

1.1.

```
CREATE SEQUENCE customer_seq
```

```
START WITH 1021
```

```
INCREMENT BY 1
```

```
NOCACHE
```

```
NOCYCLE;
```

1.2.

```
INSERT INTO Customers (CUSTOMER#, LASTNAME, FIRSTNAME, ZIP)
```

```
VALUES (customer_seq.NEXTVAL, 'Shoulders', 'Frank', '23567');
```

```
SQL>
SQL>
SQL>
SQL> INSERT INTO Customers (CUSTOMER#, LASTNAME, FIRSTNAME, ZIP)
  2  VALUES (customer_seq.NEXTVAL, 'Shoulders', 'Frank', '23567');

1 row created.

SQL>
```

2.1.

```
CREATE ROLE sales_person;
```

```
CREATE USER John IDENTIFIED BY initial_password;
```

```
ALTER USER John PASSWORD EXPIRE;
```

```
GRANT sales_person TO John;
```

```
SQL>
SQL>
SQL> CREATE ROLE sales_person;

Role created.

SQL>
SQL> CREATE USER John IDENTIFIED BY initial_password;

User created.

SQL>
SQL> ALTER USER John PASSWORD EXPIRE;

User altered.

SQL> GRANT sales_person TO John;

Grant succeeded.
```

2.2.

GRANT ALL ON CUSTOMERS TO John WITH GRANT OPTION;

```
SQL>
SQL>
SQL> GRANT ALL ON CUSTOMERS TO John WITH GRANT OPTION;

Grant succeeded.
```

3.1.

```
SELECT CUSTOMER#, LASTNAME, STATE
FROM CUSTOMERS
WHERE STATE IN ('GA', 'NJ')
ORDER BY LASTNAME ASC;
```

```
SQL>
SQL> SELECT CUSTOMER#, LASTNAME, STATE
  2  FROM CUSTOMERS
  3  WHERE STATE IN ('GA', 'NJ')
  4  ORDER BY LASTNAME ASC;
```

CUSTOMER#	LASTNAME	ST
1020	FALAH	NJ
1010	LUCAS	GA
1018	MONTIASA	GA
1019	SMITH	NJ

3.2.

```
SELECT LNAME, FNAME
```

```
FROM AUTHOR
```

```
WHERE LNAME LIKE '%IN%'
```

```
ORDER BY LNAME, FNAME;
```

```
SQL>
SQL>
SQL> SELECT LNAME, FNAME
  2  FROM AUTHOR
  3  WHERE LNAME LIKE '%IN%'
  4  ORDER BY LNAME, FNAME;
```

LNAME	FNAME
AUSTIN	JAMES
MARTINEZ	SHEILA
ROBINSON	ROBERT
WILKINSON	ANTHONY

4.1.

```
SQL> SELECT DISTINCT c.CUSTOMER#, c.LASTNAME, c.FIRSTNAME, c.ADDRESS, c.CITY, c.STATE, c.ZIP
```

```
  2  FROM CUSTOMERS c
```

```

3 JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#
4 JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#
5 JOIN BOOKS b ON oi.ISBN = b.ISBN
6 WHERE c.STATE = 'FL'
7     AND b.CATEGORY = 'COMPUTER';

```

```

SQL>
SQL>
SQL> SELECT DISTINCT c.CUSTOMER#, c.LASTNAME, c.FIRSTNAME, c.ADDRESS, c.CITY, c.STATE, c.ZIP
2 FROM CUSTOMERS c
3 JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#
4 JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#
5 JOIN BOOKS b ON oi.ISBN = b.ISBN
6 WHERE c.STATE = 'FL'
7     AND b.CATEGORY = 'COMPUTER';

```

CUSTOMER#	LASTNAME	FIRSTNAME	ADDRESS	CITY	ST	ZIP
1001	MORALES	BONITA	P.O. BOX 651	EASTPOINT	FL	32328
1003	SMITH	LEILA	P.O. BOX 66	TALLAHASSEE	FL	32306

```

SQL>
SQL>
SQL>

```

4.2.

```

SELECT oi.ORDER#, oi.ITEM#, b.ISBN, oi.QUANTITY, oi.PAIDEACH
FROM CUSTOMERS c
JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#
JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#
JOIN BOOKS b ON oi.ISBN = b.ISBN
WHERE c.FIRSTNAME = 'JAKE' AND c.LASTNAME = 'LUCAS';

