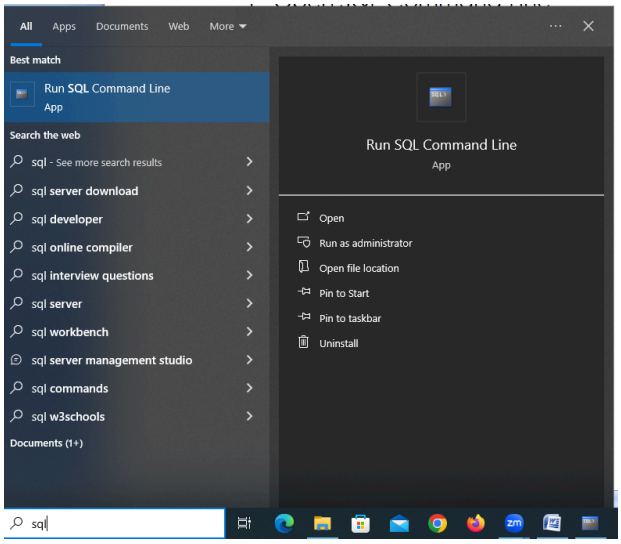
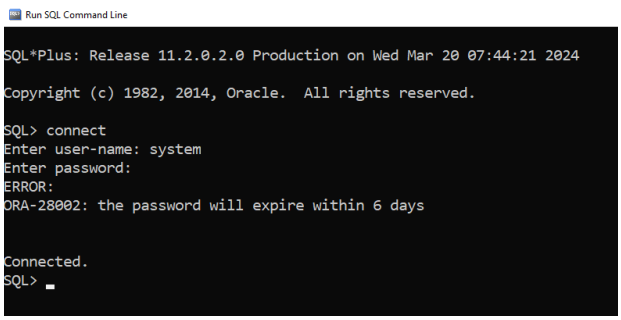
Creating Table

Syntax:

Create table <table-name>(<column-name> <datatype>, <column-name> <datatype>,<column-name> <datatype>,...);

To work with Oracle Database,

1. Open SQL Command Line
2. 

3. 


```
SQL> create table student_marks(rollno number(5) primary key,
  2  name varchar2(20),
  3  sub1 number(5,2),
  4  sub2 number(5,2),
  5  sub3 number(5,2),
```

```
  6  total number(8,2),
  7  avg number(8,2));

Table created.
```

Displaying structure of table

```
SQL> desc student_marks
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ROLLNO                                    NOT NULL NUMBER(5)
 NAME                                               VARCHAR2(20)
 SUB1                                               NUMBER(5,2)
 SUB2                                               NUMBER(5,2)
 SUB3                                               NUMBER(5,2)
 TOTAL                                              NUMBER(8,2)
 AVG                                                NUMBER(8,2)
```

Alter command

This command is used to alter table,

1. Adding columns
2. Removing columns

Syntax: Alter table <table-name> add <column-name> <datatype>
Syntax: Alter table <table-name> drop <column-name>

```
SQL> alter table student_marks add result varchar2(20);

Table altered.

SQL> desc student_marks;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
```

ROLLNO	NOT NULL NUMBER(5)
NAME	VARCHAR2(20)
SUB1	NUMBER(5,2)
SUB2	NUMBER(5,2)
SUB3	NUMBER(5,2)
TOTAL	NUMBER(8,2)
AVG	NUMBER(8,2)
RESULT	VARCHAR2(20)

Drop command

This command for deleting database objects (table, index,…)

Syntax: drop table <table-name>

SQL> drop table stud_marks;

Table dropped.

INSERT command

Inserting data into the database table.

Syntax1: insert into <table-name> values(value1,value2,value3,…)
Syntax2: insert into <table-name> (col1,col2,col3,..)
values(value1,value2,value3,…)

SQL> insert into student_marks (rollno,name,sub1,sub2,sub3)
values(101,'naresh',70,80,90);

1 row created.

```
SQL> insert into student_marks (rollno,name,sub1,sub2,sub3)
values(102,'suresh',70,60,80);

1 row created.

SQL> insert into student_marks (rollno,name,sub1,sub2,sub3)
values(103,'kishore',30,50,80);

1 row created.

SQL> insert into student_marks (rollno,name,sub1,sub2,sub3)
values(104,'kiran',30,50,60);

1 row created.

SQL> insert into student_marks (rollno,name,sub1,sub2,sub3)
values(105,'ramesh',70,90,60);

1 row created.
```

