CREATE TABLE borrower(

    roll\_no int,

    name varchar(45),

    Issue\_date date,

    book\_name varchar(45),

    status varchar(45)

);

+-----------+-------------+------+-----+---------+-------+

| Field | Type    | Null | Key | Default | Extra |

+-----------+-------------+------+-----+---------+-------+

| roll\_no  | int(11) | YES  | | NULL |   |

| name  | varchar(45) | YES  | | NULL |   |

| issue\_date   | date    | YES  | | NULL |   |

| book\_name | varchar(45) | YES  | | NULL |   |

| status | varchar(45) | YES  | | NULL |   |

+-----------+-------------+------+-----+---------+-------+

CREATE TABLE fine(

    rollno int,

    fine\_date date,

    amt int

);

+--------+---------+------+-----+---------+-------+

| Field  | Type | Null | Key | Default | Extra |

+--------+---------+------+-----+---------+-------+

| rollno | int(11) | YES  | | NULL |   |

| date   | date | YES  | | NULL |   |

| amount | int(11) | YES  | | NULL |   |

+--------+---------+------+-----+---------+-------+

INSERT INTO borrower(roll\_no, name, issue\_date, book\_name, status)

VALUES (10, "Amit", "2023-11-01", "Advanced C Programming", "returned"),

(11, "Neha", "2023-11-15", "Advanced DBMS", "returned"),

(12, "Ravi", "2023-11-05", "Data Structures and Algorithms", "returned"),

(13, "Sanya", "2023-11-10", "Programming in C - Updated", "returned"),

(14, "Ravi", "2023-11-20", "Mastering DSA with JAVA", "returned"),

(15, "Anil", "2023-11-25", "Computer Network Security", "returned");

MariaDB [te31252\_db]> select \* from borrower;

+------+-------+------------+--------------------------------+----------+

| roll\_no | name  | issue\_date    | book\_name                  | status   |

+------+-------+------------+--------------------------------+----------+

|   10 | Amit  | 2023-11-01 | Advanced C Programming     | returned |

|   11 | Neha  | 2023-11-15 | Advanced DBMS              | returned |

|   12 | Ravi  | 2023-11-05 | Data Structures and Algorithms | returned |

|   13 | Sanya | 2023-11-10 | Programming in C - Updated | returned |

|   14 | Ravi  | 2023-11-20 | Mastering DSA with JAVA    | returned |

|   15 | Anil  | 2023-11-25 | Computer Network Security  | returned |

+------+-------+------------+--------------------------------+----------+

6 rows in set (0.001 sec)

CREATE PROCEDURE calc\_fine(

-> roll\_new INT,

-> book\_name\_new VARCHAR(20)

-> )

-> BEGIN

-> DECLARE x INT;

-> DECLARE CONTINUE HANDLER FOR NOT FOUND

-> BEGIN

-> SELECT 'NOT FOUND';

-> END;

->

-> DECLARE EXIT HANDLER FOR 1452

-> BEGIN

-> SELECT 'Primary Key Not Found' AS ErrorMessage;

-> END;

->

-> SELECT DATEDIFF(CURDATE(), issue\_date) INTO x

-> FROM borrower

-> WHERE roll\_no = roll\_new AND book\_name = book\_name\_new;

->

-> -- Check for fine

-> IF x > 15 AND x <= 30 THEN

-> INSERT INTO fines(roll\_no, fine\_date, amt)

-> VALUES(roll\_new, CURDATE(), (x \* 5));

-> ELSEIF x > 30 THEN

-> INSERT INTO fines(roll\_no, fine\_date, amt)

-> VALUES(roll\_new, CURDATE(), (x \* 50));

-> END IF;

->

-> UPDATE borrower

-> SET status = 'returned'

-> WHERE roll\_no = roll\_new AND book\_name = book\_name\_new;

-> END $

call calc\_fine(11,'Advanced DBMS');

MariaDB [te31252\_db]> select \* from fine;$

+--------+------------+-------+

| rollno | fine\_date  | amt   |

+--------+------------+-------+

| 11 | 2024-08-28 | 14350 |

| 11 | 2024-08-28 | 14350 |

+--------+------------+-------+

select \*from borrowers;

+---------+------+------------+-----------+----------+

| roll\_no | name | issue\_date | book\_name | status   |

+---------+------+------------+-----------+----------+

|   1 | Amit   | 2023-10-31 | Advanced C Programming    | I    |

|   2 | Neha   | 2023-10-17 | Advanced DBMS    | returned   |

|   3 | Ravi   | 2023-10-18 | Data Structures and Algorithms| I    |

|   4 | Sanya   | 2023-10-16 | Programming in C - Updated | I    |

|   5 | Ravi   | 2023-10-01 | Mastering DSA with JAVA    | I    |

|   6 | Anil   | 2023-10-10 | Computer Network Security    | I    |

+---------+------+------------+-----------+----------+

call procedure calc\_fine(9999,’java’);

