

HELLO

My name is sawsan odibat

CIS 3d year

**I will display some examples
about PL/SQL**

I will consider this schema

DOCTOR

F_name	L_name	Doc_id	Dept_no
varchar2	varchar2	number	number

DEPARTMENT

Dept_name	Dept_no
varchar2	number

DATES

Doc_id	Dept_no	Avail_date	Case_of_date
number	number	date	varchar2

This is DOCTOR table

Results Explain Describe Saved SQL History

Object Type TABLE Object DOCTOR

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
DOCTOR	<u>F_NAME</u>	Varchar2	10	-	-	-	✓	-	-
	<u>L_NAME</u>	Varchar2	10	-	-	-	✓	-	-
	<u>DOC_ID</u>	Number	-	2	0	1	-	-	-
	<u>DEPT_NO</u>	Number	-	2	0	-	✓	-	-

And this is DEPARTMENT table

Results Explain Describe Saved SQL History

Object Type TABLE Object DEPARTMENT

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
DEPARTMENT	DEPT_NAME	Varchar2	14	-	-	-	✓	-	-
	DEPT_NO	Number	-	-	-	1	-	-	-
									1-2

Lastly this is DATES table

Results Explain Describe Saved SQL History

Object Type TABLE Object DATES

[illegible]

Here are
14 rows in
DOCTOR
table

Results Explain Describe Saved SQL History

F_NAME	L_NAME	DOC_ID	DEPT_NO
kristen	duerr	1	3
bob	woodbuy	2	1
lynne	roughley	3	1
kristen	smith	4	3
karen	seitz	5	2
justin	palmeiro	6	1
hercule	poiro	11	2
mac	mendelsohn	7	2
sherlock	holmes	8	3
watson	-	9	3
marple	-	10	1
maurean	martin	12	2
jennifer	smith	13	1
-	guevara	14	1

14 rows returned in 0.00 seconds

[CSV Export](#)

And we have 3 departments

Results Explain Describe Saved SQL History

DEPT_NAME	DEPT_NO
wounds	1
consult	2
treatment	3

3 rows returned in 0.00 seconds

[CSV Export](#)

At DATES
table 19
dates
some are
available
and
others
are
locateble

Results Explain Describe Saved SQL History

DOC_ID	DEPT_NO	AVAIL_DATE	CASE_OF_DATE
0	2	01/01/12	alocateble
1	3	01/03/12	available
3	1	09/04/12	available
9	3	05/05/12	available
2	1	02/06/12	available
1	3	02/06/12	available
1	3	05/06/12	available
4	3	11/06/12	available
5	2	20/06/12	available
6	1	30/09/12	available
7	2	23/10/12	available
8	3	11/12/12	available
9	3	12/10/12	available
10	1	10/06/12	available
11	2	24/06/12	available
13	1	02/02/12	available
9	3	02/06/12	available
12	2	02/06/12	alocateble
14	1	19/01/12	available

19 rows returned in 0.02 seconds

[CSV Export](#)

Implicit cursor

```
DECLARE
```

```
f_d_name varchar2(20);
```

```
l_d_name varchar2(20);
```

```
department number;
```

```
BEGIN
```

```
select f_name, l_name,dept_no  
into f_d_name,l_d_name,department  
from doctor  
where doc_id=5;
```

```
DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||  
' ' || 'work at department number : ' || department);
```

```
END;
```

```
/
```

Notice this row validate the condition

Results	Explain	Describe	Saved SQL	History
F_NAME	L_NAME	DOC_ID	DEPT_NO	
kristen	duerr	1	3	
bob	woodbuy	2	1	
lynne	roughley	3	1	
kristen	smith	4	3	
karen	seitz	5	2	
justin	palmiero	6	1	
hercule	poiro	11	2	
mac	mendelsohn	7	2	

The implicit cursor will build Context area

which retrieve only one row

Number of rows

1

Active set

F_NAME	L_NAME	DOC_ID
karen	seitz	2

DECLARE

```
f_d_name varchar2(20);  
l_d_name varchar2(20);  
department number;
```

BEGIN

```
select f_name, l_name, dept_no  
into f_d_name, l_d_name, department  
from doctor  
where doc_id=5;
```

f_d_name

karen

l_d_name

seitz

```
DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||  
' ' || 'work at department number : ' || department);
```

END;

/

department

2

Finally this result

Results Explain Describe Saved SQL History

the doctor : karen seitz work at department number : 2

Statement processed.

