Lab 5
Advanced Data Manipulation

CSE 4308

DATABASE MANAGEMENT SYSTEMS LAB

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Contents

1 Some Date Funtions

1.1 Current_date

To get the current, Oracle provides two default functions namely **CURRENT_DATE** and **sysdate** the syntax is following;

```
SELECT CURRENT_DATE FROM DUAL;
```

or,

```
SELECT sysdate FROM DUAL;
```

1.2 TO_DATE

This function is used to convert a date from a DATE value to a specified date format. Example,

```
SELECT TO_DATE('20 APR 2020', 'DD MON YYYY')CONVERTED_DATE
FROM dual;
```

1.3 TO_CHAR

This function converts a date which is in string type to date value. Example, date to string?

```
SELECT TO_CHAR(sysdate, 'DD-MM-YYYY')NEW_DATE
FROM dual;
```

1.4 Extraction

To extract day, month or year, one can use **EXTRACT ()** function. For example,

```
SELECT EXTRACT(YEAR FROM TO_DATE('29-Apr-2020 05:30:20',
                                 'DD-Mon-YYYY HH24:MI:SS')) YEAR
FROM DUAL;
```

Similarly, we can extract month and day too.

1.5 Last_Day

This function is used to return the last day of the month of the particular date. For instance,

```
SELECT LAST_DAY(sysdate) LAST_DAY
FROM dual;
```

1.6 Next_Day

This function is used to return the date of next day particular day. For example,

```
SELECT NEXT_DAY(SYSDATE,'FRIDAY')
FROM DUAL;
```

1.7 Months_Between

This function is used to measure the months between two dates and the syntax is as follows;

```
SELECT MONTHS_BETWEEN( sysdate, DATE '2011-04-02' ) MONTH_DIFFERENCE
FROM DUAL;
```

1.8 Add_Months

This function adds N months to a date and returns the same day N month after.

```
SELECT ADD_MONTHS( sysdate, 2 ) NEWDATE
FROM dual;
```

To add a year, we have to convert it into months and to add day we can simple add the day. Let's say,

```
SELECT sysdate+10 as NEWDATE
FROM dual;
```

2 Some String Funtions

2.1 Length

The String **LENGTH()** function in Oracle is used to return the length of a given string. For example;

```
SELECT LENGTH('HELLO') FROM DUAL;
```

2.2 Lower

The string **LOWER()** function in Oracle is used to return a specified character expression in lowercase letters. The following is the syntax to use the LOWER function in Oracle.

```
SELECT LOWER('Hello') FROM DUAL;
```

2.3 Upper

The string **UPPER()** function in Oracle is used to return a specified character expression in uppercase letters. The following is the syntax to use the UPPER function in Oracle.

```
SELECT UPPER('Hello') FROM DUAL;
```

2.4 Initcap

The string **INITCAP()** function in Oracle is used to set the first letter of each word in uppercase and rest all other letters in lowercase. For example;

```
SELECT INITCAP('HELLO') FROM DUAL;
```

2.5 Trim

The string TRIM function in Oracle is used to remove the leading or trailing characters (or both) from a character string. If trim_character or trim_source is a character literal, then you must enclose it in single quotes. If you specify **LEADING**, then Oracle removes any leading characters equal to trim_character and for **TRAILING**, it removes any trailing characters equal to trim_character. If you specify BOTH or none of the three, then Oracle removes leading and trailing characters equal to trim_character. Lastly, if you do not specify trim_character, then the default value is a blank space. For example;

```
SELECT TRIM('     Removing Leading White Spaces  ') LRTRIM FROM DUAL;
```

```
SELECT TRIM(LEADING '6' FROM '660123') LRTRIM FROM DUAL;
```

```
SELECT TRIM(TRAILING '5' FROM '123455') LRTRIM FROM DUAL;
```

2.6 Lpad

LPAD function is used to fill a string with a specific character on the left side of a given string.

```
SELECT LPAD('Hello',10,'+') PADL FROM DUAL;
```

It will produce a 10-character string left padded with '+'.

2.7 Rpad

Similar to LPAD, RPAD function is used to fill a string with a specific character on the right side.

```
SELECT RPAD('Hello',10,'+') PADL FROM DUAL;
```

It will produce a 10-character string right padded with '+'.

