Assignment - V

Title :- PL/SQL - Control structure.

Problem statement :-

Write a PL/SQL block of code for the following requirements.

Schema

Customer (cust. id, Name, Date_of_payment, Name_of_schema, Status)

Fine (cust id, Date, Amount)

1. Accept cust id & name of schema from user.

2. Check the number of days (from date of payment). If days are bet^h 15 to 30 then fine amount will be Rs. 5 per day

3. If no. of days > 30 per day fine will be Rs. 50

4. After payment, status will change from N to P.

5. If condition of fine is true then details will be stored into fine table.

Objective :- To understand

- The control structure

- Exception handling in PL/SQL.

Outcome :-

The students will be able to implement PL/SQL block, user defined & predefined exception handling

Control Structure using PL/SQL.

S/W & H/W requirements :-

SQL package, PC with 64 bit OS.

Theory :-

PL/SQL

- It stands for procedural language / structured query language.

- It offers a set of procedural commands (If statements, loops, assignments) organized within blocks that complement & extend the reach of SQL.

Blocks in PL/SQL.

A PL/SQL block is defined by the keywords. DECLARE, BEGIN, EXCEPTION & END which break up the block into 3 sections.

DECLARATIVE -

statements that declare variables contants & the other code elements which can be used with that block.

Execute :-

Statements that run when the block is executed.

Exception Handling -

A specially structured section you can use to "catch" or trap any exceptions that are raised when the executable section runs.

Syntax:

```
DECLARE
    declaration section
BEGIN
    executable section
EXCEPTION
    exception handling statements.
END.
```

Exception Handling :-

In PL/SQL, exceptions are handled in exception block, using exception handling we can test the code & avoid it from exiting abruply when an exception occurs a message which explains its cause is recieved.

Types of Exception :-

Named System Exception - They are raised by

Oracle automatically when program violates a RDBMS rule.

Onnamed System Exception - They are not provided any name by oracle. They are handled using when others exception handler or by associating the exception code to a name & using it as a named exception.

Oser-defined Exception :-
They are explicitly raised in execution section & are explicitly declared in declaration section. They should be handled by referencing the user-defined exception name in exception block.

Condlusion :-
In this assignment we have studied PL/SQL block, control structure & exception handling.

```sql
create table Customer (cust_id int primary key auto_increment,name
varchar(100), Dateofpayment date, scheme varchar(100),status varchar(50)
default "N");

create table fine (cust_id int ,dte date ,amt int default 0);



DELIMITER $$
create procedure cust_proc(in id int ,in schme varchar(100))
begin
DECLARE fine_amt int;
declare no_of_days int;
declare mstatus varchar(100);
declare dop date;
declare lessdays condition for sqlstate '22014';
declare paid condition for sqlstate '22012';
declare iexception condition for sqlstate '22013';
declare exit handler for paid
resignal set message_text='already paid';
declare continue handler for lessdays
resignal set message_text ='Days are less than 15 since no fine';
declare exit handler for iexception
resignal set message_text='no of days are 0';
select Dateofpayment into dop from Customer where cust_id=id and
schme=scheme;
select datediff(sysdate(),dop) into no_of_days;
select status into mstatus from Customer where cust_id=id;
if mstatus="P" then
signal paid;
end if;
if no_of_days <0 then
 signal iexception;
```

```
 end if;
if no_of_days >=15 and no_of_days <=30 then
set fine_amt=(5* no_of_days);
elseif no_of_days >30 then
set fine_amt=(50* no_of_days);
else
set fine_amt=0;
end if;
update Customer set status="P" where cust_id=id ;
insert into fine values (id,sysdate(),fine_amt);
if no_of_days<15 then
signal lessdays;
end if;


end$$

call cust_proc(9,'scheme9');
```

