

CGS 2545: Database Concepts Spring 2014

SQL In Class Exercises – Part 2 Joins And Nested Queries

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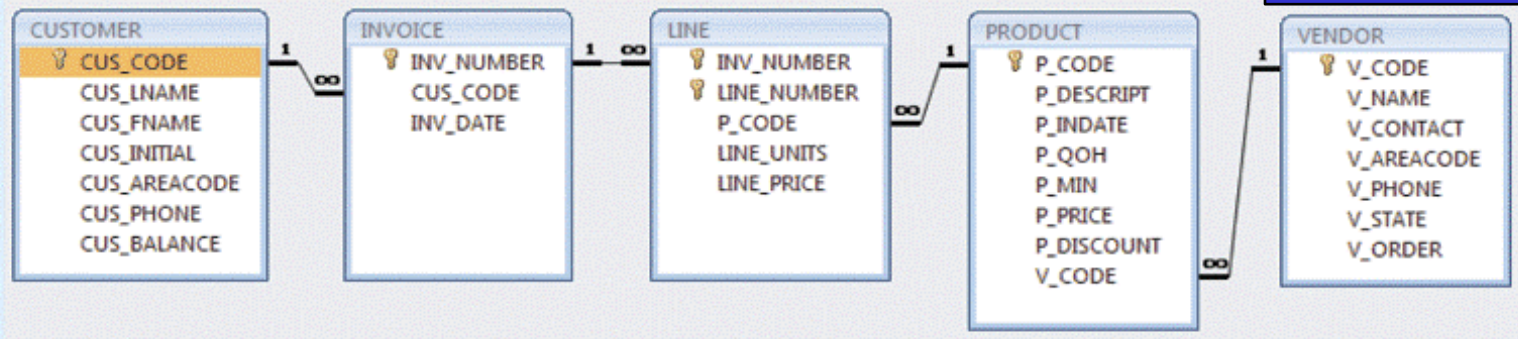


Table name: CUSTOMER

CUS_CODE	CUS_LNAME	CUS_FNAME	CUS_INITIAL	CUS_AREACODE	CUS_PHONE	CUS_BALANCE
10010	Ramas	Alfred	A	615	844-2573	0.00
10011	Dunne	Leona	K	713	894-1238	0.00
10012	Smith	Kathy	vV	615	894-2285	345.86
10013	Olowski	Paul	F	615	894-2180	536.75
10014	Orlando	Myron		615	222-1672	0.00
10015	O'Brian	Amy	B	713	442-3381	0.00
10016	Brown	James	G	615	297-1228	221.19
10017	Williams	George		615	290-2556	768.93
10018	Farriss	Anne	G	713	382-7185	216.55
10019	Smith	Olette	K	615	297-3809	0.00

Table name: VENDOR

V_CODE	V_NAME	V_CONTACT	V_AREACODE	V_PHONE	V_STATE	V_ORDER
21225	Bryson, Inc.	Smithson	615	223-3234	TN	Y
21226	SuperLoo, Inc.	Flushing	904	215-8995	FL	N
21231	D&E Supply	Singh	615	228-3245	TN	Y
21344	Gomez Bros.	Ortega	615	889-2546	KY	N
22567	Dome Supply	Smith	901	678-1419	GA	N
23119	Randsets Ltd.	Anderson	901	678-3998	GA	Y
24004	Brackman Bros.	Browning	615	228-1410	TN	N
24288	ORDVA, Inc.	Hakford	615	898-1234	TN	Y
25443	B&K, Inc.	Smith	904	227-0093	FL	N
25501	Damal Supplies	Smythe	615	890-3529	TN	N
25595	Rubicon Systems	Orton	904	456-0092	FL	Y

Table name: INVOICE

INV_NUMBER	CUS_CODE	INV_DATE
1001	10014	16-Jan-12
1002	10011	16-Jan-12
1003	10012	16-Jan-12
1004	10011	17-Jan-12
1005	10018	17-Jan-12
1006	10014	17-Jan-12
1007	10015	17-Jan-12
1008	10011	17-Jan-12