0.02 seconds

Explicit cursor

```
DECLARE

f_d_name varchar2(20);
l_d_name varchar2(20);
d_date date;
date_case dates.case_of_date%type default 'locateble';

cursor doc_info is select f_name, l_name, avail_date, case_of_date
from doctor , dates where doctor.doc_id=dates.doc_id and doctor.doc_id=1;

BEGIN

    open doc_info ;
    loop

fetch doc_info  into f_d_name,l_d_name,d_date,date_case;
DBMS_output.put_line('the case of ' || d_date || ' of the doctor '
    || f_d_name || ' ' || l_d_name || ' ' || 'is ' || date_case);
exit when doc_info%notfound;
    end loop;
    close doc_info;
END;
/
```

This is result of select statement

Results Explain Describe Saved SQL History

F_NAME	L_NAME	AVAIL_DATE	CASE_OF_DATE
kristen	duerr	11/13/12	available
kristen	duerr	12/11/12	available
kristen	duerr	12/11/12	available

3 rows returned in 0.00 seconds

[CSV Export](#)

The explicit cursor will build Context
area which retrieve more than one
row

Number of rows

3

Active set

F_NAME	L_NAME	AVAIL_DATE	CASE_OF_DATE
kristen	duerr	1/1/12	available
kristen	duerr	2/1/12	available
kristen	duerr	3/1/12	available

But why prints 4 ?

Results Explain Describe Saved SQL History

```
the case of 06/03/12 of the doctor kristen duerr is available
the case of 02/10/12 of the doctor kristen duerr is available
the case of 05/10/12 of the doctor kristen duerr is available
the case of 05/10/12 of the doctor kristen duerr is available
```

Statement processed.

0.00 seconds

DECLARE

f_d_name varchar2(20);

l_d_name varchar2(20);

d_date date;

date_case dates.case_of_date\$type default 'locateble';

cursor doc_info is select f_name, l_name, avail_date, case_of_date
from doctor , dates where doctor.doc_id=dates.doc_id and doctor.doc_id=1;

BEGIN

 open doc_info ;
 loop

**printing command before exit
condition**

 fetch doc_info into f_d_name, l_d_name, d_date, date_case;

 DBMS_output.put_line('the case of ' || d_date || ' of the doctor '
 || f_d_name || ' ' || l_d_name || ' ' || 'is ' || date_case);

 exit when doc_info%notfound;

 end loop;

 close doc_info;

END;

/

When put exit condition before print


```
BEGIN

open doc_info ;

loop

  fetch doc_info into f_d_name, l_d_name, d_date, date_case;
  exit when doc_info%notfound;

  DBMS_output.put_line('the case of ' || d_date || ' of the doctor ' || f_d_name);
end loop;
close doc_info;
```



Results Explain Describe Saved SQL History

```
the case of 06/03/12 of the doctor kristen duerr is available
the case of 02/10/12 of the doctor kristen duerr is available
the case of 05/10/12 of the doctor kristen duerr is available
```

Statement processed.

0.00 seconds

This causes a logical error

```
DECLARE

f_d_name varchar2(20);
l_d_name varchar2(20);
department number;

BEGIN

select f_name, l_name,dept_no
into f_d_name,l_d_name,department
from doctor
where doc_id=6;

department:=department+1;

DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||
' ' || 'work at department number : ' || department);
```

[Results](#) [Explain](#) [Describe](#) [Saved SQL](#) [History](#)

the doctor : justin palmeiro work at department number : 2

Statement processed.

This causes a logical error

```
DECLARE
```

```
f_d_name varchar2(20);  
l_d_name varchar2(20);  
department number;
```

```
BEGIN
```

```
select f_name, l_name, dept_no  
into f_d_name, l_d_name, department  
from doctor  
where doc_id=6;
```

```
department:=department+1;
```

```
DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||  
' ' || 'work at department number : ' || department);
```

[Results](#) [Explain](#) [Describe](#) [Saved SQL](#) [History](#)

```
the doctor : justin palmeiro work at department number : 2
```

```
Statement processed.
```

this is right result

Results Explain Describe Saved SQL Histo

F_NAME	L_NAME	DOC_ID	DEPT_NO
kristen	duerr	1	3
bob	woodbuy	2	1
lynne	roughley	3	1
kristen	smith	4	3
karen	seitz	5	2
justin	palmeiro	6	1
hercule	poiro	11	2

this is the right result

```
DECLARE

f_d_name varchar2(20);
l_d_name varchar2(20);
department number;

BEGIN

select f_name, l_name, dept_no
into f_d_name, l_d_name, department
from doctor
where doc_id=6;

DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||
' ' || 'work at department number : ' || department);

END;
/
```

Results Explain Describe Saved SQL History

the doctor : justin palmeiro work at department number : 1

Statement processed.

