Practical no:1

**1.mysql> CREATE DATABASE school;**

**2.mysql> USE school;**

Database changed

**3.mysql> CREATE TABLE students (id INT PRIMARY KEY, name VARCHAR(100), age INT, grade VARCHAR(10));**

**4.mysql> CREATE TABLE students\_copy AS SELECT \* FROM students;**

**5.mysql> SHOW TABLES;**

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

| Tables\_in\_school |

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

| students |

| students\_copy |

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

2 rows in set (0.01 sec)

**6.mysql> CREATE TABLE students\_specific\_fields AS SELECT id, name FROM students;**

**7.mysql> DESCRIBE students\_copy;**

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

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

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

| id | int | NO | | NULL | |

| name | varchar(100) | YES | | NULL | |

| age | int | YES | | NULL | |

| grade | varchar(10) | YES | | NULL | |

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

4 rows in set (0.00 sec)

**8.mysql> DESCRIBE students\_specific\_fields;**

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

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

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

| id | int | NO | | NULL | |

| name | varchar(100) | YES | | NULL | |

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

2 rows in set (0.00 sec)

**9.mysql> CREATE TABLE students\_excluding\_record AS SELECT \* FROM students WHERE id != 1;**

**10.mysql> DESCRIBE students\_excluding\_record;**

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

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

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

| id | int | NO | | NULL | |

| name | varchar(100) | YES | | NULL | |

| age | int | YES | | NULL | |

| grade | varchar(10) | YES | | NULL | |

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

4 rows in set (0.00 sec)

**11.mysql> CREATE TABLE students\_no\_records AS SELECT \* FROM students WHERE 1 = 0;**

**12.mysql> ALTER TABLE students ADD email VARCHAR(100);**

**13.mysql> DESCRIBE students;**

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

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

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

| id | int | NO | PRI | NULL | |

| name | varchar(100) | YES | | NULL | |

| age | int | YES | | NULL | |

| grade | varchar(10) | YES | | NULL | |

| email | varchar(100) | YES | | NULL | |

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

5 rows in set (0.00 sec)

**14.mysql> ALTER TABLE students MODIFY name VARCHAR(200);**

**15.mysql> DESCRIBE students;**

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

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

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

| id | int | NO | PRI | NULL | |

| name | varchar(200) | YES | | NULL | |

| age | int | YES | | NULL | |

| grade | varchar(10) | YES | | NULL | |

| email | varchar(100) | YES | | NULL | |

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

5 rows in set (0.00 sec)

**16.mysql> ALTER TABLE students DROP COLUMN email;**

**17.mysql> ALTER TABLE students RENAME TO pupils;**

**18.mysql> SHOW TABLES;**

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

| Tables\_in\_school |

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

| pupils |

| students\_copy |

| students\_excluding\_record |

| students\_no\_records |

| students\_specific\_fields |

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

5 rows in set (0.00 sec)

**19.mysql> ALTER TABLE PUPILS RENAME COLUMN name TO full\_name;**

**20.mysql> DESCRIBE pupils;**

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

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

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

| id | int | NO | PRI | NULL | |

| full\_name | varchar(200) | YES | | NULL | |

| age | int | YES | | NULL | |

| grade | varchar(10) | YES | | NULL | |

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

4 rows in set (0.00 sec)

**21.mysql> CREATE VIEW all\_pupils\_view AS SELECT \* FROM pupils; SELECT \* FROM all\_pupils\_view;**

ERROR 1050 (42S01): Table 'all\_pupils\_view' already exists

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

| id | full\_name | age | grade |

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

| 1 | Ali | 20 | TY |

| 2 | Rohan | 20 | TY |

| 3 | Tanmay | 20 | TY |

| 4 | Atharava | 20 | TY |

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

4 rows in set (0.00 sec)

**22.mysql> CREATE VIEW specific\_fields\_pupils\_view AS SELECT id, full\_name FROM pupils; SELECT \* FROM specific\_fields\_pupils\_view;**

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

| id | full\_name |

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

| 1 | Ali |

| 2 | Rohan |

| 3 | Tanmay |

| 4 | Atharava |

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

4 rows in set (0.00 sec)

**23.mysql> CREATE VIEW specific\_pupil\_record\_view AS SELECT \* FROM pupils WHERE id = 1; SELECT \* FROM specific\_pupil\_record\_view;**