SELECT command

This command is used to read data from database table.

```
Select * from <table-name>
Select <column-name>,<column-name>,.. from <table-name>
Select * from <table-name> where <condition>

SQL> select * from student_marks;

   ROLLNO NAME                 SUB1       SUB2       SUB3      TOTAL
---------- ------------------- ---------- ---------- ---------- ----------
      AVG RESULT
```

---------- --------------------
101 naresh 70 80 90

102 suresh 70 60 80

103 kishore 30 50 80

ROLLNO NAME SUB1 SUB2 SUB3 TOTAL
---------- -------------------- ---------- ---------- ---------- ----------
AVG RESULT
---------- --------------------
104 kiran 30 50 60

105 ramesh 70 90 60

SQL> select rollno,name,sub1,sub2,sub3 from student_marks;

ROLLNO NAME SUB1 SUB2 SUB3
---------- -------------------- ---------- ---------- ----------
101 naresh 70 80 90
102 suresh 70 60 80
103 kishore 30 50 80
104 kiran 30 50 60
105 ramesh 70 90 60

SQL> select rollno,name,sub1,sub2,sub3 from student_marks where sub1>=70;

```
    ROLLNO NAME                 SUB1       SUB2       SUB3
---------- ------------------- ---------- ---------- ----------
       101 naresh                    70         80         90
       102 suresh                    70         60         80
       105 ramesh                    70         90         60
```

SQL> select rollno,name,sub1,sub2,sub3 from student_marks where rollno=105;

```
    ROLLNO NAME                 SUB1       SUB2       SUB3
---------- ------------------- ---------- ---------- ----------
       105 ramesh                    70         90         60
```

UPDATE command

This command is used for replacing values or updating values.

Syntax: update <table-name> set column-name=<value> where <condition>

SQL> update student_marks set total=sub1+sub2+sub3;

5 rows updated.

SQL> update student_marks set avg=total/3;

5 rows updated.

SQL> update student_marks set result='pass' where sub1>=40 and sub2>=40 and sub3>=40;

3 rows updated.

SQL> update student_marks set result='fail' where sub1<40 or sub2<40 or sub3<40;

2 rows updated.

SQL>

SQL> select rollno,name,total,avg,result from student_marks;

ROLLNO	NAME	TOTAL	AVG	RESULT
101	naresh	240	80	pass
102	suresh	210	70	pass
103	kishore	160	53.33	fail
104	kiran	140	46.67	fail
105	ramesh	220	73.33	pass

DELETE command

This command is used for deleting rows from database table

DELETE from <table-name> where <condition>

SQL> delete from student_marks where rollno=102;

1 row deleted.

SQL> select rollno,name,total,avg,result from student_marks;

ROLLNO	NAME	TOTAL	AVG	RESULT
101	naresh	240	80	pass
103	kishore	160	53.33	fail
104	kiran	140	46.67	fail
105	ramesh	220	73.33	pass

 # Write a program to create table in oracle database

```
import cx_Oracle

cn=cx_Oracle.connect(dsn="localhost:1521/XE",user="system",passw
ord="manager")
print("connection established...")
c=cn.cursor()
c.execute('''create table user_profile(name varchar2(20),
uname varchar2(20) primary key,
pwd varchar2(20) not null)''')
print("Table Created...")
```

Output

```
connection established...
Table Created...
>>>
```

Example

Write a program to insert data into user_profile table (User Registeration)

```
import sys
import cx_Oracle
```

```
cn=cx_Oracle.connect(dsn="localhost:1521/XE",user="system",passw
ord="manager")
c=cn.cursor()
name=input("Name :")
user=input("UserName :")
pwd=input("Password :")

try:
    c.execute("insert into user_profile values(:1,:2,:3)",(name,user,pwd))
    k=c.rowcount
    if k==1:
        print("User Registered...")
        cn.commit()
except:
    t=sys.exc_info()
    print(t[1])
finally:
    cn.close()
```

Output

```
Name :naresh
UserName :nit
Password :nit321
User Registered...
>>>
Name :suresh
UserName :suresh
Password :s456
User Registered...
```

Example:

Write a program to change password of user

```
import cx_Oracle

cn=cx_Oracle.connect(dsn="localhost:1521/XE",user="system",passw
ord="manager")
c=cn.cursor()
print("*****Updating Password ****")
user=input("UserName :") # nit
old_pwd=input("Old Password :") # nit123
new_pwd=input("New Pasword :") # nit321

c.execute("update user_profile set pwd=:1 where uname=:2 and
pwd=:3",(new_pwd,user,old_pwd))
k=c.rowcount
if k==1:
   print("Password Updated...")
   cn.commit()
else:
   print("Invalid username or password")

cn.close()
```

Output

```
*****Updating Password ****
UserName :nit
Old Password :nit123
New Pasword :nit321
Invalid username or password
>>>
*****Updating Password ****
```

UserName :nit
Old Password :nit321
New Pasword :nit123
Password Updated...

Example:

```
# Write a program to delete user from user_profile table

import cx_Oracle


cn=cx_Oracle.connect(dsn="localhost:1521/XE",user="system",passw
ord="manager")
c=cn.cursor()

uname=input("UserName to Delete ")
c.execute("delete from user_profile where uname=:1",(uname,))
k=c.rowcount
if k==1:
   print("user deleted from database table")
   cn.commit()
else:
   print("invalid username ")

cn.close()
```

Output

```
UserName to Delete suresh
user deleted from database table

UserName to Delete suresh
invalid username
```

>>>

Reading data from database table

Python program send “SELECT” command to database using execute method.
Database executes “SELECT” command and return result of “SELECT” command into cursor object.
Python program read data from cursor object using fetching methods.

1. fetchone()
2. fetchmany(n)
3. fetchall()

Example:

Write a program to display student_marks details

```
import cx_Oracle

cn=cx_Oracle.connect(dsn="localhost:1521/XE",user="system",passw
ord="manager")
c=cn.cursor()

c.execute("select * from student_marks")

stud1=c.fetchone()
print(stud1)
stud2=c.fetchone()
print(stud2)
stud3=c.fetchone()
```

```
print(stud3)
stud4=c.fetchone()
print(stud4)
stud5=c.fetchone()
print(stud5)
```

Output

```
(101, 'naresh', 70.0, 80.0, 90.0, 240.0, 80.0, 'pass')
(103, 'kishore', 30.0, 50.0, 80.0, 160.0, 53.33, 'fail')
(104, 'kiran', 30.0, 50.0, 60.0, 140.0, 46.67, 'fail')
(105, 'ramesh', 70.0, 90.0, 60.0, 220.0, 73.33, 'pass')
None
```

Example:

```
# Write a program to display student_marks details



import cx_Oracle

cn=cx_Oracle.connect(dsn="localhost:1521/XE",user="system",passw
ord="manager")
c=cn.cursor()

c.execute("select * from student_marks")

rows=c.fetchmany(2)

print(rows)
for row in rows:
    print(row)
```

Output

[(101, 'naresh', 70.0, 80.0, 90.0, 240.0, 80.0, 'pass'), (103, 'kishore', 30.0, 50.0, 80.0, 160.0, 53.33, 'fail')]
(101, 'naresh', 70.0, 80.0, 90.0, 240.0, 80.0, 'pass')
(103, 'kishore', 30.0, 50.0, 80.0, 160.0, 53.33, 'fail')

Example:

```
# Write a program to display student_marks details


import cx_Oracle

cn=cx_Oracle.connect(dsn="localhost:1521/XE",user="system",passw
ord="manager")
c=cn.cursor()

c.execute("select * from student_marks")

rows=c.fetchall()

print(rows)
for row in rows:
    print(row)
```

Output

```
[(101, 'naresh', 70.0, 80.0, 90.0, 240.0, 80.0, 'pass'), (103, 'kishore', 30.0, 50.0, 80.0, 160.0, 53.33, 'fail'), (104, 'kiran', 30.0, 50.0, 60.0, 140.0, 46.67, 'fail'), (105, 'ramesh', 70.0, 90.0, 60.0, 220.0, 73.33, 'pass')]
(101, 'naresh', 70.0, 80.0, 90.0, 240.0, 80.0, 'pass')
(103, 'kishore', 30.0, 50.0, 80.0, 160.0, 53.33, 'fail')
(104, 'kiran', 30.0, 50.0, 60.0, 140.0, 46.67, 'fail')
(105, 'ramesh', 70.0, 90.0, 60.0, 220.0, 73.33, 'pass')
>>>
```