SSN COLLEGE OF ENGINEERING, KALAVAKKAM
(An Autonomous Institution, Affiliated to Anna University, Chennai)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

UCS1412 – DBMS Lab
Assignment – 3

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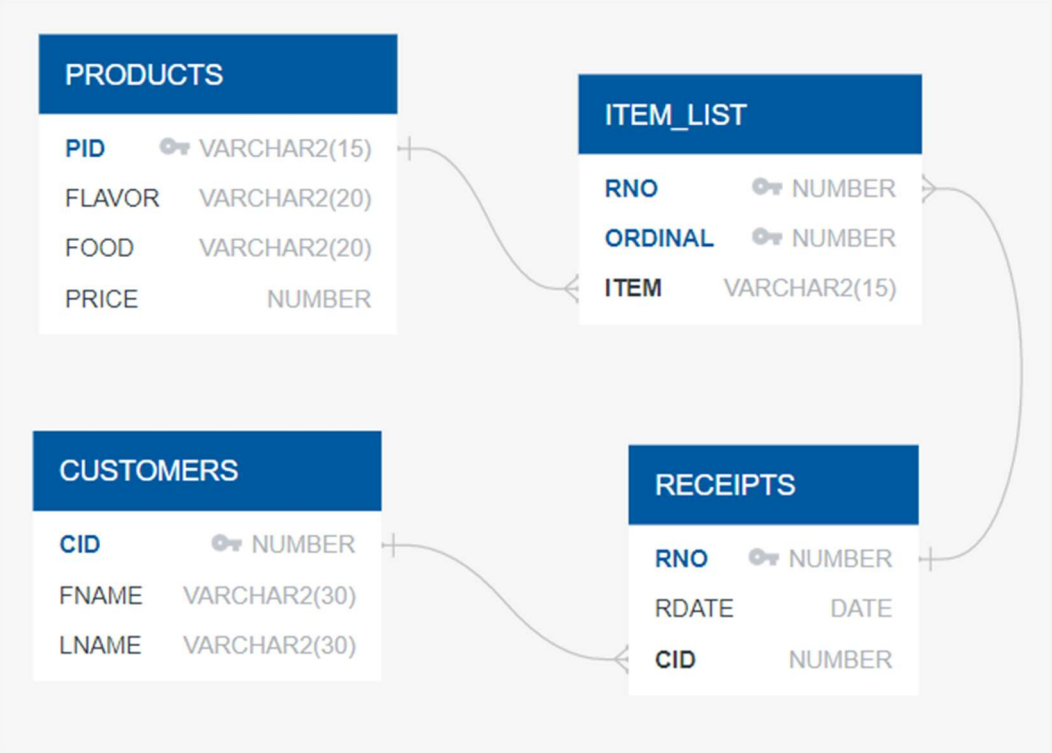
Title: Bakery Database

Schema Diagram:



Spool File Output for Table Creation:

```
SQL> @D:/assn3create;
SQL> --  DROPPING ALL TABLES
SQL> DROP TABLE ITEM_LIST;

Table ITEM_LIST dropped.

SQL> DROP TABLE RECEIPTS;

Table RECEIPTS dropped.

SQL> DROP TABLE PRODUCTS;

Table PRODUCTS dropped.

SQL> DROP TABLE CUSTOMERS;
```

```
Table CUSTOMERS dropped.

SQL>
SQL> --  CREATING CUSTOMERS TABLE
SQL> CREATE TABLE CUSTOMERS
  2  (
  3      CID NUMBER CONSTRAINT CUSID_PKEY PRIMARY KEY,
  4      FNAME VARCHAR2(30),
  5      LNAME VARCHAR2(30)
  6  );

Table CUSTOMERS created.

SQL>
SQL> --  DISPLAYING THE ATTRIBUTES AND THEIR DATA TYPES OF THE CUSTOMERS TABLE
SQL> DESC CUSTOMERS;
Name  Null?    Type
----- -------- ------------
CID   NOT NULL NUMBER
FNAME          VARCHAR2(30)
LNAME          VARCHAR2(30)
SQL>
SQL> --  CREATING PRODUCTS TABLE
SQL> CREATE TABLE PRODUCTS
  2  (
  3      PID VARCHAR2(15) CONSTRAINT PRODUCTS_PKEY PRIMARY KEY,
  4      FLAVOR VARCHAR2(20),
  5      FOOD VARCHAR2(20),
  6      PRICE NUMBER
  7  );

Table PRODUCTS created.

SQL>
SQL> --  DISPLAYING THE ATTRIBUTES AND THEIR DATA TYPES OF THE PRODUCTS TABLE
SQL> DESC PRODUCTS;
Name   Null?    Type
------ -------- ------------
PID    NOT NULL VARCHAR2(15)
FLAVOR          VARCHAR2(20)
FOOD            VARCHAR2(20)
PRICE           NUMBER
SQL>
SQL> --  CREATING RECEIPTS TABLE
SQL> CREATE TABLE RECEIPTS
  2  (
  3      RNO NUMBER CONSTRAINT RNO_PKEY PRIMARY KEY,
  4      RDATE DATE,
  5      CID NUMBER CONSTRAINT CUSID_FORKEY REFERENCES CUSTOMERS(CID)
  6  );

Table RECEIPTS created.
```

```
SQL>
SQL> --  DISPLAYING THE ATTRIBUTES AND THEIR DATA TYPES OF THE RECEIPTS TABLE
SQL> DESC RECEIPTS;
Name  Null?    Type
----- -------- ------
RNO   NOT NULL NUMBER
RDATE          DATE
CID            NUMBER
SQL>
SQL> --  CREATING TABLE ITEM_LIST
SQL> CREATE TABLE ITEM_LIST
  2  (
  3      RNO NUMBER CONSTRAINT RECEIPTNO_FORKEY REFERENCES RECEIPTS(RNO),
  4      ORDINAL NUMBER CONSTRAINT ITEM_CHK CHECK(ORDINAL!=0),
  5      ITEM VARCHAR2(15) CONSTRAINT PID_FORKEY REFERENCES PRODUCTS(PID),
  6      CONSTRAINT ITEM_LIST_FORKEY PRIMARY KEY(RNO,ORDINAL)
  7  );

Table ITEM_LIST created.

SQL>
SQL> --  DISPLAYING THE ATTRIBUTES AND THEIR DATA TYPES OF THE ITEM_LIST TABLE
SQL> DESC ITEM_LIST;
Name    Null?    Type
------- -------- ------------
RNO     NOT NULL NUMBER
ORDINAL NOT NULL NUMBER
ITEM             VARCHAR2(15)


SQL> spool off;
```

Spool File Output for insertion into Customers table:

```
SQL> -- REM Population of Bakery Database
SQL> -- REM ********************************************************************
SQL> -- REM CUSTOMERS ( customer number,  Last name, First name)
SQL> -- REM ********************************************************************
SQL>
SQL> insert into customers values(1, 'LOGAN', 'JULIET');

1 row inserted.

SQL> insert into customers values(2, 'ARZT', 'TERRELL');

1 row inserted.

SQL> insert into customers values(3, 'ESPOSITA', 'TRAVIS');

1 row inserted.

SQL> insert into customers values(4, 'ENGLEY', 'SIXTA');
```

```
1 row inserted.

SQL> insert into customers values(5, 'DUNLOW', 'OSVALDO');

1 row inserted.
```

Spool File Output for insertion into Products table:

```
SQL>
SQL> -- REM ------------------------------------------------------------------------
SQL> -- REM PRODUCTS (product number,  Flavor, Food, Price)
SQL> -- REM ------------------------------------------------------------------------
SQL>
SQL> insert into products values('20-BC-C-10','Chocolate','Cake',8.95);

1 row inserted.

SQL> insert into products values('20-BC-L-10','Lemon','Cake',8.95);

1 row inserted.

SQL> insert into products values('20-CA-7.5','Casino','Cake',15.95);

1 row inserted.

SQL> insert into products values('24-8x10','Opera','Cake',15.95);

1 row inserted.

SQL> insert into products values('25-STR-9','Strawberry','Cake',11.95);

1 row inserted.
```

Spool File Output for insertion into Receipts table:

```
SQL>
SQL> -- REM ------------------------------------------------------------------------
SQL> -- REM RECEIPTS(receipt number, receipt Date, Customer)
SQL> -- REM ------------------------------------------------------------------------
SQL>
SQL> INSERT INTO Receipts values(18129, '28-Oct-2007', 15);

1 row inserted.

SQL> INSERT INTO Receipts values(51991, '17-Oct-2007', 14);

1 row inserted.

SQL> INSERT INTO Receipts values(83085, '12-Oct-2007', 7);

1 row inserted.

SQL> INSERT INTO Receipts values(70723, '28-Oct-2007', 20);
```

```
1 row inserted.

SQL> INSERT INTO Receipts values(13355, '19-Oct-2007', 7);

1 row inserted.
```

