

## loops in plsql

while condition do statements end while	It is a top tested loop, the statements will run till the condition is true
repeat  until condition end repeat	It is a bottom tested loop, the statements will run till the condition is false
lable1: loop if condition then leave lable1 end if ; end loop;	it is infinite loop statements will keep on running till the leave statement does not get executed.

1. display number from 1 to num using all 3 loops

```

delimiter //
delimiter //
create procedure displaynumwhile(num int)
begin
declare str varchar(100) default "";
declare n int default 1;
while n<=num do
    set str=concat(str,n,",");
    set n=n+1;
end while;
set str=substr(str,1,length(str)-1);
select str;
end//
delimiter ;

```

-----using repeat loop

```

delimiter //
create procedure displaynumrepeate(num int)
begin
/* multiline comment*/
declare str varchar(100) default "";
declare n int default 1;
repeat
    set str=concat(str,n,",");
    set n=n+1;
until n>num    --loop will stop when the condition is true
end repeat;
set str=substr(str,1,length(str)-1);    #it will delete the last character from the string
select str;
end//
delimiter ;

```

```

---use loop endloop
delimiter //
create procedure displaynumloop(num int)
begin
declare str varchar(100) default "";
declare n int default 1;
label1: loop
    set str=concat(str,n,","); #1,2,3,4,5,
    set n=n+1;
    if n>num then
        leave label1;
    end if;

end loop;
set str=substr(str,1,length(str)-1); -- it will delete the last character of the string
select str;
end//
delimiter ;

```

In mysql the select statement which returns multiple rows is allowed to be written inside the procedure, but in other databases like oracle, allows only select....into statement inside the procedure hence if you need multiple rows from a table inside procedure, then we use cursor.

step by step procedure to use cursor

1. declare the cursor
2. declare continue handler to stop the loop
3. open cursor -> the data will be populated in the cursor
4. fetch the next row in the cursor
5. check if it is last row, then stop the loop and goto step 8
6. process the row
7. repeat steps 4 to 6 till the data is available in the cursor
8. close cursor

```

display all employees from emp table
delimiter //
create procedure displayallemp()
begin
declare vfinished int default 0;
declare vempno,vmgr,vdeptno int;
declare vename,vjob varchar(20);
declare vsal,vcomm float(9,2);
declare vhiredate date;
declare empcur cursor for select * from emp;
declare continue handler for NOT FOUND set vfinished=1;
open empcur;
label1:loop
    fetch empcur into vempno,vename,vjob,vmgr,vhiredate,

```

```

        vsal,vcomm,vdeptno;
    if vfinished=1 then
        leave label1;
    end if;
    select vempno,vename,vjob,vmgr,vhiredate,vsal,vcomm,vdeptno;
end loop;
close empcur;
end//
delimiter ;

```

2. update sal of employee using following rules also display the count for number of employees for each job

if job manager then increases by 10%

if job is clerk the increase it 20%

if analyst then 25%

otherwise, 8%

delimiter //

mysql> create procedure updatesalemp(out ccnt int,out mcnt int,out acnt int,out other int)

```

-> begin
-> declare vfinished int default 0;
-> declare vempno int;
-> declare vename,vjob varchar(20);
-> declare vsal,vincsal float(9,2);
-> declare empcur cursor for select empno,ename,job,sal from emp;
-> declare continue handler for NOT FOUND set vfinished=1;
-> set ccnt=0;
-> set mcnt=0;
-> set acnt=0;
-> set other=0;
-> open empcur;
-> label1:loop
-> fetch empcur into vempno,vename,vjob,vsal;
-> if vfinished=1 then
-> leave label1;
-> end if;
-> if vjob='MANAGER' then
->   set mcnt=mcnt+1;
->   set vincsal=vsal*1.1;
->   update emp
->   set sal=vincsal
->   where empno=vempno;
->
-> elseif vjob='CLERK' then
->   set ccnt=ccnt+1;
->   set vincsal=vsal*1.2;
->   update emp
->   set sal=vincsal

```

```

-> where empno=vempno;
-> elseif vjob='ANALYST' then
-> set acnt=acnt+1;
-> set vincsal=vsal*1.25;
-> update emp
-> set sal=vincsal
-> where empno=vempno;
-> else
-> set other=other+1;
-> set vincsal=vsal*1.08;
-> update emp
-> set sal=vincsal
-> where empno=vempno;
-> end if;
->
-> select vempno,vename,vjob,vsal,vincsal;
-> end loop;
->
-> close empcur;
-> end//