Table name: LINE

INV_NUMBER	LINE_NUMBER	P_CODE	LINE_UNITS	LINE_PRICE
1001	1	13-Q2/P2	1	14.99
1001	2	23109-HB	1	9.95
1002	1	54778-2T	2	4.99
1003	1	2238/QPD	1	38.95
1003	2	1546-QQ2	1	39.95
1003	3	13-Q2/P2	5	14.99
1004	1	54778-2T	3	4.99
1004	2	23109-HB	2	9.95
1005	1	PVC23DRT	12	5.87
1006	1	SM-18277	3	6.99
1006	2	2232/QTY	1	109.92
1006	3	23109-HB	1	9.95
1006	4	89-WRE-Q	1	256.99
1007	1	13-Q2/P2	2	14.99
1007	2	54778-2T	1	4.99
1008	1	PVC23DRT	5	5.87
1008	2	WR3/TT3	3	119.95
1008	3	23109-HB	1	9.95

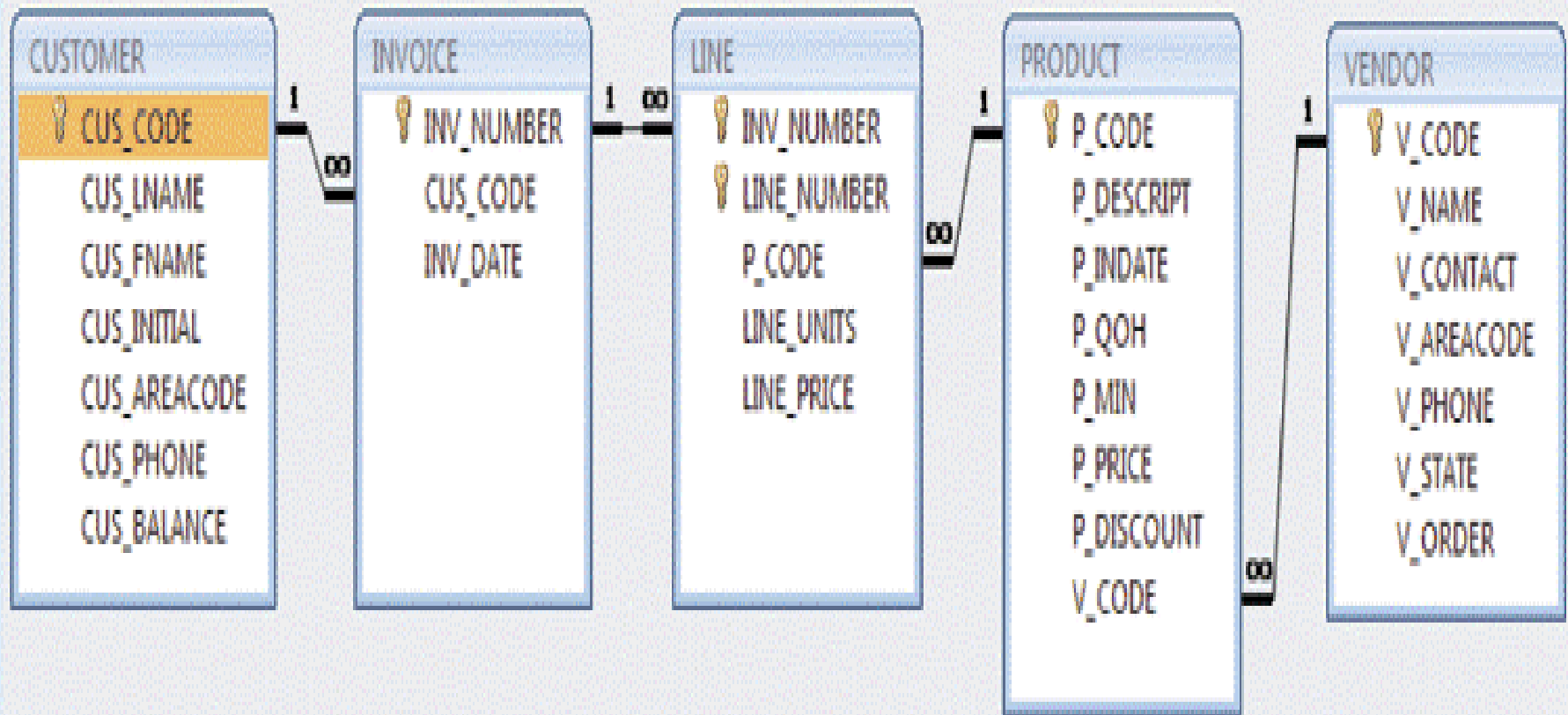
Table name: PRODUCT

P_CODE	P_DESCRPT	P_INDATE	P_QOH	P_MIN	P_PRICE	P_DISCOUNT	V_CODE
11QER/31	Power painter, 15 psi, 3-nozzle	03-Nov-11	8	5	109.99	0.00	25595
13-Q2/P2	7.25-in. pwr saw blade	13-Dec-11	32	15	14.99	0.05	21344
14-Q1/L3	9.00-in. pwr saw blade	13-Nov-11	18	12	17.49	0.00	21344
1546-QQ2	Hrd. cloth, 1/4-in., 2x50	15-Jan-12	15	8	39.95	0.00	23119
1568-QW1	Hrd. cloth, 1/2-in., 3x50	15-Jan-12	23	5	43.99	0.00	23119
2232/QTY	B&D jigsaw, 12-in. blade	30-Dec-11	8	5	109.92	0.05	24288
2232/QWE	B&D jigsaw, 8-in. blade	24-Dec-11	6	5	99.87	0.05	24288
2238/QPD	B&D cordless drill, 1/2-in.	20-Jan-12	12	5	38.95	0.05	25595
23109-HB	Claw hammer	20-Jan-12	23	10	9.95	0.10	21225
23114-AA	Sledge hammer, 12 lb.	02-Jan-12	8	5	14.40	0.05	
54778-2T	Rat-tail file, 1/8-in. fine	15-Dec-11	43	20	4.99	0.00	21344