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

| id | full\_name | age | grade |

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

| 1 | Ali | 20 | TY |

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

1 row in set (0.00 sec)

**24.mysql> CREATE OR REPLACE VIEW pupils\_age\_above\_10\_view AS SELECT \* FROM pupils WHERE age > 10; SELECT \* FROM pupils\_age\_above\_10\_view;**

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

| id | full\_name | age | grade |

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

| 1 | Ali | 20 | TY |

| 2 | Rohan | 20 | TY |

| 3 | Tanmay | 20 | TY |

| 4 | Atharava | 20 | TY |

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

4 rows in set (0.00 sec)

**25.mysql> SELECT \* FROM pupils;**

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

| id | full\_name | age | grade |

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

| 1 | Ali | 20 | TY |

| 2 | Rohan | 20 | TY |

| 3 | Tanmay | 20 | TY |

| 4 | Atharava | 20 | TY |

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

4 rows in set (0.00 sec)

**26.mysql> SELECT \* FROM pupils WHERE id = 1;**

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

| id | full\_name | age | grade |

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

| 1 | Ali | 20 | TY |

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

1 row in set (0.00 sec)

**27.mysql> UPDATE pupils SET grade = 'Final Year' WHERE id = 1;**

**28.mysql> SELECT \* FROM pupils WHERE id = 1;**

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

| id | full\_name | age | grade |

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

| 1 | Ali | 20 | Final Year |

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

1 row in set (0.00 sec)

**29.mysql> DELETE FROM pupils WHERE id = 2;**

**30.mysql> SELECT \* FROM pupils;**

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

| id | full\_name | age | grade |

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

| 1 | Ali | 20 | Final Year |

| 3 | Tanmay | 20 | TY |

| 4 | Atharava | 20 | TY |

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

3 rows in set (0.00 sec)

**31.mysql> CREATE INDEX idx\_full\_name ON pupils (full\_name);**

**show indexes from pupils;**

**+--------+------------+---------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+---------+------------+**

**| Table | Non\_unique | Key\_name | Seq\_in\_index | Column\_name | Collation | Cardinality | Sub\_part | Packed | Null | Index\_type | Comment | Index\_comment | Visible | Expression |**

**+--------+------------+---------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+---------+------------+**

**| pupils | 0 | PRIMARY | 1 | id | A | 3 | NULL | NULL | | BTREE | | | YES | NULL |**

**| pupils | 1 | idx\_full\_name | 1 | full\_name | A | 3 | NULL | NULL | YES | BTREE | |**

**| YES | NULL |**

**+--------+------------+---------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+---------+------------+**

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

**Practical No:2**

**mysql> use school;**

Database changed

**mysql> CREATE TABLE pupils (id INT, full\_name VARCHAR(50), age INT, grade VARCHAR(20)); CREATE TABLE classes (class\_id INT, subject VARCHAR(50), teacher VARCHAR(50)); INSERT INTO pupils (id, full\_name, age, grade) VALUES (1, 'Ali', 20, 'TY'), (2, 'Rohan', 20, 'TY'), (3, 'Tanmay', 20, 'TY'), (4, 'Atharava', 20, 'TY'); INSERT INTO classes (class\_id, subject, teacher) VALUES (1, 'Math', 'Mr. Sharma'), (2, 'Science', 'Ms. Gupta'), (3, 'History', 'Mr. Khan');**

**mysql> SELECT pupils.full\_name, classes.subject, classes.teacher FROM pupils INNER JOIN classes ON pupils.id = classes.class\_id;**

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

| full\_name | subject | teacher |

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

| Ali | Math | Mr. Sharma |

| Rohan | Science | Ms. Gupta |

| Tanmay | History | Mr. Khan |

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

3 rows in set (0.00 sec)

**mysql> SELECT pupils.full\_name, classes.subject, classes.teacher FROM pupils LEFT JOIN classes ON pupils.id = classes.class\_id;**

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

| full\_name | subject | teacher |

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

| Ali | Math | Mr. Sharma |

| Rohan | Science | Ms. Gupta |

| Tanmay | History | Mr. Khan |

| Atharava | NULL | NULL |

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

4 rows in set (0.00 sec)

