

Practical No:04

```
mysql> CREATE DATABASE library_db;
```

Query OK, 1 row affected (0.01 sec)

```
mysql> USE library_db;
```

Database changed

```
mysql> CREATE TABLE Borrower (
```

```
-> Roll_no INT PRIMARY KEY,  
-> Name VARCHAR(100),  
-> Date_of_Issue DATE,  
-> Name_of_Book VARCHAR(100),  
-> Status CHAR(1) CHECK (Status IN ('T', 'R'))  
-> );
```

Query OK, 0 rows affected (0.03 sec)

```
mysql> CREATE TABLE Fine (
```

```
-> Roll_no INT,  
-> Date DATE,  
-> Amt DECIMAL(10, 2),  
-> FOREIGN KEY (Roll_no) REFERENCES Borrower(Roll_no)  
-> );
```

Query OK, 0 rows affected (0.02 sec)

```
mysql> INSERT INTO Borrower (Roll_no, Name, Date_of_Issue, Name_of_Book, Status)  
VALUES (1, 'John Doe', '2024-09-01', 'C++', 'T');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> INSERT INTO Borrower (Roll_no, Name, Date_of_Issue, Name_of_Book, Status)  
VALUES (2, 'Jane Smith', '2024-09-15', 'SEPM', 'T');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> DELIMITER //
```

```
mysql> CREATE PROCEDURE CalculateFine(IN roll_no INT, IN name_of_book  
VARCHAR(255))
```

```
-> BEGIN  
-> DECLARE v_date_of_issue DATE;  
-> DECLARE v_status CHAR(1);  
-> DECLARE v_fine_amount DECIMAL(10, 2);  
-> DECLARE v_days_borrowed INT;  
-> DECLARE v_error_message VARCHAR(255);  
->  
-> -- Exception handler for book not found  
-> DECLARE CONTINUE HANDLER FOR SQLEXCEPTION  
-> BEGIN
```

```

-> SET v_error_message = 'Error: The book is not currently borrowed by the user.';
-> SELECT v_error_message;
-> END;
-> SELECT Date_of_Issue, Status INTO v_date_of_issue, v_status
-> FROM Borrower WHERE Roll_no = roll_no AND Name_of_Book = name_of_book;
-> IF v_status != 'I' THEN
-> SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Book not borrowed by
this user.';
-> END IF;
-> SET v_days_borrowed = DATEDIFF(CURDATE(), v_date_of_issue);
-> IF v_days_borrowed BETWEEN 15 AND 30 THEN
-> SET v_fine_amount = v_days_borrowed * 5;
-> ELSEIF v_days_borrowed > 30 THEN
-> SET v_fine_amount = (30 * 5) + ((v_days_borrowed - 30) * 50);
-> ELSE
-> SET v_fine_amount = 0;
-> END IF;
-> IF v_fine_amount > 0 THEN
-> UPDATE Borrower SET Status = 'R' WHERE Roll_no = roll_no AND
Name_of_Book = name_of_book;
-> INSERT INTO Fine (Roll_no, Date, Amt) VALUES (roll_no, CURDATE(),
v_fine_amount);
-> END IF;
->
-> -- Final message
-> SELECT 'Fine calculation completed successfully. Amount: ', v_fine_amount;
->
-> END //

```

Query OK, 0 rows affected (0.04 sec)

mysql> DELIMITER ;

mysql> CALL CalculateFine(1, 'C++');

```

+-----+-----+
| Fine calculation completed successfully. Amount: | v_fine_amount |
+-----+-----+
|                5.00                |      5.00      |
+-----+-----+
1 row in set (0.00 sec)

```

mysql> SELECT * FROM Fine;

```

+-----+-----+-----+
| Roll_no | Date    | Amt |
+-----+-----+-----+
| 1 | 2024-10-12 | 5.00 |
+-----+-----+-----+

```

1 row in set (0.00 sec)

mysql> SELECT * FROM Borrower;

Roll_no	Name	Date_of_Issue	Name_of_Book	Status
1	John Doe	2024-09-01	C++	R
2	Jane Smith	2024-09-15	SEPM	I

2 rows in set (0.00 sec)

mysql> CALL CalculateFine(2, 'SEPM');

Fine calculation completed successfully. Amount:	v_fine_amount
0.00	0.00

1 row in set (0.00 sec)

mysql> SELECT * FROM Fine;

Roll_no	Date	Amt
1	2024-10-12	5.00
2	2024-10-12	0.00

2 rows in set (0.00 sec)

mysql> SELECT * FROM Borrower;

Roll_no	Name	Date_of_Issue	Name_of_Book	Status
1	John Doe	2024-09-01	C++	R
2	Jane Smith	2024-09-15	SEPM	I

2 rows in set (0.00 sec)