root@jaypal-Inspiron-15-3567: ~

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use practical2
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select* from Customer;
```
+---------+--------+--------------+---------+--------+
| cust_id | name   | Dateofpayment | scheme  | status |
+---------+--------+--------------+---------+--------+
|       1 | cust1  | 2020-09-12   | scheme1 | P      |
|       2 | cust2  | 2020-09-14   | scheme2 | P      |
|       3 | cust3  | 2020-08-11   | scheme3 | N      |
|       4 | cust4  | 2020-09-15   | scheme4 | N      |
|       5 | cust5  | 2020-09-14   | scheme5 | N      |
|       6 | cust6  | 2020-08-30   | scheme6 | N      |
|       7 | cust7  | 2020-08-24   | scheme7 | N      |
|       8 | cust8  | 2020-08-22   | scheme8 | P      |
|       9 | cust9  | 2020-04-12   | scheme9 | N      |
|      10 | cust10 | 2020-05-14   | scheme10| N      |
|      11 | cust11 | 2020-02-11   | scheme11| N      |
|      12 | cust12 | 2020-01-15   | scheme12| N      |
+---------+--------+--------------+---------+--------+
12 rows in set (0.00 sec)
```
mysql> select * from fine;
```
+---------+------------+------+
| cust_id | dte        | amt  |
+---------+------------+------+
|    NULL | 2020-09-16 |    0 |
|       8 | 2020-09-16 |  125 |
+---------+------------+------+
2 rows in set (0.00 sec)
```
mysql> call cust_proc(9,'scheme9');
Query OK, 1 row affected, 1 warning (0.14 sec)

mysql> select* from Customer;
```
+---------+--------+--------------+---------+--------+
| cust_id | name   | Dateofpayment | scheme  | status |
+---------+--------+--------------+---------+--------+
|       1 | cust1  | 2020-09-12   | scheme1 | P      |
|       2 | cust2  | 2020-09-14   | scheme2 | P      |
|       3 | cust3  | 2020-08-11   | scheme3 | N      |
|       4 | cust4  | 2020-09-15   | scheme4 | N      |
|       5 | cust5  | 2020-09-14   | scheme5 | N      |
|       6 | cust6  | 2020-08-30   | scheme6 | N      |
|       7 | cust7  | 2020-08-24   | scheme7 | N      |
|       8 | cust8  | 2020-08-22   | scheme8 | P      |
|       9 | cust9  | 2020-04-12   | scheme9 | P      |
|      10 | cust10 | 2020-05-14   | scheme10| N      |
```

```
|    4 | cust4  | 2020-09-15  | scheme4  | N   |
|    5 | cust5  | 2020-09-14  | scheme5  | N   |
|    6 | cust6  | 2020-08-30  | scheme6  | N   |
|    7 | cust7  | 2020-08-24  | scheme7  | N   |
|    8 | cust8  | 2020-08-22  | scheme8  | P   |
|    9 | cust9  | 2020-04-12  | scheme9  | N   |
|   10 | cust10 | 2020-05-14  | scheme10 | N   |
|   11 | cust11 | 2020-02-11  | scheme11 | N   |
|   12 | cust12 | 2020-01-15  | scheme12 | N   |
+------+--------+-------------+----------+-----+
12 rows in set (0.00 sec)

mysql> select * from fine;
+---------+------------+------+
| cust_id | dte        | amt  |
+---------+------------+------+
|    NULL | 2020-09-16 |    0 |
|       8 | 2020-09-16 |  125 |
+---------+------------+------+
2 rows in set (0.00 sec)

mysql> call cust_proc(9,'scheme9');
Query OK, 1 row affected, 1 warning (0.14 sec)

mysql> select* from Customer;
+---------+--------+-------------+----------+--------+
| cust_id | name   | Dateofpayment | scheme | status |
+---------+--------+-------------+----------+--------+
|       1 | cust1  | 2020-09-12  | scheme1  | P      |
|       2 | cust2  | 2020-09-14  | scheme2  | P      |
|       3 | cust3  | 2020-08-11  | scheme3  | N      |
|       4 | cust4  | 2020-09-15  | scheme4  | N      |
|       5 | cust5  | 2020-09-14  | scheme5  | N      |
|       6 | cust6  | 2020-08-30  | scheme6  | N      |
|       7 | cust7  | 2020-08-24  | scheme7  | N      |
|       8 | cust8  | 2020-08-22  | scheme8  | P      |
|       9 | cust9  | 2020-04-12  | scheme9  | P      |
|      10 | cust10 | 2020-05-14  | scheme10 | N      |
|      11 | cust11 | 2020-02-11  | scheme11 | N      |
|      12 | cust12 | 2020-01-15  | scheme12 | N      |
+---------+--------+-------------+----------+--------+
12 rows in set (0.00 sec)

mysql> select * from fine;
+---------+------------+------+
| cust_id | dte        | amt  |
+---------+------------+------+
|    NULL | 2020-09-16 |    0 |
|       8 | 2020-09-16 |  125 |
|       9 | 2020-09-17 | 7900 |
+---------+------------+------+
3 rows in set (0.00 sec)

mysql> call cust_proc(9,'scheme9');
ERROR 1644 (22012): already paid
mysql>
```