PAGE :
DATE : / /

Login in Oracle

User Name : exam16@mcaserver
Password : exam16

log - q stands for quit

- To excess the database system that is oracle we need to connect with the server by providing username and password after a connect command
- If any error occure then oracle server will display the error message with a error number on screen.
- MCASERVER is the name of server in which our oracle server is intalled and to excess our database we need connection using username@mca server
- 'set' command
This command is used to change the environment of SQL*Plus command line tool
- 'set autocommit on'
This command is used to change the enviroment of SQL command line tool so that we can save our data based on the commands performs in our computer system.
Our operation will be saved automatical in MCA server so next time we can excess your data from

PAGE :
DATE : / /

the database which is available in MCA server

- 'help command'
Using help command we can get information about command with its various command. By default the help command provide static information related to SQL commands
- 'commit ;'
This commands is used to save the work which is performed by user during a single session The user as not change the environment which is automatic on.

PAGE :
DATE : / /

1. What are the different type of generation?
2. What is the meaning of g [Oracle 10g]

PAGE :
DATE : / /

iict016 Oracle.

A Oracle → collect information in detail.

Oracle 10g express edition

↓

Run SQL Command Line

- SQL* Plus : Release 10.2.0.1.0 - Production on web Jul 31 09:38:21 2019
- SQL is a language use for communication with the oracle server.
- SQL* Plus is a command line tool using which we can send the SQL commands to the server.
- SQL - structure Query language
- SQL is fourth generation language in which a user is concered about what to output we want from the server but user don't know about how to the server is generating the output.

PAGE :
DATE : / /

- Categories of SQL commands
  1 DDL [Data Definition Language]
  2 DML
  3 TCL
  4 DCL

1 DDL
- It is used to identify which type of data we want to store in the database
- It's provide schema of database

Following commands are used in DDL
(i) Create
(ii) Alter
(iii) Truncate
(iv) Drop
(v) Comment
(vi) Rename

(i) Create
- This command is use to create the defination or schema of our database
- Once the definition is generated the same kind of definition cannot be generated again / twise

(ii) Alter
- If we want to change the schema or defination then it is possible using alter command.
- In alter command we have to specify which defination we want to change.

- There is a limitation in alter command if data is already present in the database the alter command may keep you an error

(iii) Truncate

- This command allows us to erase the data but the format or schema will not be erase from the database
- Normally it is only useful in case of our defination is not depend on another defination

(iv) Drop

- Drop command whenever we want to remove the whole defination from over database system then drop command is used.
- Once it is remove from the database we cannot obtained erase data from the database system.

(v) Comment

- Comment used to add comments to the data dictionary

(vi) Rename

- Rename is used to rename an object

PAGE:
DATE: / /

2. DML

- DML commands are used to add, update / delete data in the database.

Following commands are used in DML

(i) Insert:

This commands allows us to add 1 or more number of records in the database

(ii) Delete:

In database system if we want to remove a whole record then delete command is used.

We can use remove more than 1 records using this command.

(iii) Update:

If we want to change or modify our data which is already inserted in the database then using update command we can modify it.

To update a single record or single value we need to specify condition which must be true the only the record will be updated

(iv) Select - It retrieves data from a database

(v) Merge - Upsert operation (Insert or update)

(vi) Call - It calls a PL/SQL or Java Subprogram

(vii) Explain Plan - It explains access path to data.

(viii) Lock Table - It controls concurrency.

We can modify the size of column but there is a limitation that if table is having one or more no. of records & we are decreasing the size then the oracle will not allow to decrease the size because the values are inserted in the same column

2 DML Command
(i) Insert Command
Syntax = Insert into ~~table~~ tablename (columnname1, columnname2, ...)
values (value1, value2, ...);

- Using this command we can add the values in specific column
- Depending on size of column the values will be in the single ~~code~~ quote ' '
- Evenever we are inserting values the datatype which is char, varchar and date it is compulsory to use single quote else for no. datatype no single quote
- Using this command we can insert multiple record but at a time only 1 record is inserted in database
- To insert multiple record ~~simul~~ one by one the following command is used

exam57@fileservercelab

PAGE :
DATE : / /

- Select Command is used to display the number of records of particular table also it is used to show the least of list of table created in the oracle.

