READING MATERIAL 1

Introduction to tables

An Oracle database can contain multiple data structures. The table data structure stores the data in a relational database and it can be created at any time even while users are using the database. A table is composed of rows and columns. A table can represent a single entity (entity is an object whose information is stored in database) that you want to track within your system. Each entity or table has number of characteristics. The table must have a unique name through which it can be referred to after its creation .The characteristics of the table are called its attributes. These attributes can hold data. This type of a table could represent a list of the employees within your organization, or the orders placed for your company's products. A table has one attribute, which identifies each record uniquely; this attribute is called as Primary Key. Each value in the Primary Key attribute is unique and it cannot be NULL. Each record of the table is called as tuple.

Structure of table: Design tables before creating them

Usually, the application developer is responsible for designing the elements of an application, including the tables.

Consider the following guidelines when designing your tables:

- Use descriptive names for tables, columns, indexes, and clusters.
- Be consistent in abbreviations and in the use of singular and plural forms of table names and columns.
- Document the meaning of each table and its columns with the COMMENT command.
- Normalize each table.
- Select the appropriate data type for each column.
- Define columns that allow NULL values at the last, to conserve storage space.

Before creating a table, you should also determine whether to use integrity constraints. Integrity constraints can be defined on the columns of a table to enforce the business rules of your database automatically.

Table creation rules

There are certain standard rules for naming the tables and attributes/columns.

- Table names and column names must begin with a letter and can be 1-30 characters long.

- Names must contain only the characters A-Z, a-z, 0-9, _(underscore),$ and # .
- Names must not be an Oracle Server reserved word.
- Names must not duplicate the names of other objects owned by the same Oracle server user.
- Table name is not case sensitive.
- The table name must not be a SQL reserved word.

Create Table Statement

Tables are the fundamental storage objects of the database. Tables consist of rows and columns. A single table can have a maximum of 1000 columns.

Syntax

```
CREATE Table tablename
(
Column1 datatype [DEFAULT expr] [column constraint],
  column2 datatype[DEFAULT expr] [column constraint],…
        [table_constraint]}
);
```

Keywords used in the above syntax are:

Schema

It is the schema to contain the table. If it is omitted, Oracle creates the table in creator's own schema.

Table name

It is the name of the table to be created. Table name and Column name can be 1 to 30 characters long. First character must be alphabet, but name may include letters, numbers and underscores. The table name cannot be the name of another object owned by same user and cannot be a reserved word.

Column

Specifies the name of a column of the table. The number of columns in a table can range from 1 to 1000.

Datatype

It is the datatype of a column. Specifies the type and width of data to be stored in the column.

Default

It specifies a value to be assigned to the column if a subsequent INSERT statement omits a value for the column. The datatype of the expression must match the datatype of the column. A DEFAULT expression cannot contain references to other columns, the pseudo columns CURRVAL, NEXTVAL, LEVEL and ROWNUM or data constants that are not fully specified.

Example:

- Create a table student with the following fields:

Column Name	**Type**	**Size**	**Description**
Name	Varchar2	20	Name of the student
Class	Varchar2	15	Class of the student
Roll_no	Number	4	Roll number of the student
Address	Varchar2	30	Address of the student

```
SQL>Create table student
    (Name varchar2 (20),
    Class varchar2 (15),
    Roll_no number (4),
   Address varchar2 (30));
```

We can create tables using the SQL statement CREATE TABLE. When user SCOTT issues the following statement, it creates a table named STUDENT in its schema and stores it in the USERS tablespace.

Since creating a table is a DDL statement, an automatic commit (or save) takes place when this statement is executed.