89-WRE-Q	Hicut chain saw, 16 in.	07-Feb-12	11	5	256.99	0.05	24288
PVC23DRT	PVC pipe, 3.5-in., 8-ft	20-Feb-12	188	75	5.87	0.00	
SM-18277	1.25-in. metal screw, 25	01-Mar-12	172	75	6.99	0.00	21225
SW-23116	2.5-in. wd. screw, 50	24-Feb-12	237	100	8.45	0.00	21231
WR3/TT3	Steel matting, 4x8x1/6", 5" mesh	17-Jan-12	18	5	119.95	0.10	25595



The sales company tracks all customer purchases through invoices containing products supplied by vendors.

Relational diagram



1. Generate a listing of all the purchases made by all the customers. List the customer code, the invoice number, the invoice date, the product description, the line units and the line price in the results. Order the results in increasing order of customer code, followed by invoice number followed by product description.

Answer:

```
SELECT INVOICE.CUS_CODE, INVOICE.INV_NUMBER, INVOICE.INV_DATE,  
       PRODUCT.P_DESCRIPT, LINE.LINE_UNITS, LINE.LINE_PRICE  
FROM   CUSTOMER, INVOICE, LINE, PRODUCT  
WHERE  CUSTOMER.CUS_CODE = INVOICE.CUS_CODE  
       AND     INVOICE.INV_NUMBER = LINE.INV_NUMBER  
       AND     PRODUCT.P_CODE = LINE.P_CODE  
ORDER BY INVOICE.CUS_CODE, INVOICE.INV_NUMBER, PRODUCT.P_DESCRIPT;
```



Access

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All Access Obj...