- Create Table ~~tab~~ tbl_employee
(empid varchar(6),
empfname char(20),
emplname char(20),
empcity char(30));

(ii)- Alter Command
Syntax :- Alter table tablename
add columnname datatype [(size)];

Alter table ~~tab~~ tbl_emp1
add ~~co~~ empnumber number [(10)];

- Using alter command we can use add the columns in the table but we can not remove the columns.
- If we want to modify the size of any column then alter command is used.
Syntax :- Alter table tablename
modify columnname datatype [(size)];

PAGE :
DATE : / /

- ~~Theatre~~ Theatre

  Name
  Address
  City
  Total No. of Screen

- Hotel

  Name
  Address
  City
  Total No. of Rooms
  Facility
  Waitings

PAGE:
DATE: / /

- Food Table

Name
Type
Taste
Price

- ~~Restorant~~ Restaurants

Name
Address
Waiting
~~Catorioies~~
~~Catrigories~~ Categories
Contact
Discount

- Movies

Name
~~Relase Year~~ Release Years
Name of Director
Name of Producer
Catagories of Movies
Total Badget

- (varchar2)

3. Varchar (size): [Variable Character]

Eg. Varchar (10) = 'ABC123@h'

- This datatype allows us to store the value with the comin combination of number, cpheabets, and special symbols
- For those value whose size is not fixed we can use varchar datatype

Eg varchar (10) = 'ABC123@h'

4 Date

- Formate of system date is DD-MON-WYY
- This datatype is used to store date value in the database system which must have format available in oracle 10g.

Eg. 16-Jul-2018.

⇒ Desc.

- This command describe the column name with its datatype & size.

PAGE :
DATE : / /

Syntax: Insert into tablename values (&columnname1, &columnname2, ...);

Insert into tbl_emp values ('&empid', '&empfname', '&emplname', '&empcity', &empnumber);

* Constraints
- In oracle constraints are business rules or policies defined by an organization for successfully storing of data in the database.
- Evenever whenever we modify or delet your data it is reflected by constraints.
- In oracle following constraints are used.
  a. Primary Key
  b. Unique
  c. Not null
  d. Check
  e. Foreign Key
  f. Default

a Primary Key
- Primary Key is used to identify one or more records uniquely based on it's values.
- We can have one or more primary key in the database system.
- A column which is having a primary key constraint cannot have duplicate values and null

PAGE:
DATE: / /

Note:- Whenever we defined the constraint unique and not null together then the column is considered as primary key but the same column cannot use to define primary key constraint.

Eg create table tbl_emp123
(empid number(3) not null,
empname char(20),
empemail varchar(30) unique not null);

(8) Check.

Syntax:- Create table tablename
(columnname1 datatype [(size)] check (expression),
columnname2 datatype [(size)] check (expression));

- The check constraint is used to specify the condition in terms of an expression.
- The expression can be airthmetic, range or string expression

create table tbl_emp4444
(empid number(3) primary key,
empname char(20),
emp_age number(2), check (emp_age >= 18),
empcity char(20) check (empcity in('Ahmedabad',
'Baroda', 'Delhi')));

(c) Not Null

Syntax :-

```
create table tablename
(columnname1 datatype([(size)] not null,
...
columnnameN datatype [(size)]);
```

- A Not Null constraints is used in data base system when we want single value for the particular which can be duplicate or value must not be null

- This constraints is defined at column level only

eg.
```
create table tbl_emp
(empid number(3) unique,
empname char(20) not null,
empcity char(30) not null);

create table tbl_stud
(studnum number(3) unique not null,
studname char(30),
studcity char(30) Not null);
```

Q. We have to create table for multiplex Theatar

- Name_of_multinit
- Total_no_screen
- Capacity
- City

List of constraint

- primary key name_of_mt
- Value of Total_no_screen must be morethan 2 but lessthan 7.
- value of capacity must not be greater than 1000.
- The city can be 'Ahmedabad', 'Baroda', 'Rajkot', 'Surat'

PAGE:
DATE: / /

- Constraints are stored in user_constraints table

- select constraint_name from user_constraints where table_name='TBL_STUD';

2. Unique
- A unique key is used to identify the records of the database in which there is no duplication but it can have null value

(i) column level.

Syntax :- Create table tablename
(columnname1 datatype[(size)], unique,
...
columnname N datatype[(size)]);

(ii) Table level
create table tablename
(columnname1 datatype[(size)],
...
columnname N datatype[(size)],
constraint name of constraint type of constraint
(columname));

values are not allowed

Syntax: (i) Table level
(ii) Column level

(i) Table level
create table tablename
(columnname1 datatype (size), colu
columnname2 datatype (size),
...
columnname N datatype (size),
constraint name of constraint type of constraint
(columnname columnname));

Q. Create an employee table
with ~~liscn~~ licence no. as primary key.

(ii) Column level
create table tablename
(columnname1 datatype [(size)] primary key,
columnname2 datatype [(size)],
...
columnname N datatype [(size)]);

ERROR. Cannot insert null into ("Exam16"."TBL_EMP".
"EMPID")

PAGE :
DATE : / /

4. TCL :

- Each & Every operation perform inside the database system is considered as the Transaction
- To manage the transaction we require TCL commands.

Following commands are used in TCL

i) 'Commit':

If we want to save the data or operation which is performing recently in the database then commit command is used.

ii) Rollback:

If any error occur inside the database system during the insertion or updating of any data then we can modify using rollback command

If our transaction is committed then we cannot rollback it.

iii) Savepoint:

This command allow us to set the savepoint for checking of the status of the operation performed by the user so that if we apply the rollback command then it will check the boundary condition of rollback operation.