Spool File Output for insertion into ITEM_LIST table:

```
SQL>
SQL> -- REM ------------------------------------------------------------------------
SQL> -- REM ITEM_LIST (receipt number,  Ordinal, Item)
SQL> -- REM ------------------------------------------------------------------------
SQL>
SQL> insert into item_list values(18129, 1,  '70-TU');

1 row inserted.

SQL> insert into item_list values(51991, 1,  '90-APIE-10');

1 row inserted.

SQL> insert into item_list values(51991, 2,  '90-CH-PF');

1 row inserted.

SQL> insert into item_list values(51991, 3,  '90-APP-11');

1 row inserted.
```

Spool File Output for given Questions:

```
SQL>
SQL> @"D:\assn3Qns.sql"
SQL> -- ASSIGNMENT 3
SQL>
SQL> -- WRITE THE FOLLOWING USING SUB-QUERY:
SQL> -- 1. DISPLAY THE FOOD DETAILS THAT IS NOT PURCHASED BY ANY OF CUSTOMERS.
SQL>
SQL> SELECT * FROM PRODUCTS
  2  WHERE PID NOT IN(SELECT ITEM FROM ITEM_LIST);

PID             FLAVOR               FOOD                      PRICE
--------------- -------------------- -------------------- ----------
20-BC-C-10      Chocolate            Cake                        8.95

SQL>
SQL> -- 2. SHOW THE CUSTOMER DETAILS WHO HAD PLACED MORE THAN 2 ORDERS ON THE SAME DATE.
SQL>
SQL> SELECT * FROM CUSTOMERS
  2  WHERE CID IN(SELECT CID FROM RECEIPTS
  3  GROUP BY CID,RDATE
```

```
  4  HAVING COUNT(*)>2);

       CID FNAME                          LNAME
---------- ------------------------------ ------------------------------
        14 SOPKO                          RAYFORD
         8 HELING                         RUPERT

SQL>
SQL> -- 3. DISPLAY THE PRODUCTS DETAILS THAT HAS BEEN ORDERED MAXIMUM BY THE CUSTOMERS.
(USE
SQL> -- ALL)
SQL>
SQL> SELECT * FROM PRODUCTS
  2  WHERE PID IN (SELECT ITEM FROM ITEM_LIST GROUP BY ITEM
  3  HAVING COUNT(*) >= ALL (SELECT COUNT(*) FROM ITEM_LIST GROUP BY ITEM));

PID             FLAVOR               FOOD                      PRICE
--------------- -------------------- -------------------- ----------
90-APP-11       Apple                Tart                        3.25

SQL>
SQL>
SQL> -- 4. SHOW THE NUMBER OF RECEIPTS THAT CONTAIN THE PRODUCT WHOSE PRICE IS MORE THAN
THE
SQL> -- AVERAGE PRICE OF ITS FOOD TYPE.
SQL>
SQL> SELECT COUNT(DISTINCT RNO) AS RECEIPT_COUNT FROM ITEM_LIST
  2  WHERE ITEM IN (SELECT PID  FROM PRODUCTS OUTER
  3  WHERE PRICE > (SELECT AVG(PRICE) FROM PRODUCTS WHERE FOOD=OUTER.FOOD));

RECEIPT_COUNT
-------------
          137

SQL>
SQL>
SQL> -- WRITE THE FOLLOWING USING JOIN: (USE SUB-QUERY IF REQUIRED)
SQL> -- 5. DISPLAY THE CUSTOMER DETAILS ALONG WITH RECEIPT NUMBER AND DATE FOR THE
RECEIPTS THAT
SQL> -- ARE DATED ON THE LAST DAY OF THE RECEIPT MONTH.
SQL>
SQL> SELECT DISTINCT CID,FNAME,LNAME,RNO,RDATE
  2  FROM CUSTOMERS C NATURAL JOIN RECEIPTS R
  3  WHERE R.RDATE=LAST_DAY(R.RDATE);

       CID FNAME                          LNAME                               RNO
RDATE
---------- ------------------------------ ------------------------------ ---------- ------
--
        11 STADICK                        MIGDALIA                            60270 31-10-
07
        20 ZEME                           STEPHEN                             49845 31-10-
07
```

```
         3 ESPOSITA                      TRAVIS                                39829 31-10-
07
        19 STENZ                         NATACHA                               36343 31-10-
07
        12 MCMAHAN                       MELLIE                                70796 31-10-
07
         1 LOGAN                         JULIET                                85858 31-10-
07

6 rows selected.

SQL>
SQL> -- 6. DISPLAY THE RECEIPT NUMBER(S) AND ITS TOTAL PRICE FOR THE RECEIPT(S) THAT