Tables

- CUSTOMER
- EMP
- EMPLOYEE
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- PRODUCT_3
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- PRODUCT_revised
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Queries

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- qryFig7-04
- qryFig7-06
- qryFig7-07
- qryFig7-08
- qryFig7-09

Query1

CUS_CODE	INV_NUMBER	INV_DATE	P_DESCRIPT	LINE_UNITS	LINE_PRICE
10011	1002	16-Jan-12	Rat-tail file, 1/8-in. fine	2	4.99
10011	1004	17-Jan-12	Claw hammer	2	9.95
10011	1004	17-Jan-12	Rat-tail file, 1/8-in. fine	3	4.99
10011	1008	17-Jan-12	Claw hammer	1	9.95
10011	1008	17-Jan-12	PVC pipe, 3.5-in., 8-ft	5	5.87
10011	1008	17-Jan-12	Steel matting, 4'x8'x1/6", .5"	3	119.95
10012	1003	16-Jan-12	7.25-in. pwr. saw blade	5	14.99
10012	1003	16-Jan-12	B&D cordless drill, 1/2-in.	1	38.95
10012	1003	16-Jan-12	Hrd. cloth, 1/4-in., 2x50	1	39.95
10014	1001	16-Jan-12	7.25-in. pwr. saw blade	1	14.99
10014	1001	16-Jan-12	Claw hammer	1	9.95
10014	1006	17-Jan-12	1.25-in. metal screw, 25	3	6.99
10014	1006	17-Jan-12	B&D jigsaw, 12-in. blade	1	109.92
10014	1006	17-Jan-12	Claw hammer	1	9.95
10014	1006	17-Jan-12	Hicut chain saw, 16 in.	1	256.99
10015	1007	17-Jan-12	7.25-in. pwr. saw blade	2	14.99
10015	1007	17-Jan-12	Rat-tail file, 1/8-in. fine	1	4.99
10018	1005	17-Jan-12	PVC pipe, 3.5-in., 8-ft	12	5.87

Record: 1 of 18 No Filter Search

2. Write the SQL code that will list the total purchase per invoice. The invoice total is the sum of the product purchases in the LINE that corresponds to that invoice. Display the invoice number and the calculated sum as Invoice Total.

Answer:

```
SELECT      LINE.INV_NUMBER,  
           Sum(LINE.LINE_UNITS*LINE.LINE_PRICE) AS [Invoice Total]  
FROM LINE  
GROUP BY   LINE.INV_NUMBER;
```



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- qryFig7-07
- qryFig7-08
- qryFig7-09

Query1

INV_NUMBER	Invoice Total
1001	24.939999580383
1002	9.9799995422363
1003	153.85000038147
1004	34.869998931885
1005	70.439998626709
1006	397.82998752594
1007	34.969999313355
1008	399.14999008179

Query1

```
SELECT LINE.INV_NUMBER,
Sum (LINE.LINE_UNITS*LINE.LINE_PRICE) AS [Invoice Total]
FROM LINE
GROUP BY LINE.INV_NUMBER;
```

Record: 1 of 8 No Filter Search

3. Write the SQL code that will show all the invoices and invoice totals for every invoice along with the customer code associated with that invoice. Arrange the output by grouping the customer code then by invoice number.

Answer:

```
SELECT  CUS_CODE, LINE.INV_NUMBER AS INV_NUMBER,  
        Sum(LINE.LINE_UNITS*LINE.LINE_PRICE) AS [Invoice Total]  
FROM    INVOICE, LINE  
WHERE   INVOICE.INV_NUMBER = LINE.INV_NUMBER  
GROUP BY      CUS_CODE, LINE.INV_NUMBER;
```



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- qryFig7-08
- qryFig7-09

Query1

CUS_CODE	INV_NUMBER	Invoice Total
10011	1002	9.97999954223633
10011	1004	34.8699989318848
10011	1008	399.149990081787
10012	1003	153.85000038147
10014	1001	24.9399995803833
10014	1006	397.82998752594
10015	1007	34.9699993133545
10018	1005	70.439998626709

