

Rupesh Dharme

31124

TE 01

## Assignment 04

Title: Unnamed PL/SQL code block and Exception handling.

Aim: To understand:

- control structure
- exception handling

Problem Statement:

Write a PL/SQL block for following schema: 1. Borrower (rollno, name, doi, Book, status) 2. Fine (Rollno, date, amt)  
Accept roll no and name from user and calculate and insert fine in Fine table.  
Also change status from 'l' to 'r'

S/W H/W: MySQL, Windows 10 (64 bit)

Reference: 'Database system concepts', McGraw Hill publication

Theory:

PL/SQL: is a procedural extension of SQL that offers language constructs similar to imperative programming languages.

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## Features of PL/SQL

- can define variables
- enables use of control structures
- Exception handling
- Modular code can be written

## Structure of PL/SQL block

PL/SQL block is elementary component of it.

DECLARE

< declarations >

BEGIN

< executables >

EXCEPTION

< exception blk >

END;

## Conditional statements and loops

PL/SQL allows us to use the following conditional statements:

- IF THEN
- IF THEN ELSE
- IF THEN ELSEIF

and following loops:

- SIMPLE LOOP
- WHILE LOOP and • FOR LOOP



Exception handling:

PL/SQL provides support for exception handling

syntax:

<Exception name> Exception;

Conclusion:

Successfully completed implementation of problem statement. Learned syntax of PL/SQL, Conditional statements, Loops and exception handling.

```

-- Rupesh Dharne
-- TE 01
-- K1
-- 31124
-- Assignment 04
/*
  Unnamed PL/SQL code block: Use of Control structure and Exception handling is
  mandatory.
  Suggested Problem statement:
  Consider Tables:
  1. Borrower(Roll_no, Name, DateofIssue, NameofBook, Status)
  2. Fine(Roll_no,Date,Amt)
  Accept Roll_no & NameofBook from user.
  • Check the number of days (from date of issue),
  • If days are between 15 to 30 then fine amount will be Rs 5per day.
  • If no. of days>30, per day fine will be Rs 50 per day & for days less than 30,
  Rs. 5 per
  day.
  • After submitting the book, status will change from I to R.
  • If condition of fine is true, then details will be stored into fine table.
  • Also handles the exception by named exception handler or user define exception
  handler.
  */

create database assignment04;

use assignment04;

show tables;

create table borrowers(
    roll_no int not null auto_increment,
    name varchar(20) not null,
    doi date not null,
    name_book varchar(20) not null,
    status char(1) not null,
    primary key(roll_no)
);

create table fines(
    roll_no int not null,
    dof date not null,
    amount int not null,
    foreign key(roll_no) references borrowers(roll_no) on delete cascade
);

show tables;

desc borrowers;

desc fines;

insert into borrowers
values (100, 'Rupesh', '2021-08-08', 'CNS', 'I');

insert into borrowers (name, doi, name_book, status)
values ('Rohan', '2021-07-05', 'DSA', 'I'),
       ('Dheeraj', '2021-06-20', 'SPOS', 'I'),
       ('Gayatri', '2021-07-18', 'MP', 'I'),
       ('Tejas', '2021-06-03', 'FDS', 'I');

```

```

select * from borrowers;

delimiter //

create procedure calculate_fine(roll int, name varchar(20))
begin
    declare days int;

    -
    - Also handles the exception by named exception handler or user define exception handler
    declare continue handler for not found
    begin
        select "Customer Not Found";
    end;

    -- Check the number of days (from date of issue)
    select datediff(curdate(), doi) into days from borrowers where roll_no = roll
    and name = name;

    -- If days are between 15 to 30 then fine amount will be Rs 5per day
    if (days > 15 and days < 30) then
        insert into fines(roll_no, dof, amount)
        values (roll, curdate(), 5 * days);

    -
    - If no. of days>30, per day fine will be Rs 50 per day & for days less than 30,
    Rs. 5 per
    -- day
    elseif days > 30 then
        insert into fines(roll_no, dof, amount) -
    - If condition of fine is true, then details will be stored into fine table
        values (roll, curdate(), 150 +(days -30) * 50);
    end if;

    -- After submitting the book, status will change from I to R
    update borrowers set status = 'R' where roll_no = roll;
end;
//

delimiter ;

call calculate_fine(100, 'Rupesh');

select * from fines;

call calculate_fine(101, 'Rohan');

select * from fines;

call calculate_fine(104, 'Tejas');

select * from fines;