**mysql> SELECT pupils.full\_name, classes.subject, classes.teacher FROM pupils RIGHT JOIN classes ON pupils.id = classes.class\_id;**

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

| full\_name | subject | teacher |

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

| Ali | Math | Mr. Sharma |

| Rohan | Science | Ms. Gupta |

| Tanmay | History | Mr. Khan |

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

3 rows in set (0.00 sec)

**mysql> SELECT pupils.full\_name, classes.subject, classes.teacher FROM pupils FULL OUTER JOIN classes ON pupils.id = classes.class\_id;**

**mysql> SELECT pupils.full\_name, classes.subject, classes.teacher FROM pupils LEFT JOIN classes ON pupils.id = classes.class\_id UNION SELECT pupils.full\_name, classes.subject, classes.teacher FROM pupils RIGHT JOIN classes ON pupils.id = classes.class\_id;**

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

| full\_name | subject | teacher |

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

| Ali | Math | Mr. Sharma |

| Rohan | Science | Ms. Gupta |

| Tanmay | History | Mr. Khan |

| Atharava | NULL | NULL |

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

4 rows in set (0.00 sec)

**mysql> SELECT pupils.full\_name, classes.subject, classes.teacher FROM pupils CROSS JOIN classes;**

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

| full\_name | subject | teacher |

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

| Ali | History | Mr. Khan |

| Ali | Science | Ms. Gupta |

| Ali | Math | Mr. Sharma |

| Rohan | History | Mr. Khan |

| Rohan | Science | Ms. Gupta |

| Rohan | Math | Mr. Sharma |

| Tanmay | History | Mr. Khan |

| Tanmay | Science | Ms. Gupta |

| Tanmay | Math | Mr. Sharma |

| Atharava | History | Mr. Khan |

| Atharava | Science | Ms. Gupta |

| Atharava | Math | Mr. Sharma |

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

12 rows in set (0.00 sec)

**mysql> SELECT full\_name FROM pupils WHERE id = (SELECT MAX(id) FROM pupils);**

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

| full\_name |

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

| Atharava |

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

1 row in set (0.00 sec)

**mysql> SELECT full\_name FROM pupils WHERE grade = (SELECT grade FROM pupils WHERE full\_name = 'Ali');**

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

| full\_name |

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

| Ali |

| Rohan |

| Tanmay |

| Atharava |

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

4 rows in set (0.00 sec)

**mysql> CREATE VIEW view\_all\_pupils AS SELECT \* FROM pupils; SELECT \* FROM view\_all\_pupils;**

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

| id | full\_name | age | grade |

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

| 1 | Ali | 20 | TY |

| 2 | Rohan | 20 | TY |

| 3 | Tanmay | 20 | TY |

| 4 | Atharava | 20 | TY |

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

4 rows in set (0.00 sec)

**mysql> CREATE VIEW view\_pupil\_details AS SELECT full\_name, grade FROM pupils; SELECT \* FROM view\_pupil\_details;**

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

| full\_name | grade |

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

| Ali | TY |

| Rohan | TY |

| Tanmay | TY |

| Atharava | TY |

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

4 rows in set (0.00 sec)

**mysql> SELECT full\_name, age FROM pupils WHERE age > (SELECT AVG(age) FROM pupils);**

Empty set (0.00 sec)

**Practical No:3**

**$ mongo**

**> use book**

switched to db book

**> show collections**

library

**> db.createCollection("library")**

{ "ok" : 1 }

**> db.library.insert({"bid":1,"name":"C++"})**

WriteResult({ "nInserted" : 1 })

**> db.library.insert({"bid":2,"name":"SEPM","author":"Pressman"})**

WriteResult({ "nInserted" : 1 })

**> db.library.insert({"bid":3,"name":"CN","author":"Forouzan","cost":700})**

WriteResult({ "nInserted" : 1 })

**> db.library.find().pretty()**

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"),

"bid" : 1,

"name" : "C++"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"),

"bid" : 2,

"name" : "SEPM",

"author" : "Pressman"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"),

"bid" : 3,

"name" : "CN",

"author" : "Forouzan",

"cost" : 700

}

**> db.library.remove({"bid":1})**

WriteResult({ "nRemoved" : 1 })