We can use multiple savepoints in our Transaction.

(1) DDL

(i) Syntax for create

Syntax: Create table tablename
(columnname1 datatype [(size)],
columnname2 datatype [(size)],
...
columnnameN datatype [(size)]);

- In the above syntax we can specify the table name for which we want to store the data or records in the database system

Eg If we want to store student records then we can give table name as a student

- We can declare one or more columns in the create command with its datatype so that schema is generated inside the database system & we can store the values according to datatype & size

PAGE :
DATE : / /

- Lists of datatype

1 Number (P, S) P = Precision S = Scale
2 Char
3 Varchar (size)
4 Date

1 Number (P, S)
- In this datatype we can store numeric values including 0-9 and decimal values
Eg 3.14 or 55.25 this types of values we can store by specifing a total no of precision & scaling parameters (argument)

2 Char
Eg. char = 'A' or 'z'

Char (Size)
Eg. char(5) = 'ABCDE' or 'HELLO'
- This datatype is used to store the character values in which single character or more than character are allow depending on size of character datatype

3. DCL

- The DCL commands are used in the data base system to control the data based on the permission given on the data.

Following commands are used in DCL

(i) Grant:

This command allows the user to read, change delete, the data which is already created by some other people.

(ii) Revoke:

It is opposite to the grant command where the privileges given to the user is withdrawn from the user, so a user cannot modify read or delete the data.

Privileges and its types

(iii) System

Create a session, table, etc. are all types of system privilege.

(iv) Object

Any command or query to work on tables comes under object privilege.

PAGE :
DATE : / /

* DML Command
  (i) Insert
  (ii) Delete
  (iii) Update

(ii) Delete

This command is used to remove one or multiple records from table.

- To identify the records which we want to delete we must know value which is available inside the table

Syntax :-

Delete ~~table~~ from tablename
where columnname = values;

- In this command the where ~~cla~~ clause is used to identify the record we want to delete based on the columnname and its value.

Q Delete record of those dept whose strength is more than 15 ?

PAGE :
DATE : / /

(iii) Update

Syntax Update tablename
set columnname = values
where columnname = values ;

- Update command is used to modify the values which is already available in the table
- We can update single records or multiple records using update command

Q Display all records of multiplex table
Q Change the capacity of mt whose screen are morethan 5. [update command]
Q Remove those records from the mtable which is located in surat city. [Delete]

PAGE:
DATE: / /

DDL Command

(iv) Drop.
- Syntax
  drop table tablename;
- This command is use to remove all the records of the table with the schema

Ex. Drop table tbl_stu;

(iii) Truncate command
- Syntax:
  Truncate table tablename;
- Using this command all the records of the table is deleted and the schema will be not reconstructured without any constraint

Ex Truncate table tbl_stu;

(vi) Rename Command
- Syntax
  rename oldtablename to newtablename;
- A Rename command is used to change the name of the table which is already available in the database system.

Ex- rename tbl_stu to tbl_stud;

Q How to create table from existing table?

- Syntax

create table newtablename
as select * from oldtablename;

* To Remove the column using alter command

Syntax: alter table tablename
drop column columnname;

- Using alter command we can drop column which is already available in database
- Whenever we remove the column the values of that column is also remove from the table

Ex. alter table tbl_stu
drop column emailid;

PAGE:
DATE: / /

Q Following table schema

columnname	datatype [(size)]
rollnumber	number (3)
firstname	char (20)
city	char (20)
pincode	number (6)

Q A user want to add last name column and also change the size and the datatype city column?

A. Alter command

```
alter table tbl_stu
add lastname char(20);
```

- Alter command

```
alter table tbl_stu
modify city varchar(30);
```

Q A user want to add primary key constraint on rollnumber column?

A. Alter command

```
alter table tbl_stu
add constraint pk_rollnumber primary ke
(rollnumber);
```

Q. A user want to rename the table

A. Rename command

```
rename tbl_stu to tbl_student;
```

Q A user want to remove all the records but don't want to remove structure

A. Truncate

```
truncate table tbl_student;
```

Q A user want to decrease the size of city column and their are 5 records available in the table

A Here we cannot decrease the size of city column because there exists one or more records in the table.

PAGE:
DATE: / /

F^
Select sum (age) -> Argument or Parameter
from tbl_stu;

Output
sum(age)
165

2. Count
a Count
select count(age)
from tbl_stu;

(b) Distinct
select count(Distinct City)
from tbl_stu;

Output
count(age)
8

count(Distinct City)
4

. Disti

(c) 3. ~~Max~~ Row. - [count(*)]
Select count(*)
from tbl_stu;

count(*) shows no. of rows.

PAGE:
DATE: / /

3. Max

```
select max(age)
from tbl-stu;
```

max(age)
25

4. Min

```
select min(age)
from tbl-stu;
```

min(age)
17

5. Avg

```
select avg(age)
from tbl-stu;
```

avg(age)
20.62