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Class: TE2 Comp
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```
create table borrower(  
    roll_no integer primary key,  
    name varchar2(20) not null,  
    dateOfIssue date not null,  
    nameOfBook varchar(15) not null,  
    status varchar(1) not null  
);
```

```
create table fine(  
    roll_no integer not null,  
    accessDate date not null,  
    amount number not null  
);
```

```
Insert into borrower values (23, 'Tejas', '22-OCT-2020', 'Let us C',  
'I');  
Insert into borrower values (45, 'Tanmay', '21-NOV-2020', 'Let us C++',  
'I');  
Insert into borrower values (35, 'Harshika', '18-FEB-2020', 'Meluha',  
'I');  
Insert into borrower values (25, 'Sumedh', '01-NOV-2020', 'Deception  
Point', 'I');
```

```
Insert into fine values (23, '23-NOV-2020', 0);  
Insert into fine values (45, '23-NOV-2020', 0);  
Insert into fine values (35, '23-NOV-2020', 0);  
Insert into fine values (25, '23-NOV-2020', 0);
```

```
DECLARE  
    dateIssue date;  
    dateCurrent date;  
    dateDiff integer;  
    choice integer;  
    c_roll_no integer;  
    c_name varchar(20);  
    c_amount integer;  
    c_status varchar(1);  
BEGIN  
    c_amount := &c_amount;  
    choice := &choice;  
    c_roll_no := &c_roll_no;  
    IF c_roll_no<0 THEN  
        RAISE EX;  
    END IF;  
    CASE choice  
        WHEN 1 then  
            Select dateOfIssue,name into dateIssue,c_name from borrower  
where roll_no=c_roll_no and status = 'I' ;  
            dbms_output.put_line('Checking fine for '||c_name);  
            dateCurrent := SYSDATE();  
            dateDiff := dateCurrent-dateIssue;  
            if dateDiff between 15 and 30 then  
                c_amount := dateDiff*5;  
                dbms_output.put_line('Fine: '||c_amount||'Rs');
```

```

        update fine set accessDate = dateCurrent, amount =
c_amount where roll_no = c_roll_no;
        elsif dateDiff>30 then
            c_amount := 30*5;
            c_amount := c_amount + (dateDiff-30)*50;
            dbms_output.put_line('Fine: '||c_amount||'Rs');
            update fine set accessDate = dateCurrent, amount =
c_amount where roll_no = c_roll_no;
        else
            c_amount := 0;
            dbms_output.put_line('Fine: '||c_amount||'Rs');
            update fine set accessDate = dateCurrent, amount =
c_amount where roll_no = c_roll_no;
        END if;
    WHEN 2 then
        Select dateOfIssue,name,status into dateIssue,c_name,c_status
from borrower where roll_no=c_roll_no;
        if c_status LIKE 'I' then
            dbms_output.put_line(c_name||' submitting book back. ');
            dbms_output.put_line('Checking fine for '||c_name);
            dateCurrent := SYSDATE();
            dateDiff := dateCurrent-dateIssue;
            if dateDiff between 15 and 30 then
                c_amount := dateDiff*5;
                dbms_output.put_line('Fine: '||c_amount||'Rs');
                update fine set accessDate = dateCurrent, amount =
c_amount where roll_no = c_roll_no;
                update borrower set status = 'S' where roll_no =
c_roll_no;
            elsif dateDiff>30 then
                c_amount := 30*5;
                c_amount := c_amount + (dateDiff-30)*50;
                dbms_output.put_line('Fine: '||c_amount||'Rs');
                update fine set accessDate = dateCurrent, amount =
c_amount where roll_no = c_roll_no;
                update borrower set status = 'S' where roll_no =
c_roll_no;
            else
                c_amount := 0;
                dbms_output.put_line('Fine: '||c_amount||'Rs');
                update fine set accessDate = dateCurrent, amount =
c_amount where roll_no = c_roll_no;
                update borrower set status = 'S' where roll_no =
c_roll_no;
            END if;
        else
            dbms_output.put_line('No book issued currently');
        END IF;
    else dbms_output.put_line('No such choice');
END CASE;
EXCEPTION WHEN ex THEN
    dbms_output.put_line('Exception! Invalid roll number');
END;

```

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DBMSL-Assignment-05

Group A

• Questions:

Q1> What are the advantages of PL/SQL over SQL?

A1) PL/SQL is completely portable, high level performance transaction language that offers the following advantages:

- i> Support for SQL: PL/SQL lets you use all the SQL data manipulation, cursor control and transaction control commands as well as all the SQL function, operators and pseudocolumn.
- ii> Support for OOP: By encapsulating operations with data, obj types let you move data maintenance code out SQL scripts and PL/SQL blocks into methods.
- iii> Better performance: With PL/SQL, an entire block of statements can be sent to oracle at one time. This can drastically reduce communication b/w your application and oracle.
- iv> Full portability: Applications written in PL/SQL are portable to any OS.

Q2> List predefined Exceptions:

A2) PL/SQL declares predefined exceptions globally in package STANDARD.

- | | |
|-----------------------|---------------------------|
| • ACCESS_NOT_NULL | • ROWTYPE_MISMATCH |
| • CASE_NOT_FOUND | • SELF_IS_NULL |
| • COLLECTION_IS_NULL | • STORAGE_ERROR |
| • CURSOR_ALREADY_OPEN | • SUBSCRIPT_BEYOND_COUNT |
| • DUP_VAL_ON_INDEX | • SUBSCRIBE_OUTSIDE_LIMIT |
| • INVALID_CURSOR | • SYS_INVALID_ROWID |
| • INVALID_NUMBER | • TIMEOUT_ON_RESOURCE |
| • LOGIN_DENIED | • TOO_MANY_ROWS |
| • NO_DATA_FOUND | • VALUE_ERROR |
| • NOT_LOGGED_ON | |
| • ZERO_DIVIDE | |
| • PROGRAM_ERROR | |