+-----------+-----------+------+

| Primary Key Not Found |

+-----------+-----------+------+

USE 31380\_db;

CREATE TABLE area (

id INT PRIMARY KEY NOT NULL AUTO\_INCREMENT,

radius INT,

area FLOAT

);

DELIMITER $$

CREATE PROCEDURE area\_proc (IN rad INT)

BEGIN

DECLARE a FLOAT DEFAULT 0.0;

SET a = 3.14 \* rad \* rad;

INSERT INTO area (radius, area) VALUES (rad, a);

END $$

DELIMITER ;

-- Calling the procedure

CALL area\_proc(5);

-- Viewing inserted data

SELECT \* FROM area;

/\*

+----+--------+------+

| id | radius | area |

+----+--------+------+

|  1 |      5 | 78.5 |

+----+--------+------+

\*/

-- Modified Procedure

DELIMITER $$

CREATE PROCEDURE mod\_area (IN rad INT)

BEGIN

DECLARE a FLOAT DEFAULT 0.0;

WHILE rad <= 9 DO

SET a = 3.14 \* rad \* rad;

INSERT INTO area (radius, area) VALUES (rad, a);

SET rad = rad + 1;

END WHILE;

END $$

DELIMITER ;

-- Calling modified procedure

CALL mod\_area (2);

-- Viewing inserted data

SELECT \* FROM area;

/\*

+----+--------+--------+

| id | radius | area   |

+----+--------+--------+

|  1 |      5 |   78.5 |

|  2 |      2 |  12.56 |

|  3 |      3 |  28.26 |

|  4 |      4 |  50.24 |

|  5 |      5 |   78.5 |

|  6 |      6 | 113.04 |

|  7 |      7 | 153.86 |

|  8 |      8 | 200.96 |

|  9 |      9 | 254.34 |

+----+--------+--------+

\*/

USE 31380\_db;

CREATE TABLE borrower (

    roll\_no INT,

    name VARCHAR(50),

    doi DATE,

    book\_name VARCHAR(50),

    status VARCHAR(1) DEFAULT 'I'

);

CREATE TABLE fine (

    roll\_no INT,

    date DATE,

    amt INT

);

INSERT INTO borrower VALUES

(1,'deleniti','2012-07-03','enim',0),

(2,'harum','1998-02-27','magnam',1),

(3,'velit','1993-10-19','minus',0),

(4,'ullam','2002-09-10','incidunt',0),

(5,'totam','1992-01-23','tempora',0),

(6,'eos','2023-03-03','dolor',0),

(7,'ut','1979-10-08','nostrum',1),

(8,'debitis','1981-08-09','quae',0),

(9,'harum','2014-11-25','voluptate',1),

(10,'doloremque','1988-11-30','quo',1)

;

DELIMITER $$

CREATE PROCEDURE library (IN roll INT, IN book VARCHAR(50), IN dt DATE)

BEGIN

    DECLARE fine INT;

    DECLARE dt2 INT;

    DECLARE EXIT HANDLER FOR 1452 SELECT 'Primary Key Not Found' ErrorMessage;

    -- 1452 is the error code for "ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails"

    SELECT @idt := doi

        FROM borrower

        WHERE (roll\_no = roll AND book\_name = book);

    SELECT @stt := status

        FROM borrower

        WHERE (roll\_no = roll AND book\_name = book);

    -- DATEDIFF is an inbuilt function which returns the number of days between two dates.

    SET dt2 := DATEDIFF(dt, @idt);

-- if book has not been returned then set fine

    IF @stt = False THEN

        IF dt2 BETWEEN 0 and 14 THEN

            SET fine := 0;

        ELSEIF dt2 BETWEEN 15 AND 30 THEN

            SET fine := dt2 \* 5;

        ELSE

         SET fine := dt2 \* 50;

        END IF;

        INSERT INTO fine VALUES (roll, dt, fine);

        UPDATE borrower

         SET status = True

         WHERE (roll\_no = roll AND book\_name = book);

-- Book has been returned

    ELSE

    SELECT "Book has already been returned" AS Message;

    END IF;

END $$

DELIMITER ;

-- Sample call

call library(5, "tempora", '2000-03-20');

DELIMITER //

CREATE PROCEDURE finalException(IN rn INT, IN bn VARCHAR(50))