**> db.library.count()**

2

**> db.library.find().pretty()**

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"),

"bid" : 2,

"name" : "SEPM",

"author" : "Pressman"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"),

"bid" : 3,

"name" : "CN",

"author" : "Forouzan",

"cost" : 700

}

**> db.library.insert({"bid":1,"name":"C++"})**

WriteResult({ "nInserted" : 1 })

**> db.library.find().pretty()**

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"),

"bid" : 1,

"name" : "C++"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"),

"bid" : 2,

"name" : "SEPM",

"author" : "Pressman"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"),

"bid" : 3,

"name" : "CN",

"author" : "Forouzan",

"cost" : 700

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9d"),

"bid" : 1,

"name" : "C++"

}

**> db.library.find().sort({"bid":1})**

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"), "bid" : 1, "name" : "C++" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"), "bid" : 2, "name" : "SEPM", "author" : "Pressman" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"), "bid" : 3, "name" : "CN", "author" : "Forouzan", "cost" : 700 }

**> db.library.insert({"bid":4,"name":"SPOS","author":"Pearson","cost":500})**

WriteResult({ "nInserted" : 1 })

**> db.library.find().pretty()**

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"),

"bid" : 1,

"name" : "C++"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"),

"bid" : 2,

"name" : "SEPM",

"author" : "Pressman"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"),

"bid" : 3,

"name" : "CN",

"author" : "Forouzan",

"cost" : 700

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9d"),

"bid" : 4,

"name" : "SPOS",

"author" : "Pearson",

"cost" : 500

}

**> db.library.find().sort({"bid":1})**

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"), "bid" : 1, "name" : "C++" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"), "bid" : 2, "name" : "SEPM", "author" : "Pressman" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"), "bid" : 3, "name" : "CN", "author" : "Forouzan", "cost" : 700 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9d"), "bid" : 4, "name" : "SPOS", "author" : "Pearson", "cost" : 500 }

**> db.library.find({$and:[{"name":"CN"},{"cost":700}]}).pretty()**

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"),

"bid" : 3,

"name" : "CN",

"author" : "Forouzan",

"cost" : 700

}

**> db.library.insert({"bid":5,"name":"TOC","author":"Addison-Wesley","cost":600})**

WriteResult({ "nInserted" : 1 })

**> db.library.insert({"bid":6,"name":"AI","author":"McGraw Hill Education","cost":800})**

WriteResult({ "nInserted" : 1 })

**> db.library.find().pretty()**

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"),

"bid" : 1,

"name" : "C++"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"),

"bid" : 2,

"name" : "SEPM",

"author" : "Pressman"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"),

"bid" : 3,

"name" : "CN",

"author" : "Forouzan",

"cost" : 700

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9d"),

"bid" : 4,

"name" : "SPOS",

"author" : "Pearson",

"cost" : 500

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9e"),

"bid" : 5,

"name" : "TOC",

"author" : "Addison-Wesley",

"cost" : 600

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9f"),

"bid" : 6,

"name" : "AI",

"author" : "McGraw Hill Education",

"cost" : 800

}

**> db.library.find({$or:[{"cost":500},{"cost":800}]}).pretty()**

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9d"),

"bid" : 4,

"name" : "SPOS",

"author" : "Pearson",

"cost" : 500

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9f"),

"bid" : 6,

"name" : "AI",

"author" : "McGraw Hill Education",

"cost" : 800

}

**> db.library.find({"cost":{$ne:500}})**

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"), "bid" : 1, "name" : "C++" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"), "bid" : 2, "name" : "SEPM", "author" : "Pressman" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"), "bid" : 3, "name" : "CN", "author" : "Forouzan", "cost" : 700 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9e"), "bid" : 5, "name" : "TOC", "author" : "Addison-Wesley", "cost" : 600 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9f"), "bid" : 6, "name" : "AI", "author" : "McGraw Hill Education", "cost" : 800 }

**> db.library.find({$nor:[{"cost":500},{"author":"Forouzan"}]})**

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"), "bid" : 1, "name" : "C++" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"), "bid" : 2, "name" : "SEPM", "author" : "Pressman" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9e"), "bid" : 5, "name" : "TOC", "author" : "Addison-Wesley", "cost" : 600 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9f"), "bid" : 6, "name" : "AI", "author" : "McGraw Hill Education", "cost" : 800 }

