

```

declare
    type data is table of number;
    dt data:=data(10,20,30);
begin
    for i in dt.first..dt.last
    loop
        dbms_output.put_line(dt(i));
    end loop;
end;
/

```

```

-----

declare
    type marks is table of number;
    mk marks:=marks(10,20,30,40);
begin
    dbms_output.put_line(mk.count);
    mk.extend(2);
    mk(mk.last):=50;
    dbms_output.put_line('After Extending');
    for i in mk.first..mk.last
    loop
        dbms_output.put_line(mk(i));
    end loop;

    dbms_output.put_line('After Deleting');
    mk.delete(1);
    for i in mk.first..mk.last
    loop
        dbms_output.put_line(mk(i));
    end loop;

    if mk.exists(2) then
        dbms_output.put_line('Found');
        dbms_output.put_line(mk(2));
    else
        dbms_output.put_line('Not Found');
    end if;

    dbms_output.put_line(mk.count);
end;
/

```

```

-----

declare
    type nums is table of number;
    no nums:=nums();
    limit number;

```

```

begin
    limit:=&limit;
    no.extend(limit);
    for i in 1..limit
    loop
        no(i):=i*i;
    end loop;

    for i in no.first..no.last
    loop
        dbms_output.put_line(no(i));
    end loop;

end;
/

```

```

-----
=====SQL=====
SQL*Plus: Release 10.2.0.1.0 - Production on Thu Jan 8 08:43:43 2026

Copyright (c) 1982, 2005, Oracle. All rights reserved.

```

```

SQL> connect
Enter user-name: prince/sagar
Connected.
SQL> create type data as table of number;
2 /

```

Type created.

```

SQL> create type toollist as table of varchar(10);
2 /

```

Type created.

```

SQL> create table labour(labid number,tools toollist);
create table labour(labid number,tools toollist)
*
```

```

ERROR at line 1:
ORA-22913: must specify table name for nested table column or attribute

```

```

SQL> create table labour(labid number,tools toollist) nested table tools store as
toolstore;

```

Table created.

```

SQL> insert into labour values(101,toollist('Hammer','Nails'));

```

1 row created.

```
SQL> insert into labour values(102,toollist('Plier','Driver'));
```

1 row created.

```
SQL> select * from labour;
```

```
      LABID
-----
TOOLS
-----
      101
TOOLLIST('Hammer', 'Nails')

      102
TOOLLIST('Plier', 'Driver')
```

```
SQL> create type marks as table of number;
```

```
2 /
```

```
create type marks as table of number;
```

```
*
```

ERROR at line 1:

ORA-00955: name is already used by an existing object

```
SQL> create type runs as table of number;
```

```
2 /
```

Type created.

```
SQL> create table players(playcd number,playname varchar(10),
2 runscored runs) nested table runscored store as runstore;
```

Table created.

```
SQL> insert into players values(1,'Rohit',runs(56,76,78));
```

1 row created.

```
SQL> insert into players values(2,'Virat',runs(53,34));
```

1 row created.

```
SQL> insert into players values(3,'Rahul',runs(53,34,34,76));
```

1 row created.

```
SQL> select * from players;
```

```

PLAYCD PLAYNAME
-----
RUNSCORED
-----
      1 Rohit
RUNS(56, 76, 78)

      2 Virat
RUNS(53, 34)

      3 Rahul
RUNS(53, 34, 34, 76)

```

```

SQL> select * from players p where exists(selct 1 from table(p.runscored) t
      2  where t.column_value=76);
select * from players p where exists(selct 1 from table(p.runscored) t
                                     *

```

```

ERROR at line 1:
ORA-00928: missing SELECT keyword

```

```

SQL> select * from players p where exists(select 1 from table(p.runscored) t
      2  where t.column_value=76);

```

```

PLAYCD PLAYNAME
-----
RUNSCORED
-----
      3 Rahul
RUNS(53, 34, 34, 76)

      1 Rohit
RUNS(56, 76, 78)

```

```

SQL> select p.playcd,p.playname,t.column_value from players p,table(p.runscored) t;

```

```

PLAYCD PLAYNAME  COLUMN_VALUE
-----
      1 Rohit           56
      1 Rohit           76
      1 Rohit           78
      2 Virat           53
      2 Virat           34
      3 Rahul           53
      3 Rahul           34
      3 Rahul           34
      3 Rahul           76

```

9 rows selected.