2.8 Replace

The string REPLACE function in Oracle is used to return a string with every occurrence of search_string replaced with replacement_string. For example;

```
SELECT REPLACE('JACK and JUE','J','BL') "New String" FROM DUAL;
```

Here, 'J' will be replaced by 'BL'.

3 Handling Null Value

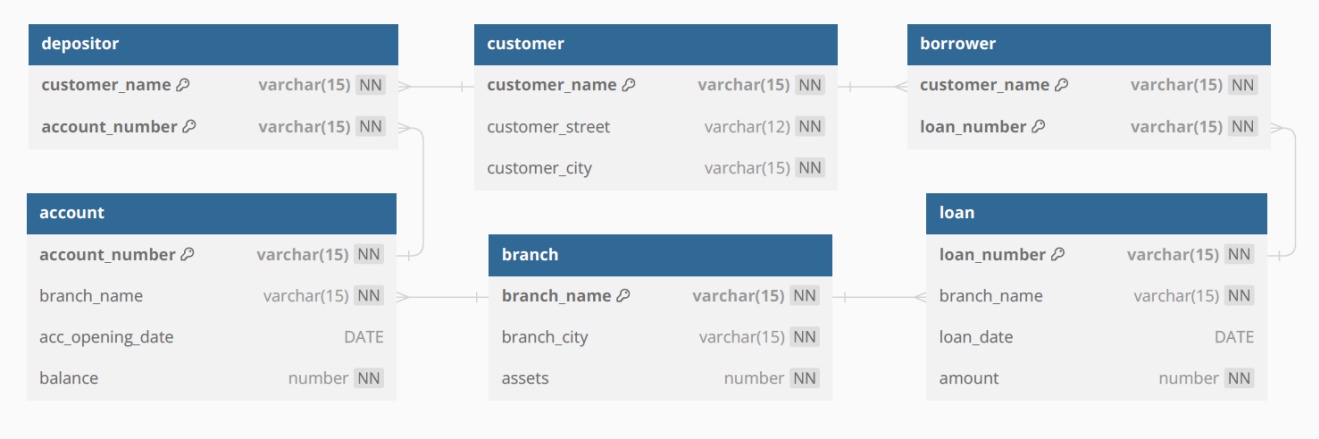
The Oracle NVL function lets you substitute a value when a null value is encountered. For example,

```
SELECT NVL(supplier_city, 'n/a') FROM suppliers;
```

```
SELECT NVL(commission, 0) FROM sales;
```

4 Task

Execute the `banking.sql` script using command. It creates a set of tables along with values that maintain the following schema:



Here, the boldfaces denote the primary keys and the arcs denote the foreign key relationships.
In this lab, you have to write all SQL statements in an editor first and save them with .sql extension. Then execute the SQL script.
Write SQL statements for the following queries:

1. Find all customer names and their cities who have a loan but not an account.
2. Find all customer names who have an account as well as a loan.
3. Show the count of accounts that were opened in each month along with the month.
4. Find the months between the last acc_opening_date and last loan_date of customer 'Smith'.
5. Find the average loan amount at each branch. Do not include any branch which is located in a that has the substring, 'Horse' in its name.
6. Find the customer name and account number of the account that has the highest balance.
7. For each branch city, find the average amount of all the loans opened in a branch located in that branch city. Do not include any branch city in the result where the average amount of all loans opened in a branch located in that city is less than 1500.
8. Show all the name of the customer with the suffix 'Eligible' who has at least one loan that can be paid off by his/her total balance.
9. Show all the branch names with suffixes 'Elite' that have a total account balance greater than the (average total balance + 500), 'Moderate' that have a total account balance in between (average total balance + 500) to (average total balance - 500), else 'Poor'.
10. Find the branch information for cities where at least one customer lives who does not have any account or any loans. The branch must have given some loans and has accounts opened by other customers.
11. Create a new customer_new table using a similar structure to the customer table.
12. In the customer_new table insert only those customers who have either an account or a loan.
13. Add a new column Status in customer_new table of varchar2(15) type.
14. For each customer if his/her total balance is greater than the total loan then set the status 'In savings', if the vise versa then 'In loan', lastly if both of the amounts are the same then 'In Breakeven'.
15. Count the occurrences of each status type in customer_new table.