**> db.library.find({"cost":{$not:{$gt:800}}})**

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"), "bid" : 1, "name" : "C++" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"), "bid" : 2, "name" : "SEPM", "author" : "Pressman" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"), "bid" : 3, "name" : "CN", "author" : "Forouzan", "cost" : 700 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9e"), "bid" : 5, "name" : "TOC", "author" : "Addison-Wesley", "cost" : 600 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9f"), "bid" : 6, "name" : "AI", "author" : "McGraw Hill Education", "cost" : 800 }

**> db.library.insert({"bid":7,"name":"CC","author":"Wiley Publications","cost":400})**

WriteResult({ "nInserted" : 1 })

**> db.library.find()**

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"), "bid" : 1, "name" : "C++" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"), "bid" : 2, "name" : "SEPM", "author" : "Pressman" }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"), "bid" : 3, "name" : "CN", "author" : "Forouzan", "cost" : 700 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9d"), "bid" : 4, "name" : "SPOS", "author" : "Pearson", "cost" : 500 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9e"), "bid" : 5, "name" : "TOC", "author" : "Addison-Wesley", "cost" : 600 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9f"), "bid" : 6, "name" : "AI", "author" : "McGraw Hill Education", "cost" : 800 }

{ "\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9e"), "bid" : 7, "name" : "CC", "author" : "Wiley Publications", "cost" : 400 }

**> db.library.update({'cost':400},{$set:{'cost':600}})**

Modified document count: 1

**> db.library.update({'cost':800},{$set:{'cost':1200}})**

Modified document count: 1

**> db.library.find().pretty()**

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9c"),

"bid" : 1,

"name" : "C++"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9a"),

"bid" : 2,

"name" : "SEPM",

"author" : "Pressman"

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9b"),

"bid" : 3,

"name" : "CN",

"author" : "Forouzan",

"cost" : 700

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9d"),

"bid" : 4,

"name" : "SPOS",

"author" : "Pearson",

"cost" : 500

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9e"),

"bid" : 5,

"name" : "TOC",

"author" : "Addison-Wesley",

"cost" : 600

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9f"),

"bid" : 6,

"name" : "AI",

"author" : "McGraw Hill Education",

"cost" : 1200

}

{

"\_id" : ObjectId("60c72b2f5f1b2c001c8fbb9e"),

"bid" : 7,

"name" : "CC",

"author" : "Wiley Publications",

"cost" : 600

}

**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 ('I', '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++', 'I');**

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', 'I');**

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)

**Practical No:05**

**mysql> CREATE DATABASE class;**

Query OK, 1 row affected (0.01 sec)

**mysql> USE class;**

Database changed

**mysql> CREATE TABLE O\_RollCall (**

**-> roll\_no INT(3),**

**-> name VARCHAR(20)**

**-> );**

Query OK, 0 rows affected (0.02 sec)

**mysql> CREATE TABLE N\_RollCall (**

**-> roll\_no INT(3),**

**-> name VARCHAR(20)**

**-> );**

Query OK, 0 rows affected (0.01 sec)

**mysql> INSERT INTO O\_RollCall VALUES (1, 'Himanshu');**

Query OK, 1 row affected (0.01 sec)

**mysql> INSERT INTO O\_RollCall VALUES (2, 'Ram');**

Query OK, 1 row affected (0.01 sec)

**mysql> INSERT INTO O\_RollCall VALUES (3, 'Soham');**

Query OK, 1 row affected (0.01 sec)

**mysql> INSERT INTO O\_RollCall VALUES (5, 'Mohan');**

Query OK, 1 row affected (0.01 sec)

**mysql> INSERT INTO O\_RollCall VALUES (6, 'Om');**

Query OK, 1 row affected (0.01 sec)

**mysql> INSERT INTO O\_RollCall VALUES (9, 'Yash');**

Query OK, 1 row affected (0.01 sec)

**mysql> INSERT INTO O\_RollCall VALUES (11, 'Mayur');**

Query OK, 1 row affected (0.01 sec)

**mysql> SELECT \* FROM O\_RollCall;**

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

| roll\_no | name |

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

| 1 | Himanshu |

| 2 | Ram |

| 3 | Soham |

| 5 | Mohan |

**| 6 | Om |**

**| 9 | Yash |**

**| 11 | Mayur |**

**+---------+----------+**

7 rows in set (0.00 sec)