SQL> ed c:/oracle/ns1.sql

SQL> @ c:/oracle/ns1.sql
type data as table of number;
*

ERROR at line 2:

ORA-06550: line 2, column 15:

PLS-00103: Encountered the symbol "TABLE" when expecting one of the following:
object opaque

SQL> ed c:/oracle/ns1.sql

SQL> @ c:/oracle/ns1.sql

PL/SQL procedure successfully completed.

SQL> set serveroutput on

SQL> @ c:/oracle/ns1.sql

10

20

30

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns1.sql

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

0

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

3

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

0

1

PL/SQL procedure successfully completed.

```
SQL> ed c:/oracle/ns2.sql
```

```
SQL> @ c:/oracle/ns2.sql
```

```
0
```

```
3
```

```
PL/SQL procedure successfully completed.
```

```
SQL> ed c:/oracle/ns2.sql
```

```
SQL> @ c:/oracle/ns2.sql
```

```
mk:=10;
```

```
*
```

```
ERROR at line 7:
```

```
ORA-06550: line 7, column 6:
```

```
PLS-00382: expression is of wrong type
```

```
ORA-06550: line 7, column 2:
```

```
PL/SQL: Statement ignored
```

```
SQL> ed c:/oracle/ns1.sql
```

```
SQL> ed c:/oracle/ns2.sql
```

```
SQL> @ c:/oracle/ns2.sql
```

```
mk:=(10);
```

```
*
```

```
ERROR at line 7:
```

```
ORA-06550: line 7, column 6:
```

```
PLS-00382: expression is of wrong type
```

```
ORA-06550: line 7, column 2:
```

```
PL/SQL: Statement ignored
```

```
SQL> ed c:/oracle/ns2.sql
```

```
SQL> @ c:/oracle/ns2.sql
```

```
mk=10;
```

```
*
```

```
ERROR at line 7:
```

```
ORA-06550: line 7, column 4:
```

```
PLS-00103: Encountered the symbol "=" when expecting one of the following:
```

```
:= . ( @ % ;
```

```
The symbol ":= was inserted before "=" to continue.
```

```
SQL> ed c:/oracle/ns2.sql
```

```
SQL> @ c:/oracle/ns2.sql
```

0

After Extending

10

1

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

0

declare

*

ERROR at line 1:

ORA-06533: Subscript beyond count

ORA-06512: at line 8

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

0

After Extending

10

20

2

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

2

After Extending

30

40

4

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

2

After Extending

10

20

30

4

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

4

After Extending

10

20

30

40

50

After Deleting

20

30

40

50

5

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

4

After Extending

10

20

30

40

50

After Deleting

10

20

30

40

50

6

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns2.sql

SQL> @ c:/oracle/ns2.sql

4

After Extending

10

20

30

40


```
50
After Deleting
20
30
40
50
Not Found
5
```

PL/SQL procedure successfully completed.

```
SQL> ed c:/oracle/ns2.sql
```

```
SQL> @ c:/oracle/ns2.sql
4
```

```
After Extending
10
20
30
40
50
After Deleting
20
30
40
50
Found
5
```

PL/SQL procedure successfully completed.

```
SQL> ed c:/oracle/ns2.sql
```

```
SQL> @ c:/oracle/ns2.sql
4
```

```
After Extending
10
20
30
40
50
After Deleting
20
30
40
50
Not Found
5
```

PL/SQL procedure successfully completed.

```
SQL> ed c:/oracle/ns2.sql
```

```
SQL> @ c:/oracle/ns2.sql
```

```
4
```

```
After Extending
```

```
10
```

```
20
```

```
30
```

```
40
```

```
50
```

```
After Deleting
```

```
20
```

```
30
```

```
40
```

```
50
```

```
Found
```

```
20
```

```
5
```

```
PL/SQL procedure successfully completed.
```

```
SQL> ed c:/oracle/ns2.sql
```

```
SQL> ed c:/oracle/ns3.sql
```

```
SQL> @ c:/oracle/ns3.sql
```

```
Enter value for limit: 20
```

```
old 6:          limit:=&limit;
```

```
new 6:          limit:=20;
```

```
1
```

```
2
```

```
3
```

```
4
```

```
5
```

```
6
```

```
7
```

```
8
```

```
9
```

```
10
```

```
11
```

```
12
```

```
13
```

```
14
```

```
15
```

```
16
```

```
17
```

```
18
```

```
19
```

```
20
```

PL/SQL procedure successfully completed.

SQL> @ c:/oracle/ns3.sql

Enter value for limit: 100

old 6: limit:=&limit;

new 6: limit:=100;

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43

44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93

94
95
96
97
98
99
100

PL/SQL procedure successfully completed.

SQL> ed c:/oracle/ns3.sql

SQL>