CSE302 (Section 2)
[Spring 2022]

Lab Assignment Submission Report

Assignment Title: LAB 03

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1. Screenshots

Problem 1:

```
SQL> Select branch_name, branch_city
  2  from branch
  3  where assets>1000000;

BRANCH_NAME     BRANCH_CITY
--------------- ---------------
Redwood         Palo Alto
Perryridge      Horseneck
Round Hill      Horseneck
North Town      Rye
Brighton        Brooklyn
```

Problem 2:

```
SQL> select account_number,balance
  2  from account
  3  where branch_name= 'Downtown' or ( balance between 600 and 750);

ACCOUNT_NUMBER     BALANCE
-------------- ----------
A-101                 500
A-215                 700
A-222                 700
A-217                 750
A-444                 625
```

Problem 3:

```
SQL> select account_number
  2  from account natural join branch
  3  where branch_city='Rye';

ACCOUNT_NUMBER
---------------
A-333
A-444
```

Problem 4:

```
SQL> select Distinct L.loan_number
  2  from loan L,account A,borrower B,customer C
  3  where L.amount>=1000 and L.loan_number=B.loan_number and B.customer_name=C. Customer_name
  4  and C.customer_city='Harrison';

LOAN_NUMBER
--------------
L-15
L-17
```

Problem 5:

```
SQL> select *
  2  from account
  3  order by balance desc, account_number desc;

ACCOUNT_NUMBER  BRANCH_NAME        BALANCE
--------------- --------------- ----------
A-201           Perryridge             900
A-333           Central                850
A-217           Brighton               750
A-222           Redwood                700
A-215           Mianus                 700
A-444           North Town             625
A-101           Downtown               500
A-102           Perryridge             400
A-305           Round Hill             350
```

Problem 6:

```
SQL> select *
  2  from Customer
  3  order by customer_city, customer_name;

CUSTOMER_NAME   CUSTOMER_STR CUSTOMER_CITY
--------------- ------------ ---------------
Brooks          Senator      Brooklyn
Hayes           Main         Harrison
Jones           Main         Harrison
Johnson         Alma         Palo Alto
Adams           Spring       Pittsfield
Lindsay         Park         Pittsfield
Williams        Nassau       Princeton
Curry           North        Rye
Majeris         First        Rye
McBride         Safety       Rye
Smith           Main         Rye

CUSTOMER_NAME   CUSTOMER_STR CUSTOMER_CITY
--------------- ------------ ---------------
Jackson         University   Salt Lake
Green           Walnut       Stamford
Turner          Putnam       Stamford
Glenn           Sand Hill    Woodside
```

Problem 7:

```
SQL> SELECT customer_name
  2  FROM Account NATURAL JOIN Depositor
  3  INTERSECT
  4  SELECT customer_name
  5  FROM Loan NATURAL JOIN Borrower;

CUSTOMER_NAME
---------------
Hayes
Jones
Smith
```

Problem 8:

```
SQL> SELECT customer_name, customer_street, customer_city
  2  FROM Account NATURAL JOIN Depositor NATURAL JOIN Customer
  3  UNION
  4  SELECT customer_name, customer_street, customer_city
  5  FROM Loan NATURAL JOIN Borrower  NATURAL JOIN Customer;

CUSTOMER_NAME   CUSTOMER_STR CUSTOMER_CITY
--------------- ------------ ---------------
Adams           Spring       Pittsfield
Curry           North        Rye
Hayes           Main         Harrison
Jackson         University   Salt Lake
Johnson         Alma         Palo Alto
Jones           Main         Harrison
Lindsay         Park         Pittsfield
Majeris         First        Rye
McBride         Safety       Rye
Smith           Main         Rye
Turner          Putnam       Stamford

CUSTOMER_NAME   CUSTOMER_STR CUSTOMER_CITY
--------------- ------------ ---------------
Williams        Nassau       Princeton
```

Problem 9:

```
SQL> SELECT customer_name, customer_city
  2  FROM Loan NATURAL JOIN Borrower  NATURAL JOIN Customer
  3  MINUS
  4  SELECT customer_name, customer_city
  5  FROM Account NATURAL JOIN Depositor NATURAL JOIN Customer;

CUSTOMER_NAME   CUSTOMER_CITY
--------------- ---------------
Adams           Pittsfield
Curry           Rye
Jackson         Salt Lake
McBride         Rye
Williams        Princeton
```

Problem 10:

```
SQL> select sum(assets) as "Total Assets"
  2  from Branch;

Total Assets
------------
    24600480
```

Problem 11:

Given with branch names:

```
SQL> select branch_name, avg(balance) as "Average Balances"
  2  from Account
  3  Group By branch_name;

BRANCH_NAME     Average Balances
--------------- ---------------
Round Hill                  350
Mianus                      700
Perryridge                  650
Redwood                     700
Brighton                    750
Central                     850
Downtown                    500
North Town                  625

8 rows selected.
```

Problem 12:

Given with branches' cities:

```
SQL> select branch_city, avg(balance) as "Average Balances"
  2  from Account natural join Branch
  3  Group By branch_city;

BRANCH_CITY     Average Balances
--------------- ---------------
Horseneck                587.5
Brooklyn                   625
Palo Alto                  700
Rye                      737.5
```

Problem 13:

Given with branch names:

```
SQL> select Branch_name, MIN(amount) as "Lowest Amount"
  2  from Loan
  3  Group By branch_name;

BRANCH_NAME     Lowest Amount
--------------- -------------
Round Hill                900
Mianus                    500
Perryridge               1300
Redwood                  2000
Central                   570
Downtown                 1000
North Town               7500

7 rows selected.
```

Problem 14:

Given with branch names:

```
SQL> select Branch_name, Count(Branch_name) as "Total Loans"
  2  from Loan
  3  Group By branch_name;

BRANCH_NAME     Total Loans
--------------- -----------
Round Hill                1
Mianus                    1
Perryridge                2
Redwood                   1
Central                   1
Downtown                  2
North Town                1
```

Problem 15:

```
SQL> select Customer_name, Account_number
  2  from Account natural join Depositor
  3  where Balance=(select MAX(Balance) from Account);

CUSTOMER_NAME   ACCOUNT_NUMBER
--------------- ---------------
Johnson         A-201
```

2. Learning outcomes:

From this lab, I have learned how to match string with LIKE operator. I have learned how to find unique tuples from table, how to do arithmetic operations on an attribute of a table and rename the attribute for the operation. I have learned how to do multi table queries by using cartesian product, natural join, join on, join using; how to use set operations for doing queries on tables and the last I have learned from this lab is how to use aggregate function to do statistical measurements on an attribute with or without Group By clause which gives the measurement result depending on groups of values of another attribute.