**mysql> SELECT \* FROM N\_RollCall;**

Empty set (0.00 sec)

**mysql> DELIMITER //**

**mysql> CREATE PROCEDURE cursor\_proc\_p1()**

**-> BEGIN**

**-> DECLARE fin INTEGER DEFAULT 0;**

**-> DECLARE old\_roll INT(3);**

**-> DECLARE old\_name VARCHAR(20);**

**-> DECLARE new\_roll INT(3);**

**-> DECLARE old\_csr CURSOR FOR SELECT roll\_no, name FROM O\_RollCall;**

**-> DECLARE new\_csr CURSOR FOR SELECT roll\_no FROM N\_RollCall;**

**-> DECLARE CONTINUE HANDLER FOR NOT FOUND SET fin=1;**

**->**

**-> OPEN old\_csr;**

**-> OPEN new\_csr;**

**->**

**-> ss: LOOP**

**-> FETCH old\_csr INTO old\_roll, old\_name;**

**-> FETCH new\_csr INTO new\_roll;**

**->**

**-> IF fin=1 THEN**

**-> LEAVE ss;**

**-> END IF;**

**->**

**-> IF old\_roll <> new\_roll THEN**

**-> INSERT INTO N\_RollCall VALUES(old\_roll, old\_name);**

**-> END IF;**

**-> END LOOP;**

**->**

**-> CLOSE old\_csr;**

**-> CLOSE new\_csr;**

**-> END //**

Query OK, 0 rows affected (0.04 sec)

**mysql> DELIMITER ;**

**mysql> DELIMITER //**

**mysql> CREATE PROCEDURE cursor\_proc\_p2(IN r1 INT)**

**-> BEGIN**

**-> DECLARE r2 INT;**

**-> DECLARE exit\_loop BOOLEAN DEFAULT FALSE;**

**-> DECLARE c1 CURSOR FOR SELECT roll\_no FROM O\_RollCall WHERE roll\_no > r1;**

**-> DECLARE CONTINUE HANDLER FOR NOT FOUND SET exit\_loop=TRUE;**

**->**

**-> OPEN c1;**

**->**

**-> e\_loop: LOOP**

**-> FETCH c1 INTO r2;**

**->**

**-> IF NOT EXISTS(SELECT \* FROM N\_RollCall WHERE roll\_no = r2) THEN**

**-> INSERT INTO N\_RollCall SELECT \* FROM O\_RollCall WHERE roll\_no = r2;**

**-> END IF;**

**->**

**-> IF exit\_loop THEN**

**-> CLOSE c1;**

**-> LEAVE e\_loop;**

**-> END IF;**

**-> END LOOP e\_loop;**

**-> END //**

Query OK, 0 rows affected (0.03 sec)

**mysql> DELIMITER ;**

**mysql> CALL cursor\_proc\_p2(5);**

Query OK, 0 rows affected (0.02 sec)

**mysql> SELECT \* FROM O\_RollCall;**

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

| roll\_no | name |

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

| 1 | Himanshu |

| 2 | Ram |

| 3 | Soham |

| 5 | Mohan |

| 6 | Om |

| 9 | Yash |

| 11 | Mayur |

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

7 rows in set (0.00 sec)

**mysql> SELECT \* FROM N\_RollCall;**

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

| roll\_no | name |

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

| 6 | Om |

| 9 | Yash |

| 11 | Mayur |

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

3 rows in set (0.00 sec)

**mysql> CALL cursor\_proc\_p2(3);**

Query OK, 0 rows affected (0.02 sec)

**mysql> CALL cursor\_proc\_p1();**

Query OK, 0 rows affected (0.03 sec)

**mysql> SELECT \* FROM O\_RollCall;**

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

| roll\_no | name |

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

| 1 | Himanshu |

| 2 | Ram |

| 3 | Soham |

| 5 | Mohan |

| 6 | Om |

| 9 | Yash |

| 11 | Mayur |

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

7 rows in set (0.00 sec)

**mysql> SELECT \* FROM N\_RollCall;**

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

| roll\_no | name |

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

| 6 | Om |

| 9 | Yash |

| 11 | Mayur |

| 1 | Himanshu |

| 2 | Ram |

| 3 | Soham |

| 5 | Mohan |

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

7 rows in set (0.00 sec)