	2	2
Apple	iPhone 6S Plus	2	2	2
Samsung	Galaxy S6	2	2	2
Motorola	Droid Maxx	2	2	1
Samsung	Galaxy S5	1	1	1

11 rows selected.

```

SQL> --Q7
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Model FORMAT A20
SQL> SELECT Model, COUNT(CASE
2      WHEN Contract.Start_Date >= ADD_MONTHS(SYSDATE,-15)
3      THEN CellPhone.Phone_ID
4      ELSE NULL
5      END) AS "# of Units"
6 FROM   Contract JOIN Contract_Cellphone cc ON cc.Contract_ID = Contract.Contract_ID
7        JOIN   CellPhone ON cc.Phone_ID = CellPhone.Phone_ID
8 GROUP  BY Model
9 ORDER BY 2 DESC;

```

MODEL	# of Units
iPhone 5c	1
Galaxy S5	1
Galaxy S6	1
Galaxy S4 GT-i9500	0
iPhone 6S Plus	0
HTC One S	0
Lumia 900	0
Droid Maxx	0
Droid 2	0
Galaxy S II Plus	0
Bold 9780	0

11 rows selected.

```

SQL> --Q8
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN Name FORMAT A20
SQL> COLUMN Address FORMAT A50
SQL> SELECT Lname || ', ' || Fname AS "Name",
2      Street || ', ' || CITY || ', ' || State || ', ' || ZipCode AS "Address",
3      NumMin AS VoiceLimit, TextLimit, DataLimit
4 FROM Customer JOIN Contract ON Contract.Customer_ID = Customer.ID
5      JOIN Voice ON Voice.vPlan_ID = Contract.vPlan_ID
6      JOIN Text ON Text.tPlan_ID = Contract.tPlan_ID
7      JOIN Data ON Data.dPlan_ID = Contract.dPlan_ID
8 WHERE Contract.End_Date IS NULL
9      AND (NumMin > (SELECT AVG(NumMin) FROM Voice)
10      OR TextLimit > (SELECT AVG(TextLimit) FROM Text)
11      OR DataLimit > (SELECT AVG(DataLimit) FROM Data));

```

Name	Address	VOICELIMIT	TEXTLIMIT	DATALIMIT
Archer, Simons	15 North Oakland Drive, San Francisco, CA, 92814	1000	2000	1000
Drake, Lu	1667 Bleeker Street, New York City, NY, 10020	1200	600	2500
Dutton, Lettie	101 Howard Street, Erie, PA, 16509	1200	600	2500
Diego, Sandy	23 Sunset Blvd, Los Angeles, CA, 90211	1200	600	500
Whittaker, John	123 Federal Circle, Erie, PA, 16510	1200	2500	1500
Jefferson, Alvin	787 Airport Blvd, San Jose, CA, 95115	1000	600	1500
Freeman, Mary	201 Centre Av, Pittsburgh, PA, 15221	1000	2500	3000
Wolfe, Emily	1402 Federal Street, Baltimore, MD, 20104	900	2500	2500
Mohammed, Sharif	34 Center Blvd, Erie, PA, 16506	900	1000	2500
Jacob, Charlie	1202 Federal Street, Baltimore, MD, 20104	1500	1200	500
Wolfe, Emily	1402 Federal Street, Baltimore, MD, 20104	1500	2500	500
Banerjee, Arun	45 Grant Street, Pittsburgh, PA, 15219	500	2500	3000

12 rows selected.

```

SQL> --Q9
SQL> CLEAR COLUMNS
columns cleared
SQL> COLUMN "CUSTOMER" FORMAT A30
SQL> COLUMN City FORMAT A15
SQL> COLUMN state FORMAT A5
SQL> SELECT ID || ' - ' || Lname || ', ' || Fname AS "Customer",
2      City, state, Contract.Contract_ID
3 FROM   Customer JOIN Contract ON Contract.Customer_ID = Customer.ID
4        JOIN Voice ON Voice.vPlan_ID = Contract.vPlan_ID
5        JOIN Plan ON Plan.Plan_ID = Voice.vPlan_ID
6 WHERE  Contract.End_Date IS NULL
7        AND BasePrice*(1-DiscountPerc/100) > (SELECT AVG(BasePrice*(1-DiscountPerc/100))
8          FROM Customer JOIN Contract ON Contract.Customer_ID = Customer.ID
9          JOIN Voice ON Voice.vPlan_ID = Contract.vPlan_ID
10         JOIN Plan ON Plan.Plan_ID = Voice.vPlan_ID);

```

Customer	CITY	STATE	CONTRACT_ID
1008 - Blayney, Alessandro	Philadelphia	PA	10018
1010 - Mohammed, Sharif	Erie	PA	10022
1017 - Jefferson, Alvin	San Jose	CA	10027
1018 - Garcia, Juan	New York City	NY	10028
1015 - Wolfe, Emily	Baltimore	MD	10030
1020 - Freeman, Mary	Pittsburgh	PA	10032
1006 - Simons, Thomas	Erie	PA	10033
1013 - Banerjee, Arun	Pittsburgh	PA	10034
1015 - Wolfe, Emily	Baltimore	MD	10035
1001 - Smith, Peter	Pittsburgh	PA	10036

10 rows selected.

```
SQL> SPOOL OUT
```