```

```

SQL>
SQL> SELECT oi.ORDER#, oi.ITEM#, b.ISBN, oi.QUANTITY, oi.PAIDEACH
  2  FROM CUSTOMERS c
  3  JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#
  4  JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#
  5  JOIN BOOKS b ON oi.ISBN = b.ISBN
  6  WHERE c.FIRSTNAME = 'JAKE' AND c.LASTNAME = 'LUCAS';

```

ORDER#	ITEM#	ISBN	QUANTITY	PAIDEACH
1001	1	9247381001	1	31.95
1001	2	2491748320	1	85.45
1011	1	2491748320	1	85.45

```

SQL>
SQL>
SQL>

```

5.1.

```

SELECT b.TITLE,
       TO_CHAR(SUM((oi.PAIDEACH - b.COST) * oi.QUANTITY), '$99.99') AS PROFIT
FROM ORDERITEMS oi
JOIN BOOKS b ON oi.ISBN = b.ISBN
WHERE oi.ORDER# = 1002
GROUP BY b.TITLE;

```

```

SQL>
SQL>
SQL> SELECT b.TITLE,
  2       TO_CHAR(SUM((oi.PAIDEACH - b.COST) * oi.QUANTITY), '$99.99') AS PROFIT
  3  FROM ORDERITEMS oi
  4  JOIN BOOKS b ON oi.ISBN = b.ISBN
  5  WHERE oi.ORDER# = 1002
  6  GROUP BY b.TITLE;

```

TITLE	PROFIT
DATABASE IMPLEMENTATION	\$49.10

```

SQL>
SQL>
SQL>

```

5.2.

SELECT TITLE,

TO\_CHAR(((RETAIL - COST) / COST) \* 100, 'FM9999') || '%' AS MARKUP

FROM BOOKS;

```
SQL>
SQL> SELECT TITLE,
  2      TO_CHAR(((RETAIL - COST) / COST) * 100, 'FM9999') || '%' AS MARKUP
  3  FROM BOOKS;

TITLE                                MARKUP
-----
BODYBUILD IN 10 MINUTES A DAY        65%
REVENGE OF MICKEY                     55%
BUILDING A CAR WITH TOOTHPICKS        59%
DATABASE IMPLEMENTATION               78%
COOKING WITH MUSHROOMS                60%
HOLY GRAIL OF ORACLE                  61%
HANDCRANKED COMPUTERS                 15%
E-BUSINESS THE EASY WAY                44%
PAINLESS CHILD-REARING                87%
THE WOK WAY TO COOK                   51%
BIG BEAR AND LITTLE DOVE              68%

TITLE                                MARKUP
-----
HOW TO GET FASTER PIZZA                68%
HOW TO MANAGE THE MANAGER              107%
SHORTEST POEMS                        83%

14 rows selected.

SQL>
```

6.

SELECT DISTINCT c.CUSTOMER#, c.LASTNAME, c.FIRSTNAME, c.ADDRESS, c.CITY, c.STATE, c.ZIP

FROM CUSTOMERS c

JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#

JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#

WHERE c.STATE IN ('GA', 'FL')

GROUP BY c.CUSTOMER#, c.LASTNAME, c.FIRSTNAME, c.ADDRESS, c.CITY, c.STATE, c.ZIP, o.ORDER#

HAVING SUM(oi.PAIDEACH \* oi.QUANTITY) > 80;

```
SQL> SELECT DISTINCT c.CUSTOMER#, c.LASTNAME, c.FIRSTNAME, c.ADDRESS, c.CITY, c.STATE, c.ZIP
2  FROM CUSTOMERS c
3  JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#
4  JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#
5  WHERE c.STATE IN ('GA', 'FL')
6  GROUP BY c.CUSTOMER#, c.LASTNAME, c.FIRSTNAME, c.ADDRESS, c.CITY, c.STATE, c.ZIP, o.ORDER#
7  HAVING SUM(oi.PAIDEACH * oi.QUANTITY) > 80;
```

CUSTOMER#	LASTNAME	FIRSTNAME	ADDRESS	CITY	ST	ZIP
1010	LUCAS	JAKE	114 EAST SAVANNAH	ATLANTA	GA	30314
1001	MORALES	BONITA	P.O. BOX 651	EASTPOINT	FL	32328
1003	SMITH	LEILA	P.O. BOX 66	TALLAHASSEE	FL	32306

SQL>

7.1.