This causes a syntax error

```
DECLARE
```

```
f_d_name varchar2(20);  
l_d_name varchar2(20);  
department number;
```

```
BEGIN
```

```
select f_name, l_name, dept_no  
into f_d_name, l_d_name, department  
from doctor  
where doc_id=5;
```

```
DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||  
' ' || 'work at department number : ' || department);
```

```
END;
```

```
/
```

```
ORA-06550: line 12, column 13:  
PL/SQL: ORA-00920: invalid relational operator  
ORA-06550: line 9, column 1:  
PL/SQL: SQL Statement ignored  
1. DECLARE  
2.  
3. f_d_name varchar2(20);
```


This is cause syntax error

```
DECLARE
```

```
f_d_name varchar2(20);  
l_d_name varchar2(20);  
department number;
```

```
BEGIN
```

```
select f_name, l_name, dept_no  
into f_d_name, l_d_name, department  
from doctor  
where doc_id:=5;
```

```
DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||  
' ' || 'work at department number : ' || department);
```

```
END;
```

```
/
```

```
ORA-06550: line 12, column 13:  
PL/SQL: ORA-00920: invalid relational operator  
ORA-06550: line 9, column 1:  
PL/SQL: SQL Statement ignored  
1. DECLARE  
2.  
3. f_d_name varchar2(20);
```

This causes a runtime error

```
DECLARE
```

```
f_d_name varchar2(20);  
l_d_name varchar2(20);  
department number;
```

```
BEGIN
```

```
select f_name, l_name, dept_no  
into f_d_name, l_d_name, department  
from doctor  
where doc_id=15;
```

```
DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||  
' ' || 'work at department number : ' || department);
```

```
END;  
/
```

Results Explain Describe Saved SQL History

ORA-01403: no data found

This is cause runtime error

```
DECLARE
```

```
f_d_name varchar2(20);  
l_d_name varchar2(20);  
department number;
```

```
BEGIN
```

```
select f_name, l_name, dept_no  
into f_d_name, l_d_name, department  
from doctor  
where doc_id=15;
```

no doctor has 15 id

```
DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||  
' ' || 'work at department number : ' || department);
```

```
END;
```

```
/
```

Results Explain Describe Saved SQL History

ORA-01403: no data found

For loop and if/elsif

```
DECLARE
```

```
d_name department.dept_name%type;
```

```
d_num department.dept_no%type;
```

```
BEGIN
```

```
    DBMS_output.put_line('here are 3 departments :');
```

```
d_num:=1;
```

```
for d_num in 1..3
```

```
loop
```

```
if d_num=1 then d_name:='wounds';
```

```
    DBMS_output.put_line('the department ' || d_name || ' ' || 'has department number : ' || d_num);
```

```
elsif d_num=2 then d_name:='consult';
```

```
    DBMS_output.put_line('the department ' || d_name || ' ' || 'has department number : ' || d_num);
```

```
elsif d_num=3 then d_name:='treatment';
```

```
    DBMS_output.put_line('the department ' || d_name || ' ' || 'has department number : ' || d_num);
```

```
end if;
```

```
[
```

```
end loop;
```

```
END;
```

```
/
```

The result

here are 3 departments :

the department wounds has department number : 1

the department consult has department number : 2

the department treatment has department number : 3

Statement processed.

0.70 seconds

```
DECLARE
this_date date;
date_case varchar2(20);

cursor dates_info is
select avail_date, case_of_date
from dates
where case_of_date='available';

BEGIN

open dates_info ;
    loop
fetch dates_info  into this_date,date_case;
DBMS_output.put_line('the case of ' || this_date || ' is :' || date_case);
    exit when  dates_info%notfound;
    end loop;
close  dates_info;

END;
/
```

Results	Explain	Describe	Saved SQL	History
---------	---------	----------	-----------	---------

the case of 06/03/12	is	:available
the case of 09/04/12	is	:available
the case of 05/05/12	is	:available
the case of 02/10/12	is	:available
the case of 02/10/12	is	:available
the case of 05/10/12	is	:available
the case of 11/10/12	is	:available
the case of 20/10/12	is	:available
the case of 30/09/12	is	:available
the case of 23/10/12	is	:available
the case of 11/12/12	is	:available
the case of 12/10/12	is	:available
the case of 15/06/12	is	:available
the case of 24/06/12	is	:available
the case of 02/02/12	is	:available
the case of 02/10/12	is	:available
the case of 19/01/12	is	:available

Statement processed.