```

3. Write a procedure that displays the following information of all emp  
Empno,Name,job,Salary,Status,deptno  
Note: - Status will be (Greater, Lesser or Equal) respective to average  
salary of their own department. Display an error message Emp table is  
empty if there is no matching record.

delimiter //

create procedure displaystatus()

begin

declare vfinished,vcnt int default 0;

declare vempno,vdeptno int;

declare vename,vjob,vstatus varchar(20);

declare vsal,vavgsal float(9,2);

declare empcur cursor for select empno,ename,job,sal,deptno from emp;

declare continue handler for NOT FOUND set vfinished=1;

#load the data from table to cursor

open empcur;

label1:loop

fetch empcur into vempno,vename,vjob,vsal,vdeptno;

if vfinished =1 then

if vcnt=0 then

select 'emp table is empty'

end if

leave label1;

end if

```

set vcnt=vcnt+1;
select avg(sal) into vavgсал
from emp
where deptno=vdeptno;
if vsal<vavgсал then
    set vstatus='lesser';
elseif vsal=vavgсал then
    set vstatus='equal';
else
    set vstatus='greater';
end if;
select vempno,vename,vjob,vsal,vdeptno,vavgсал,vstatus;

end loop;
close empcur;
end//
delimiter ;

```

set GLOBAL log\_bin\_trust\_function\_creators=1;

1. write a function to calculate experience;

create function calcexperience(ehiredate date) returns int

```

-> begin
-> declare vexp int;
-> set vexp=floor(datediff(curdate(),ehiredate)/365);
-> return vexp;
-> end//

```

to call the function

select empno,ename,hiredate,calcexperience(hiredate)

-> from emp;

2. write a function to return bonus of the employee

if sal > 2000 and job=CLERK then 10% sal

if sal> 3000 and job=Salesman then 20% of sal

else it is 15% of the sal.

delimiter //

create function calculatebonus(esal float(9,2),ejob varchar(20))

returns float

begin

declare vbonus float(9,2);

if ejob='CLERK' and esal>2000 then

```

        set vbonus=esal*0.10;
    elseif ejob='SALESMAN' and esal>3000 then
        set vbonus=esal*0.20;
    else
        set vbonus=esal*0.15;
    end if;
    return vbonus;
end//
delimiter ;

```

3. write a procedure to display bonus for all employees  
 write a function to return bonus of the employee  
 if sal > 2000 and job=CLERK then 10% sal  
 if sal> 3000 and job=Salesman then 20% of sal  
 else it is 15% of the sal.

```

delimiter //
create procedure displaybonus()
begin
    declare vempno,vfinished int default 0;
    declare vename,vjob varchar(20);
    declare vsal,vbonus float(9,2);
    declare empcur cursor for select empno,ename,job,sal from emp;
    declare continue handler for NOT FOUND set vfinished=1;
    open empcur;
    label1:loop
        fetch empcur into vempno,vename,vjob,vsal;
        if vfinished=1 then
            leave label1;
        end if;
        set vbonus=calculatebonus(vsal,vjob);
        select vempno,vename,vsal,vjob,vbonus;
    end loop;
    close empcur;

end//
delimiter ;

```

#### Handling exceptions

There are 2 types of exception handlers\_action

continue	resume the code after handling the exception
exit	stop the code after handling the exception

#### syntax

declare <handler\_action> handler for <exception> statements

<exception>

1. SQLEXCEPTION
2. mysqlerror code
3. SQLSTATE value
4. NOT FOUND

```
create procedure insdeptrec(did int,dname varchar(20),dloc varchar(20))
delimiter //
create procedure insdeptrec(did int,pdname varchar(20),pdloc varchar(20))
begin
    declare exit handler for SQLEXCEPTION select "error occurred";
    insert into dept values(did,pdname,pdloc);
    select did,pdname,pdloc,"duplicate value not inserted";
end//
delimiter ;
```

to see the definition of the procedure

```
select ROUTINE_DEFINITION
    -> from information_schema.Routines
    -> where specific_name='getremark1'
    -> ;
```

to see the list of procedures in the database

```
show procedure status where db='iacsd0324'
```

to see the list of functions in the database

```
show function status where db='iacsd0324'
```