Record: 1 of 8

Query1

```
SELECT CUS_CODE, LINE.INV_NUMBER AS INV_NUMBER,
       Sum(LINE.LINE_UNITS*LINE.LINE_PRICE) AS [Invoice Total]
FROM INVOICE, LINE
WHERE INVOICE.INV_NUMBER = LINE.INV_NUMBER
GROUP BY CUS_CODE, LINE.INV_NUMBER;
```

4. Write the SQL code that will produce, for the customers found in the INVOICE table, the account balance for each customer.

Answer:

```
SELECT      CUS_CODE, CUS_BALANCE
FROM CUSTOMER
WHERE       CUSTOMER.CUS_CODE IN
           (SELECT DISTINCT CUS_CODE FROM INVOICE );
```

or

```
SELECT      DISTINCT CUS_CODE, CUS_BALANCE
FROM CUSTOMER, INVOICE
WHERE       CUSTOMER.CUS_CODE = INVOICE.CUS_CODE;
```



Access

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- qryFig7-07
- qryFig7-08
- qryFig7-09

Query1

CUS_CODE	CUS_BALANCE
10011	0.00
10012	345.86
10014	0.00
10015	0.00
10018	216.55
*	0

Query1

```
SELECT CUS_CODE, CUS_BALANCE
FROM CUSTOMER
WHERE CUSTOMER.CUS_CODE IN
(SELECT DISTINCT CUS_CODE FROM INVOICE);
```

Record: 1 of 5 No Filter Search

5. Write the SQL code that will list the customer codes and their balances for all the customers who have not made a purchase during the invoicing period, i.e., the customers who do not appear in the INVOICE table.

Answer:

```
SELECT CUS_CODE, CUS_BALANCE
FROM CUSTOMER
WHERE CUSTOMER.CUS_CODE NOT IN
      (SELECT DISTINCT CUS_CODE
       FROM INVOICE);
```



Access **QUERY TOOLS** ? - □ ×

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Results Query Type Query Setup Show/Hide

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- qryFig7-07
- qryFig7-08
- qryFig7-09

Query1

```
SELECT CUS_CODE, CUS_BALANCE
FROM CUSTOMER
WHERE CUSTOMER.CUS_CODE NOT IN
(SELECT DISTINCT CUS_CODE
FROM INVOICE);
```

Query1

CUS_CODE	CUS_BALANCE
10010	0.00
10013	536.75
10016	221.19
10017	768.93
10019	0.00
* 0	0.00

Record: 1 of 5 No Filter Search



6. Write the SQL code that will produce a summary listing of all customer balances for customers who have not made purchases in the current invoicing cycle (the ones not in the INVOICE table). List the sum of all those balances as Total Balance, the minimum balance as Minimum Balance, the maximum balance as Maximum Balance and the average balance as Average Balance.

Answer:

```
SELECT SUM(CUS_BALANCE) AS [Total Balance],
       MIN(CUS_BALANCE) AS [Minimum Balance],
       MAX(CUS_BALANCE) AS [Maximum Balance],
       AVG(CUS_BALANCE) AS [Average Balance]
FROM (SELECT CUS_CODE, CUS_BALANCE
      FROM CUSTOMER
      WHERE CUSTOMER.CUS_CODE NOT IN
            (SELECT DISTINCT CUS_CODE
             FROM INVOICE)
      );
```



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- All Access Obj...
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 - qryFig7-08
 - qryFig7-09

Query1

Total Balance	Minimum Balance	Maximum Balance	Average Balance
1526.8699951172	0	768.93	305.373999023437

Record: 1 of 1 No Filter Search

Query1

```
FROMCUSTOMER
WHERECUSTOMER.CUS_CODE NOT IN
(SELECT DISTINCT CUS_CODE FROM INVOICE)
);
```