DECLARE

f_d_name doctor.f_name%type;

BEGIN

f_d_name:=initcap('marple');

DBMS_output.put_line('doctor: '||f_d_name||' hasn't last name');

f_d_name:=initcap('waston');

DBMS_output.put_line('doctor: '||f_d_name||' hasn't last name');

END;

/

remember

hercule	poirrot	11	1
mac	mendelsohn	1	1
sherlock	holmes	1	1
watson	-	1	1
marple	-	1	1
maurean	martin	11	1
jennifer	smith	11	1
-	guevara	11	1

result

Results	Explain	Describe	Saved SQL	History
---------	---------	----------	-----------	---------

```
doctor: Marple hasn't last name
```

```
doctor: Waston hasn't last name
```

```
Statement processed.
```

Pre-defined exception

```
DECLARE
```

```
f_d_name varchar2(20);
```

```
l_d_name varchar2(20);
```

```
department number;
```

```
BEGIN
```

```
select f_name, l_name,dept_no  
into f_d_name,l_d_name,department  
from doctor  
where doc_id=20;
```

```
DBMS_output.put_line('the doctor : ' || f_d_name || ' ' || l_d_name ||  
' ' || 'work at department number : ' || department);
```

```
exception when no_data_found then DBMS_output.put_line  
('this doc_id is not valid retry to another which is less than 14');
```

```
END;
```

```
/
```

DECLARE

f_d_name varchar2(20);

l_d_name varchar2(20);

department number;

BEGIN

select f_name, l_name, dept_no

into f_d_name, l_d_name, department

from doctor

where doc_id=20;



no doctor has
doc_id 20

DBMS output.put line('the doctor : ' || f_d_name ||')

Results Explain Describe Saved SQL History

this doc_id is not valid retry to another which is less than 14

Statement processed.

Undefined exception

```
DECLARE
```

```
f_d_name varchar2(20):='fransis';
```

```
doc_no number(2):=15;
```

```
doc_dept_no number(2):=4;
```

```
error_occur exception;
```

```
PRAGMA exception_init(error_occur,-0127);
```

```
BEGIN
```

```
insert into doctor (f_name,doc_id,dept_no)
```

```
values (f_d_name ,doc_no ,doc_dept_no );
```

```
commit;
```

```
exception
```

```
when error_occur then DBMS_output.put_line('department nnmber ' ||doc_dept_no ||  
' does not exist in department table');
```

```
DBMS_output.put_line('specify valid department number such that 1 or 2 or 3');
```

```
END;
```

```
/
```

DECLARE

f_d_name varchar2(20):='fransis';

doc_no number(2):=15;

doc_dept_no number(2):=4;



error_occur exception;

PRAGMA exception_init(error_occur,-0127);

BEGIN

insert into doctor (f_name,doc_id,dept_no)

values (f_d_name ,doc_no ,doc_dept_no);

commit;

exception

when error_occur then DBMS_output.put_line('department nmber ' ||doc_dept_no ||
' does not exist in department table ');

DBMS_output.put_line('specify valid department number such that 1 or 2 or 3');

END;

/

there is no
department
number 4

result

Results Explain Describe Saved SQL History

```
department number 4 does not exist in department table  
specify valid department number such that 1 or 2 or 3
```

Statement processed.

0.00 seconds

User defined exception

```
DECLARE
this_date date;
my_date date;
date_case varchar2(20);
not_exist_date exception;

cursor dates_info is
select avail_date, case_of_date
from dates
where case_of_date='available';

BEGIN
my_date:=to_char('05/05/2012');
open dates_info ;
    loop
fetch dates_info  into this_date,date_case;

if my_date=this_date then
DBMS_output.put_line('the case of ' || my_date || ' is :' || date_case);
end if;
exit when  dates_info%notfound;

    end loop;
close  dates_info;

if this_date is null THEN RAISE not_exist_date ;
end if;

exception
when not_exist_date then DBMS_output.put_line('you may miss type syntax date');
DBMS_output.put_line('specify avalid syntax of date ');

END;
/
```

DOC_ID	DEPT_NO	AVAIL_DATE	CASE_OF_DATE
0	2	01/10/12	alocateble
1	3	06/03/12	available
3	1	09/04/12	available
4	3	05/05/12	available
2	1	02/10/12	available
1	3	02/10/12	available

The result When not null

Results Explain Describe Saved SQL History

```
the case of 05/05/12 is :available
```

```
Statement processed.
```

```
0.01 seconds
```

When null date

```
DECLARE
this_date date;
my_date date;
date_case varchar2(20);
not_exist_date exception;

cursor dates_info is
select avail_date, case_of_date
from dates
where case_of_date='available';

BEGIN
|
open dates_info ;
  loop
fetch dates_info  into this_date,date_case;

if my_date=this_date then
DBMS_output.put_line('the case of ' || my_date || ' is :' || date_case);
end if;
exit when  dates_info%notfound;

      end loop;
close  dates_info;

if this_date is null THEN RAISE not_exist_date ;
end if;

exception
when not_exist_date then DBMS_output.put_line('you may miss type syntax date');
DBMS_output.put_line('specify avalid syntax of date ');

END;
/
```

The result will be

Results Explain Describe Saved SQL History

you may miss type syntax date or
specify avalid syntax of date
Statement processed.

... seconds

The end
thank you