```

```
mysql> -- Rupesh Dharne
mysql> -- TE 01
mysql> -- K1
mysql> -- 31124
mysql> -- Assignment 04
mysql>
```

```
mysql> create database assignment04;
Query OK, 1 row affected (0.02 sec)
```

```
mysql>
mysql> use assignment04;
Database changed
```

```
mysql>
mysql> show tables;
Empty set (0.02 sec)
```

```
mysql>
mysql> create table borrowers(
->   roll_no int not null auto_increment,
->   name varchar(20) not null,
->   doi date not null,
->   name_book varchar(20) not null,
->   status char(1) not null,
->   primary key(roll_no)
-> );
```

```
Query OK, 0 rows affected (0.05 sec)
```

```
mysql>
mysql> create table fines(
->   roll_no int not null,
->   dof date not null,
->   amount int not null,
->   foreign key(roll_no) references borrowers(roll_no) on delete cascade
-> );
```

```
Query OK, 0 rows affected (0.08 sec)
```

```
mysql>
mysql> show tables;
```

```
+-----+
| Tables_in_assignment04 |
+-----+
| borrowers               |
| fines                   |
+-----+
```

```
2 rows in set (0.01 sec)
```

```
mysql>
mysql> desc borrowers;
```

```
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
```



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```
mysql>
mysql> desc borrowers;
```

Field	Type	Null	Key	Default	Extra
roll_no	int	NO	PRI	NULL	auto_increment
name	varchar(20)	NO		NULL	
doi	date	NO		NULL	
name_book	varchar(20)	NO		NULL	
status	char(1)	NO		NULL	

5 rows in set (0.01 sec)

```
mysql>
mysql> desc fines;
```

Field	Type	Null	Key	Default	Extra
roll_no	int	NO	MUL	NULL	
dof	date	NO		NULL	
amount	int	NO		NULL	

3 rows in set (0.00 sec)

```
mysql>
mysql> insert into borrowers
-> values (100, 'Rupesh', '2021-08-08', 'CNS', 'I');
Query OK, 1 row affected (0.02 sec)
```

```
mysql>
mysql> insert into borrowers (name, doi, name_book, status)
-> values ('Rohan', '2021-07-05', 'DSA', 'I'),
-> ('Dheeraj', '2021-06-20', 'SPOS', 'I'),
-> ('Gayatri', '2021-07-18', 'MP', 'I'),
-> ('Tejas', '2021-06-03', 'FDS', 'I');
Query OK, 4 rows affected (0.01 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

```
mysql>
mysql> select * from borrowers;
```

roll_no	name	doi	name_book	status
100	Rupesh	2021-08-08	CNS	I
101	Rohan	2021-07-05	DSA	I
102	Dheeraj	2021-06-20	SPOS	I
103	Gayatri	2021-07-18	MP	I
104	Tejas	2021-06-03	FDS	I





```
mysql>
mysql> delimiter //
mysql>
mysql> create procedure calculate_fine(roll int, name varchar(20))
-> begin
->     declare days int;
->
->     -- Also handles the exception by named exception handler or user define exception handler
->     declare continue handler for not found
->     begin
->         select "Customer Not Found";
->     end;
->
->     -- Check the number of days (from date of issue)
->     select datediff(curdate(), doi) into days from borrowers where roll_no = roll and name = name;
->
->     -- If days are between 15 to 30 then fine amount will be Rs 5per day
->     if (days > 15 and days < 30) then
->         insert into fines(roll_no, dof, amount)
->         values (roll, curdate(), 5 * days);
->
->     -- If no. of days>30, per day fine will be Rs 50 per day & for days less than 30, Rs. 5 per
->     -- day
->     elseif days > 30 then
->         insert into fines(roll_no, dof, amount) -- If condition of fine is true, then details will be stored into fine table
->         values (roll, curdate(), 150 +(days -30) * 50);
->     end if;
->
->     -- After submitting the book, status will change from I to R
->     update borrowers set status = 'R' where roll_no = roll;
-> end;
-> //
```

Query OK, 0 rows affected (0.03 sec)

```
mysql>
mysql> delimiter;
```



```
mysql> delimiter ;
mysql>
mysql> call calculate_fine(100, 'Rupesh');
Query OK, 1 row affected (0.02 sec)
```

```
mysql>
mysql> select * from fines;
+-----+-----+-----+
| roll_no | dof      | amount |
+-----+-----+-----+
|      100 | 2021-08-27 |      95 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql>
mysql> call calculate_fine(101, 'Rohan');
Query OK, 1 row affected (0.01 sec)
```

```
mysql>
mysql> select * from fines;
+-----+-----+-----+
| roll_no | dof      | amount |
+-----+-----+-----+
|      100 | 2021-08-27 |      95 |
|      101 | 2021-08-27 |     1300 |
+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql>
mysql> call calculate_fine(104, 'Tejas');
Query OK, 1 row affected (0.00 sec)
```

```
mysql>
mysql> select * from fines;
+-----+-----+-----+
| roll_no | dof      | amount |
+-----+-----+-----+
|      100 | 2021-08-27 |      95 |
|      101 | 2021-08-27 |     1300 |
|      104 | 2021-08-27 |     2900 |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

```
mysql>
```