CONTAIN TWIST
SQL> -- AS ONE AMONG FIVE ITEMS. INCLUDE ONLY THE RECEIPTS WITH TOTAL PRICE MORE THAN $25.
SQL>
SQL> SELECT RNO, SUM(PRICE) AS TOTALPRICE FROM ITEM_LIST I JOIN PRODUCTS P ON (I.ITEM =
P.PID)
  2  WHERE RNO IN (SELECT RNO FROM ITEM_LIST I JOIN PRODUCTS P ON (I.ITEM = P.PID) WHERE
FOOD='Twist')
  3  GROUP BY RNO HAVING FLOOR(SUM(PRICE)) >25;

       RNO TOTALPRICE
---------- ----------
     83085      48.25

SQL>
SQL> -- 7. DISPLAY THE DETAILS (CUSTOMER DETAILS, RECEIPT NUMBER, ITEM) FOR THE PRODUCT
THAT WAS PURCHASED BY THE LEAST NUMBER OF CUSTOMERS.
SQL>
SQL> SELECT DISTINCT CUSTOMERS.CID,FNAME,LNAME,RECEIPTS.RNO,ITEM
  2  FROM CUSTOMERS,RECEIPTS,ITEM_LIST
  3  WHERE CUSTOMERS.CID=RECEIPTS.CID AND RECEIPTS.RNO=ITEM_LIST.RNO AND ITEM IN
  4  (SELECT ITEM FROM ITEM_LIST GROUP BY ITEM HAVING COUNT(*)=(SELECT MIN(COUNT(*)) FROM
ITEM_LIST GROUP BY ITEM));

       CID FNAME                           LNAME                                   RNO
ITEM
---------- ------------------------------ ------------------------------ ---------- ------
---------
        20 ZEME                           STEPHEN                               49845 50-
CH
        18 DOMKOWSKI                      ALMETA                                82056 50-
CH
        18 DOMKOWSKI                      ALMETA                                73716 50-
CH
         6 SLINGLAND                      JOSETTE                               99994 50-
CH
        14 SOPKO                          RAYFORD                               77032 50-
CH
         8 HELING                         RUPERT                                95962 50-
CH

6 rows selected.
```

```
SQL>
SQL> -- 8. DISPLAY THE CUSTOMER DETAILS ALONG WITH THE RECEIPT NUMBER WHO ORDERED ALL THE
FLAVORS OF MERINGUE IN THE SAME RECEIPT.
SQL>
SQL> SELECT DISTINCT CID, FNAME,LNAME,RNO FROM CUSTOMERS NATURAL JOIN RECEIPTS
  2  WHERE RNO IN (SELECT RNO FROM (SELECT DISTINCT RNO, FLAVOR FROM PRODUCTS JOIN
ITEM_LIST ON(ITEM=PID)
  3  WHERE FOOD='Meringue' GROUP BY RNO,FLAVOR) GROUP BY RNO HAVING COUNT(*)>1);

       CID FNAME                          LNAME                               RNO
---------- ------------------------------ ------------------------------ ----------
         8 HELING                         RUPERT                              61797

SQL>
SQL> -- WRITE THE FOLLOWING USING SET OPERATIONS:
SQL> -- 9. DISPLAY THE PRODUCT DETAILS OF BOTH PIE AND BEAR CLAW.
SQL>
SQL>
SQL> SELECT * FROM PRODUCTS WHERE FOOD = 'Pie'
  2  UNION
  3  SELECT * FROM PRODUCTS WHERE FOOD = 'Bear Claw';

PID             FLAVOR               FOOD                      PRICE
--------------- -------------------- -------------------- ----------
51-BC           Almond               Bear Claw                   1.95
90-APIE-10      Apple                Pie                         5.25

SQL>
SQL> -- 10.DISPLAY THE CUSTOMERS DETAILS WHO HAVEN'T PLACED ANY ORDERS.
SQL>
SQL> SELECT * FROM CUSTOMERS
  2  MINUS (SELECT CID, FNAME, LNAME
  3  FROM CUSTOMERS NATURAL JOIN RECEIPTS);

       CID FNAME                          LNAME
---------- ------------------------------ ------------------------------
        21 JOHN                           DAVID

SQL>
SQL> -- 11.DISPLAY THE FOOD THAT HAS THE SAME FLAVOR AS THAT OF THE COMMON FLAVOR BETWEEN
THE
SQL> -- MERINGUE AND TART.
SQL>
SQL> SELECT FOOD FROM PRODUCTS
  2  WHERE FLAVOR IN (SELECT FLAVOR FROM PRODUCTS
  3  WHERE FOOD = 'Meringue'
  4  INTERSECT
  5  SELECT FLAVOR FROM PRODUCTS
  6  WHERE FOOD = 'Tart');

FOOD
--------------------
Cake
```

```
Eclair
Tart
Meringue
Croissant

SQL>
SQL> spool off;
```