BEGIN

    DECLARE fineAmt INT;

    DECLARE no\_days INT;

    DECLARE doi DATE;

    DECLARE v\_status VARCHAR(1);

    DECLARE EXIT handler for SQLEXCEPTION select "Record not Found in table" ;

    SELECT dateIssue,status INTO doi,v\_status FROM borrower WHERE roll\_no = rn AND nameBook = bn;

    SET no\_days = DATEDIFF(CURDATE(), doi);

    IF no\_days BETWEEN 15 AND 30 THEN

        SET fineAmt = 5 \* no\_days;

    ELSEIF no\_days > 30 THEN

        SET fineAmt = (no\_days - 30) \* 50 + 30 \* 5;

    ELSE

        SET fineAmt = 0;

    END IF;

    INSERT INTO fine(roll\_no,DateSubmission,FineAmount) values

    (rn,CURDATE(),fineAmt);

     UPDATE borrower

        SET status = 'R'

        WHERE roll\_no = rn AND nameBook = bn;

    SELECT fineAmt AS fine\_amount;

END //

DELIMITER ;

**CORRECTED**

DELIMITER //

CREATE PROCEDURE finalException(IN rn INT, IN bn VARCHAR(50))

BEGIN

    DECLARE fineAmt INT DEFAULT 0; -- Initialize fine amount

    DECLARE no\_days INT;

    DECLARE doi DATE;

    DECLARE v\_status VARCHAR(1);

    -- User-defined exception for record not found

    DECLARE no\_record\_found EXCEPTION;

    -- Declare handler for the no\_record\_found exception

    DECLARE CONTINUE HANDLER FOR NOT FOUND

        SET v\_status = NULL; -- Set status to NULL if not found

    -- Fetch date of issue and status

    SELECT dateIssue, status INTO doi, v\_status

    FROM borrower

    WHERE roll\_no = rn AND nameBook = bn;

    -- Check if record was found

    IF v\_status IS NULL THEN

        SIGNAL no\_record\_found; -- Raise an exception if no record found

    END IF;

    SET no\_days = DATEDIFF(CURDATE(), doi);

    -- Calculate fine based on number of days

    IF no\_days BETWEEN 15 AND 30 THEN

        SET fineAmt = 5 \* no\_days;

    ELSEIF no\_days > 30 THEN

        SET fineAmt = (no\_days - 30) \* 50 + 30 \* 5;

    ELSE

        SET fineAmt = 0; -- No fine if less than 15 days

    END IF;

    -- Insert fine record into the Fine table

    INSERT INTO fine(roll\_no, DateSubmission, Amt) VALUES (rn, CURDATE(), fineAmt);

    -- Update the status of the borrower

    UPDATE borrower

    SET status = 'R'

    WHERE roll\_no = rn AND nameBook = bn;

    -- Return the calculated fine amount

    SELECT fineAmt AS fine\_amount;

END //

DELIMITER ;

USE 31380\_db;

CREATE TABLE area (

id INT PRIMARY KEY NOT NULL AUTO\_INCREMENT,

radius INT,

area FLOAT

);

DELIMITER $$

CREATE PROCEDURE area\_proc (IN rad INT)

BEGIN

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SET a = 3.14 \* rad \* rad;

INSERT INTO area (radius, area) VALUES (rad, a);

END $$

DELIMITER ;

-- Calling the procedure

CALL area\_proc(5);

-- Viewing inserted data

SELECT \* FROM area;

/\*

+----+--------+------+

| id | radius | area |

+----+--------+------+

|  1 |      5 | 78.5 |

+----+--------+------+

\*/

-- Modified Procedure

DELIMITER $$

CREATE PROCEDURE mod\_area (IN rad INT)

BEGIN

DECLARE a FLOAT DEFAULT 0.0;

WHILE rad <= 9 DO

SET a = 3.14 \* rad \* rad;

INSERT INTO area (radius, area) VALUES (rad, a);

SET rad = rad + 1;

END WHILE;

END $$

DELIMITER ;

-- Calling modified procedure

CALL mod\_area (2);

-- Viewing inserted data

SELECT \* FROM area;

/\*

+----+--------+--------+

| id | radius | area   |

+----+--------+--------+

|  1 |      5 |   78.5 |

|  2 |      2 |  12.56 |

|  3 |      3 |  28.26 |

|  4 |      4 |  50.24 |

|  5 |      5 |   78.5 |

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|  7 |      7 | 153.86 |

|  8 |      8 | 200.96 |

|  9 |      9 | 254.34 |

+----+--------+--------+

\*/