WITH LeastExpensiveBook AS (

SELECT ISBN, TITLE, COST

FROM BOOKS

WHERE COST = (SELECT MIN(COST) FROM BOOKS)

)

SELECT c.CUSTOMER#, c.LASTNAME, c.FIRSTNAME, c.ADDRESS, c.CITY, c.STATE, c.ZIP, leb.TITLE, leb.COST

FROM CUSTOMERS c

JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#

JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#

JOIN LeastExpensiveBook leb ON oi.ISBN = leb.ISBN;

```

SQL>
SQL>
SQL> WITH LeastExpensiveBook AS (
2   SELECT ISBN, TITLE, COST
3   FROM BOOKS
4   WHERE COST = (SELECT MIN(COST) FROM BOOKS)
5 )
6 SELECT c.CUSTOMER#, c.LASTNAME, c.FIRSTNAME, c.ADDRESS, c.CITY, c.STATE, c.ZIP, leb.TITLE, leb.COST
7 FROM CUSTOMERS c
8 JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#
9 JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#
10 JOIN LeastExpensiveBook leb ON oi.ISBN = leb.ISBN;

```

CUSTOMER#	LASTNAME	FIRSTNAME	ADDRESS	CITY	ST	ZIP
1007	GIANA	TAMMY	9153 MAIN STREET	AUSTIN	TX	78710
	BIG BEAR AND LITTLE DOVE		5.32			
1015	SHELL	STEVE	P.O. BOX 677	MIAMI	FL	33111
	BIG BEAR AND LITTLE DOVE		5.32			
1017	NELSON	BECCA	P.O. BOX 563	KALMAZOO	MI	49006
	BIG BEAR AND LITTLE DOVE		5.32			

```

SQL>

```

7.2.

```

SELECT COUNT(DISTINCT c.CUSTOMER#) AS NumberOfCustomers

```

```

FROM CUSTOMERS c

```

```

JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#

```

```

JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#

```

```

WHERE oi.ISBN IN (

```

```

    SELECT ISBN

```

```

    FROM BOOKAUTHOR

```

```

    WHERE authorID = 'A100'

```

```

);

```



```

SQL>
SQL> SELECT COUNT(DISTINCT c.CUSTOMER#) AS NumberOfCustomers
  2  FROM CUSTOMERS c
  3  JOIN ORDERS o ON c.CUSTOMER# = o.CUSTOMER#
  4  JOIN ORDERITEMS oi ON o.ORDER# = oi.ORDER#
  5  WHERE oi.ISBN IN (
  6      SELECT ISBN
  7      FROM BOOKAUTHOR
  8      WHERE authorID = 'A100'
  9  );

NUMBEROFCUSTOMERS
-----
                    5

```

8.1.

CREATE VIEW Contact AS

SELECT

    Name AS PublisherName,

    Contact AS ContactName,

    Phone AS ContactPhone

FROM

    Publisher;

8.2.

DROP VIEW Contact;

CREATE VIEW Contact AS

SELECT

    Name AS PublisherName,

    Contact AS ContactName,

    Phone AS ContactPhone

FROM

Publisher

WITH READ ONLY;

9.1.

```
CREATE TABLE CATEGORY (  
    CATCODE VARCHAR2(3),  
    CATDESC VARCHAR2(11)  
);
```

9.2.

DROP TABLE CATEGORY;

```
CREATE TABLE CATEGORY (  
    CATCODE VARCHAR2(3),  
    CATDESC VARCHAR2(11),  
    PRIMARY KEY (CATCODE)  
);
```

9.3.

DROP TABLE CATEGORY;

```
CREATE TABLE CATEGORY (  
    CATCODE VARCHAR2(3),  
    CATDESC VARCHAR2(11) NOT NULL,  
    PRIMARY KEY (CATCODE)
```

```
);
```

9.4.

```
ALTER TABLE CATEGORY
```

```
MODIFY CATDESC VARCHAR2(20);
```

9.5.

```
INSERT INTO CATEGORY (CATCODE, CATDESC) VALUES
```

```
    ('BUS', 'BUSINESS'),
```

```
    ('CHN', 'CHILDREN'),
```

```
    ('COK', 'COOKING'),
```

```
    ('COM', 'COMPUTER');
```

```
COMMIT;
```

9.6.

```
ALTER TABLE BOOKS
```

```
ADD Catcode VARCHAR2(3);
```

```
ALTER TABLE BOOKS
```

```
ADD CONSTRAINT books_catcode_fk
```

```
FOREIGN KEY (Catcode)
```

```
REFERENCES CATEGORY(CATCODE);
```

9.7.

```
ALTER TABLE BOOKS
```

DROP COLUMN Category;