13.02.2019

B.TECH II.II CSE –D **DBMS LAB**

INTEGRITY CONSTRAINTS

Task involves: Creating tables with constraints (NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY, CHECK, DEFAULT)

Tables:

Sailors(sid: integer, sname: string, rating: integer, age: real);

Boats(bid: integer, bname: string, color: string);

Reserves(sid: integer, bid: integer, day: date).

Instances:

Sailors

Sid	Sname	Rating	Age
22	Dustin	7	45
29	Brutus	1	33
31	Lubber	8	55.5
32	Andy	8	25.5
58	Rusty	10	35
64	Horatio	7	35
71	Zorba	10	16
74	Horatio	9	40
85	Art	3	25.5
95	Bob	3	63.5

Boats

bid	bname	color
101	Interlake	blue
102	Interlake	red
103	Clipper	green
104	Marine	red

Reserves

sid	bid	day
22	101	10-oct-98
22	102	10-oct-98
22	103	8-oct-98
22	104	7-oct-98
31	102	10-nov-98
31	103	6-nov-98
31	104	12-nov-98
64	101	5-sep-98
64	102	8-sep-98
74	103	8-sep-98

Practice Altering Constraints (Work on Student table)

➔ **Add constraint after table creation**

➔ **Dropping constraint**

➔ KEY CONSTRAINTS

1) NOT NULL Constraint:

Syntax:

Create table < table_name> (col_name1 datatype(size) NOT NULL, col_name2 datatype(size) , col_namen datatype(size));

Defining NOT NULL with *ALTER TABLE*

```
ALTER TABLE table_name MODIFY column_name datatype NOT NULL;
```

2) UNIQUE Constraint:

Syntax of UNIQUE constraint at column level:

Create table < table_name> (col_name1 datatype(size) UNIQUE, col_name2 datatype(size), col_namen datatype(size));

Syntax of UNIQUE constraint at table level:

Create table < table_name> (col_name1 datatype(size), col_name2 datatype(size), col_namen datatype(size), UNIQUE (col_name1));

Defining unique Keys with *ALTER TABLE*

```
ALTER TABLE table_name
        ADD CONSTRAINT MyUniqueConstraint UNIQUE(column1, column2...);
```

3) PRIMARY KEY:

Syntax of PRIMARY KEY at Column Level:

Create table < table_name> (col_name1 datatype(size) PRIMARY KEY, col_name2 datatype(size), col_namen datatype(size));

Syntax of PRIMARY KEY at table level:

Create table < table_name> (col_name1 datatype(size), col_name2 datatype(size), col_namen datatype(size), PRIMARY KEY (col_name1));

Defining Primary Key with *ALTER TABLE*

```
ALTER TABLE table_name
ADD CONSTRAINT MyPrimaryKey PRIMARY KEY (column1, column2...);
```

➔ REFERENTIAL INTEGRITY CONSTRAINT(Foreign Key)

Defining Foreign Keys with CREATE TABLE

Syntax of foreign key constraint at column level

create table <table_name> (col_name1 datatype(size), col_name2 datatype(size), col_name3 datatype(size) REFERENCES <parent table > (primary key col_name));

Syntax of Foreign key constraint at table level
create table <table_name> (col_name1 datatype(size), col_name2 datatype(size), FOREIGN KEY (col_name1) REFERENCES < parent table> (primary key col name));

Defining Foreign Keys with ALTER TABLE

ALTER TABLE table_name ADD (CONSTRAINT constraint_name) FOREIGN KEY (column_name) REFERENCES parent_table (column_name_with_pk);

➔ DOMAIN Constraint

CHECK Constraint:

Check constraint is used to define values a column can store.

Ex:

Create table student6 (sno number(3), Sname varchar2(10),
Marks number(3) CHECK (marks between 0 and 100));

Defining CHECK constraint with *ALTER TABLE*

```
ALTER TABLE table_name
ADD CONSTRAINT MyUniqueConstraint CHECK (CONDITION);
```

➔ DEFAULT Constraint

The DEFAULT constraint is used to provide a default value for a column.

The default value will be added to all new records IF no other value is specified.

***Defining* DEFAULT *constraint with* CREATE TABLE**

```
CREATE TABLE table_name (
   column_name1 datatype(Size),
  column_name2 datatype(Size)  DEFAULT 'default_value_in_column');
```

***Defining* DEFAULT *constraint with* ALTER TABLE**

```
ALTER TABLE table_name MODIFY Column_name DEFAULT  'default_value_in_column';
```

-> DROP CONSTRAINT

```
ALTER TABLE table_name
DROP CONSTRAINT MyUniqueConstraint;
```

30.01.2019

B.TECH II.II CSE –D

WHERE QUERIES-II

1. List the employee name and department number who does not belong to department number 20.
2. List all the employee number and job except PRESIDENT and MANAGER in ascending order of Salaries.
3. List the employee details who are joined before or after 1981.
4. List the employee number and names whose employee number not starting with digit78.
5. List the employee number and joining date who joined in any year but not belongs to the month of March.
6. List the employee details of clerks of department number 20.
7. List the employee details of department number 30 or 10 joined in the year 1981.
8. Display the details of SMITH.
9. List the employee details whose salary is odd value.

AGGREGATE FUNCTIONS

1. Find the highest salary of Employee table.
2. Find the total salary given to the managers.
3. Display the average salaries of all the clerks.
4. Display total number of departments.
5. Display total number of employees.
6. Display number of unique jobs in EMP table.
7. Display number of employees who are getting commission.

