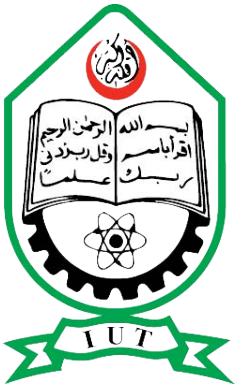
Islamic University of Technology



Database Management Systems Lab

CSE 4308 / CSE 4174

Lab 5

Author:
Ishmam Tashdeed
Md. Tariquzzaman
Zannatun Naim Sristy
CSE, IUT

Contents

1 Some Date Funtions **2**
- 1.1 CURRENT_DATE . . . 2
- 1.2 TO_DATE . . . 2
- 1.3 TO_CHAR . . . 2
- 1.4 Date Extraction . . . 2
- 1.5 Last_Day . . . 3
- 1.6 Next_Day . . . 3
- 1.7 Months_Between . . . 3
- 1.8 Add_Months . . . 3

2 Some String Functions **4**
- 2.1 Length . . . 4
- 2.2 Lower . . . 4
- 2.3 Upper . . . 4
- 2.4 Initcap . . . 4
- 2.5 Trim . . . 4
- 2.6 Lpad . . . 5
- 2.7 Rpad . . . 5
- 2.8 Replace . . . 5

3 Handling Null Value **6**

4 Lab Task **7**

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') AS
   CONVERTED_DATE
FROM dual;
```

1.3 TO_CHAR

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

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

1.4 Date 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')) AS
    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) AS LAST_DAY
FROM dual;
```

1.6 Next_Day

This function returns the date of the first specified weekday that is later than the given date. 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' ) AS
   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) AS NEWDATE
FROM dual;
```

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

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

2 Some String Functions

2.1 Length

The `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 `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 `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 `TRIM` function is used to remove the leading or trailing characters (or both) from a 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 by default it will trim leading and trailing blank spaces. For example:

```
--- This will remove both trailing and leading white spaces
SELECT TRIM('     Hello World!  ') AS NEW_STRING FROM DUAL;

--- This will remove leading characters that are specified
SELECT TRIM(LEADING '6' FROM '665530') AS NEW_STRING FROM
   DUAL;

--- This will remove trailing characters that are specified
SELECT TRIM(LEADING '0' FROM '665530') AS NEW_STRING FROM
   DUAL;

--- This will remove leading & trailing characters that are
   specified
SELECT TRIM('M' FROM 'MADAM') AS NEW_STRING 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, '+') AS NEW_STRING 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, '+') AS NEW_STRING FROM DUAL;
```

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

2.8 Replace

The `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 with JUE','J','BL') AS New_String FROM
   DUAL;
```

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

3 Handling Null Value

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

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

This will replace any `NULL` entries with 'n/a'.

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

This will replace any `NULL` entries with 0.

4 Lab Task

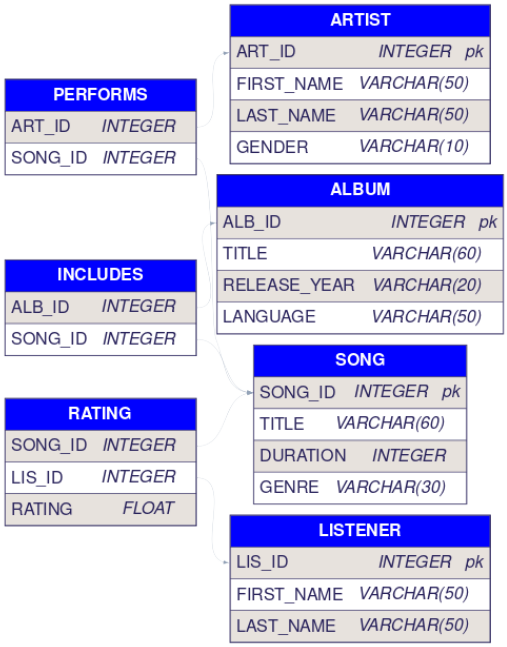


Figure 1: Database Schema

1. Execute the `music.sql` script to create the music database schema and populate it with data. The schema includes tables for artists, albums, songs, listeners, performances, album-song inclusions, and ratings.
2. Find the artists who have the same first name.
3. List the names of the albums that do not include any songs.
4. Show how many songs were released per year.
5. Show the number of years between the earliest and the latest released album.
6. Show which artist has the best-rated songs on average.
7. Count how many ratings each song got. If a song did not get any ratings, show 0 for that.

8. Show which song is the worst-rated according to at least two listeners.
9. Show which artist has performed the most songs before the year 2015.
10. Find the best-rated male and female artists on average.
11. **Bonus:**
    - Add a new column named `STATUS` in the `RATING` table of type `VARCHAR2(10)`.
    - For each rating, if it is greater than the average rating + 0.2 then set the `STATUS` as `'Excellent'`, if it is less than the average rating - 0.2 then set the `STATUS` as `'Poor'`, else set the `STATUS` as `'Good'`.