

ORACLE

About Oracle:

Oracle is an Object Relational Database Management System(ORDBMS). It offers capabilities of both relational and object oriented database systems.

The oracle corporation was started in 1971 with name 'Relaitonal Software Incorporated' (RSI) by Larry Ellison and his associates.

Oracle products are based on a client/server architecture. It means that the processing of application is classified as Client Side Processing.

Tools of Oracle

The main tools provided by Oracle are

- (i) SQL *PLUS
- (ii) PL/SQL
- (iii) Forms
- (iv) Reports

(i) SQL *Plus

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SQL \*Plus is a Structural Query Language supported by Oracle. Through this we can store, retrieve, edit, enter and run SQL commands and PL/SQL blocks.

## (ii) PL/SQL :

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PL/SQL stands for Programming Language/Structured Query Language and is an extension of SQL. A PL/SQL block contains any number of SQL statements.

(iii) Forms :

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This is a graphical tool provided by Oracle. It is used for generating and executing Forms based application. A form consists of blocks and fields. Multiple tables can also be accessed over a single form.

### (iv) Reports :

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This tool is used for developing and printing reports. A wide variety of reports can be developed using this tool. Oracle server is able to service much larger number of concurrent users by packing database connections. Oracle server now includes the password management so that a password has limited lifetime. Also 'accounts' can be locked after a specified number of failed login attempts.

Introduction to SQL :

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SQL was introduced by the IBM to interface management system. The first commercially available SQL was introduced in 1979 by the ORACLE CORPORATION.

SQL is Oracle's database language, used for storing and retrieving information in Oracle. A table with rows and columns is a primary database object of SQL that is used store data. A table holds data in the form of rows and columns. You can manipulate set of records at a time, as SQL is a non-procedural language.

# Oracle Data Types:



Data are stored in a table which is a collection of fields(Cells). Hence we must specify the data type that suits the data we want to store in a Column(field). Oracle supports the following data types.

## 1. CHAR:

Char datatype is used when a fixed length character string is required.

The default value is one byte.

Syntax :

CHAR(size)

Where

size - Number of characters. It is varying from 1 to 2000 bytes.

Eg: NAME CHAR(20)

## 2. VARCHAR2:

This data type is used to store variable length character strings. It can also alpha numerical values. The size of this datatype varies from 1 to 4000 bytes.

Syntax :

VARCHAR2(size)

Where size - number of characters(upto 4000 bytes).

## 3. LONG :

This data type can store variable character strings upto 2GB.

ASCII format can also be used in such data type.

- (i) Only one column in a table can have this data type.
- (ii) This column should not contain Unique or primary key constraint
- (iii) This column can't be indexed.
- (iv) This data type can't be used as an argument in any procedure.

## NUMBER DATA TYPES :

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Number data type is used to declare a column to store only number. This type supports the storage of integers, real numbers, floating-point number etc.

Example :

salary number

Age number

Syntax:

(i) NUMBER(P,S)

Where p - Total number of digits (1 to 38)

s - Number of digits to the right of the decimal point (-84 to 127)

Example : SALARY NUMBER(10,2)

INT_RATE NUMBER(2,2)

(ii) NUMBER(P)

P is the total number of digits.

Example : Roll_No NUMBER(4)

DATE DATA TYPE:

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It is used to store date and time in a table.

### DATE

The standard date format in 'DD-Mon-YY' where DD refers the date in number, Mon Stands for the first three letter abbreviation of a month (like Mar,Jan etc.) and YY stands for the last two digits on the year.

The valid date is from January 1,4712 BC to December 31,4712 A.D is valid.

Example: Date\_of\_birth DATE

## RAW DATA TYPE:

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This datatype is used to STORE binary data. A maximum of 2000 bytes can be stored in this datatype. Manipulation of data stored in this type is not possible.

Syntax : RAW (size)

Where

size - size of the data (maximum 2000 bytes)

LONG RAW DATA TYPE:



Binary data upto a maximum size of 2 GB can stored in this datatype. Like Raw datatype, manipulation of data is not possible in this datatype.

Syntax : LONG RAW(size)

Where

size - size of the data

To communicate with the database, SQL Supports the following commands :-

1. Data Definition Language:

The Data Definition Language (DDL) is used for the following purpose.

- (i) To create an object
- (ii) To alter the structure of an object
- (iii) To drop an object

Table :

A table is a unit of storage that stores data in the form of row and columns.

The rows are called records and the columns are called fields.

A record is a collection of related fields.

The DDL used of table definition

- (1) Create table command
- (2) Alter table command
- (3) Truncate table command
- (4) Drop table command

1. Creating a Table :

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Syntax:

CREATE TABLE <table name> (column1 datatype1, .....column  
datatype n);

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SQL > CREATE TABLE STUDENT_MASTER(Roll_No NUMBER(4),  
      Name VARCHAR2(15),Sex VARCHAR2(6),DOB  
DATE,DOAD DATE,  
      Class VARCHAR2(6), Address VARCHAR2(100));
```

## 2. Altering a Table :

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The structure of a table can be changed using this command.

- (a) Add a new column
- (b) Change the width of a datatype
- (c) Change the data type of a column
- (d) Include an integrity constraint
- (e) Drop an integrity constraints.

Syntax:

```
ALTER TABLE <table name> MODIFY (column datatype,.....);
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ALTER TABLE <table name> ADD(column datatype,.....);
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ALTER TABLE <table name> RENAME column old_col_name to  
new_col_name ;
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RENAME Old_Table_Name to New_Table_Name ;
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3. Truncate a Table :

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This command is used to delete all records stored in a table.

Syntax:

TRUNCATE TABLE <table\_name> ;

### 4. Dropping a Table :

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This command is used to remove a table from the database.

Syntax:

DROP TABLE <table_name>;

Viewing a table's structure :

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This command is used to view the structure of a table.

DESC table\_name;