12.01.2019
B.TECH II.II CSE –D

BASIC QUERIES

1. Display all the information of the EMP table.
2. Display information of the DEPT table
3. Display unique Jobs from EMP table.
4. List the employees in the ascending order of their Salaries
5. List the details of the employees in ascending order of the Department numbers and descending order of their Jobs.
6. Display all the unique job groups in the descending order.
7. List the Employee number, Employee name, Salary, Daily salary of all employees in the ascending order of Annual salary.

WHERE CLAUSE

1. List the employee details who joined before 1981.
2. List the Employee number, Employee name, manager number, Salary of all employees working for Manager Number 7369.
3. Display all the details of the employees whose Commission is more than their Salary.
4. List the employee number, employee name, designation and joining date in the ascending order of Designations of those joined after the second half of 1981.
5. List the employee details whose Daily Sal is more than $100.
6. List the name,job,salary of all the employees hired on december 17,1980?
7. List the department name and department number for departments with numbers greater than or equal to 20?
8. Display the name, monthly salary and daily salary and hourly salary for employees assume that the sal column in the table is the monthly salary, that there are 22 working days in a month, and that there are 8 working hours in a day. rename the columns as monthly, daily, hourly?
9. List the employee name, designation and salaries who are either 'CLERK' or 'ANALYST' in the descending order of their salary.

10. List the employee number, name and joining dates who are joined on 1-MAY-81, 3-DEC-81, 17-DEC-81, 19-JAN-80 in ascending order of seniority.
11. List the employee name and department number who are working for the department number 10 or20.
12. List the employee details who joined in the year 81.
13. List the employee details who joined in the month of Aug 1980.
14. List the employee name, salary and annual salary whose Annual salary ranging from 22000 and 45000.
15. List the Employee names those are having five characters in their Names.
16. List the Employee names those are starting with 'S' and with five characters.
17. List the employee names those are having four chars and third character must be 'r'.
18. List the five character employee names starting with 'S' and ending with 'H'.
19. List the employee details who joined in January.
20. List the employee details who joined in the month of which second character is 'a'.
21. List the employee number, name and salaries whose Salary is four digit number ending with Zero.
22. List the employee number and name whose names having characters'll' together.
23. List employee number and joining dates who joined in 80's.

SQL Command Line SET Commands

The SQL Command Line `SET` commands can be used to specify various SQL Command Line settings, such as the format of the output from SQL `SELECT` statements. For example, the following `SET` commands specify the number of lines for each page and the number of characters for each line in the output:

```
SQL> SET PAGESIZE 200
SQL> SET LINESIZE 140
```

EX: set linesize 100 pagesize 50;

To enable output from PL/SQL blocks with `DBMS_OUTPUT.PUT_LINE`, use the following:

```
SQL> SET SERVEROUTPUT ON
```

To view all the settings, enter the following at the SQL prompt:

```
SQL> SHOW ALL
```

Spooling From SQL Command Line

The `SPOOL` command can be used to direct the output from SQL Command Line to a disk file, which enables you to save the output for future review.

To start spooling the output to an operating system file, you enter the `SPOOL` command followed by a file name. For example:

```
SQL> SPOOL myfilename
```

If you want to append the output to an existing file:

```
SQL> SPOOL myfilename APPEND
```

To stop spooling and close a file, enter the following:

```
SQL> SPOOL OFF
```

To clear the SQL window you can use:

```
SQL> clear screen;
```

which can also be shortened to

```
SQL> cl scr;
```

09.01.2019

B.TECH II.II CSE –D

Practicing DDL, DML, DCL and TCL Commands

DDL – CREATE, ALTER, DROP, TRUNCATE

Create Table

Alter Command

1. Adding a new column
2. Renaming a column
3. Modifying a column

   Increasing and decreasing size (data type)

   Conversion of column from one data type to another

   Renaming a column
4. Dropping an existing column

Truncate Command

Drop Command

DML - INSERT, UPDATE , DELETE

TCL – COMMIT , ROLLBACK, SAVEPOINT

DCL – GRANT , REVOKE

Date : 02.01.2019

B.TECH II.II CSE –D

// EMP and DEPT Tables Schema

Table Name: Dept

Field name	datatype (size)
Deptno	number (2)
dname	varchar2(14)
loc	varchar2(13)

Deptno	Dname	Loc
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

Table Name: Emp

Fieldname	datatype (size)
empno	number(4)
ename	varchar2(10)
job	varchar2(9)
mgr	number(4)
hiredate	date

sal number(7,2)

comm number(7,2)

deptno number(2)

Empno	Ename	Job	Mgr	Hiredate	Sal	Comm	Deptno
7369	SMITH	CLERK	7902	17-DEC-80	800		20
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7566	JONES	MANAGER	7839	2-APR-81	2975		20
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7698	BLAKE	MANAGER	7839	1-MAY-81	2850		30
7782	CLARK	MANAGER	7839	9-JUN-81	2450		10
7788	SCOTT	ANALYST	7566	09-DEC-82	3000		20
7839	KING	PRESIDENT	NULL	17-NOV-81	5000		10
7844	TURNER	SALESMAN	7698	8-SEP-**81**	1500	0	30
7876	ADAMS	CLERK	7788	12-JAN-83	1100		20
7900	JAMES	CLERK	7698	3-DEC-81	950		30
7902	FORD	ANALYST	7566	3-DEC-81	3000		20
7934	MILLER	CLERK	7782	23-JAN-82	1300		10