5.Creating database using MySQL

An SQL schema is identified by a schema name, and includes an authorization identifier to indicate the user or account who owns the schema, as well as descriptors for each element in the schema. Schema elements include tables, constraints, views, domains, and other constructs (such as authorization grants) that describe the schema. A schema is created via the CREATE SCHEMA statement, which can include all the schema elements' definitions. Alternatively, the schema can be assigned a name and authorization identifier, and the elements can be defined later. The CREATE TABLE command is used to specify a new relation by giving it a name and specifying its attributes and initial constraints. The attributes are specified first, and each attribute is given a name, a data type to specify its domain of values, and any attribute constraints, such as NOT NULL. The key, entity integrity, and referential integrity constraints can be specified within the CREATE TABLE statement after the attributes are declared, or they can be added later using the ALTER TABLE command:

```
mysql> create database mydb;

mysql> use mydb;
Database changed

mysql> create table BOOKS(isbn int(20) not null, Title varchar(25) not
null, Category varchar(50) not null, Price int (8) not null, Status
varchar(20), Author varchar(20) not null, Publisher varchar(50) not null,
Updatation_Date timestamp NOT NULL DEFAULT '0000-00-00 00:00:00' ON UPDATE
CURRENT_TIMESTAMP, primary key(isbn));
Query OK, 0 rows affected, 2 warnings (1.52 sec)

mysql> create table Employee(Emp_ID int (5) not null, E_name varchar(50)
not null, E_Email varchar(25) not null, Position varchar(10) not null,
primary key(Emp_ID));
Query OK, 0 rows affected, 1 warning (0.61 sec)

mysql> create table Student(student_ID int (5) not null, Dept varchar(10)
not null, student_Name varchar(20), student_Email varchar(25) not null,
student_Address varchar(50) not null, Regd_date timestamp not null DEFAULT
CURRENT_TIMESTAMP, primary key(student_ID));
Query OK, 0 rows affected, 1 warning (2.19 sec)

mysql> create table Issue_Status(Issue_ID int(5) not null, StudentID int(5)
not null, Issued_book varchar(25) not null, Issue_date timestamp not null
DEFAULT CURRENT_TIMESTAMP,isbn_book int(20) not null, primary
```

```
key(Issue_ID), constraint foreign key(isbn_book) references BOOKS(isbn),
constraint foreign key(StudentID) references Student(student_ID));
Query OK, 0 rows affected, 3 warnings (1.31 sec)

mysql> create table Return_Status(Return_ID int(5) not null,
Return_StudentID int(5) not null, Return_book varchar(25) not null,
Return_date timestamp not null DEFAULT CURRENT_TIMESTAMP, isbn_book2
int(20) not null, primary key(Return_ID), constraint foreign
key(isbn_book2) references BOOKS(isbn), constraint foreign
key(Return_StudentID) references Issue_Status(StudentID));
Query OK, 0 rows affected, 3 warnings (0.94 sec)
```

```
mysql> show tables;
+----------------+
| Tables_in_mydb |
+----------------+
| books          |
| employee       |
| issue_status   |
| return_status  |
| student        |
+----------------+
5 rows in set (0.17 sec)
```

```
mysql> describe books;
+-----------------+--------------+------+-----+---------------------+-----------------------------+
| Field           | Type         | Null | Key | Default             | Extra                       |
+-----------------+--------------+------+-----+---------------------+-----------------------------+
| isbn            | int          | NO   | PRI | NULL                |                             |
| Title           | varchar(25)  | NO   |     | NULL                |                             |
| Category        | varchar(50)  | NO   |     | NULL                |                             |
| Price           | int          | NO   |     | NULL                |                             |
| Status          | varchar(20)  | YES  |     | NULL                |                             |
| Author          | varchar(20)  | NO   |     | NULL                |                             |
| Publisher       | varchar(50)  | NO   |     | NULL                |                             |
| Updation_Date   | timestamp    | NO   |     | 0000-00-00 00:00:00 | on update CURRENT_TIMESTAMP |
+-----------------+--------------+------+-----+---------------------+-----------------------------+
8 rows in set (0.20 sec)
```

```
mysql> describe employee;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| Emp_ID   | int         | NO   | PRI | NULL    |       |
| E_name   | varchar(50) | NO   |     | NULL    |       |
| E_Email  | varchar(25) | NO   |     | NULL    |       |
| Position | varchar(10) | NO   |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
4 rows in set (0.11 sec)
```

```
mysql> describe issue_status;
+--------------+-------------+------+-----+-------------------+-------------------+
| Field        | Type        | Null | Key | Default           | Extra             |
+--------------+-------------+------+-----+-------------------+-------------------+
| Issue_ID     | int         | NO   | PRI | NULL              |                   |
| StudentID    | int         | NO   | MUL | NULL              |                   |
| Issued_book  | varchar(25) | NO   |     | NULL              |                   |
| Issue_date   | timestamp   | NO   |     | CURRENT_TIMESTAMP | DEFAULT_GENERATED |
| isbn_book    | int         | NO   | MUL | NULL              |                   |
+--------------+-------------+------+-----+-------------------+-------------------+
5 rows in set (0.00 sec)

mysql> describe return_status;
+------------------+-------------+------+-----+-------------------+-------------------+
| Field            | Type        | Null | Key | Default           | Extra             |
+------------------+-------------+------+-----+-------------------+-------------------+
| Return_ID        | int         | NO   | PRI | NULL              |                   |
| Return_StudentID | int         | NO   | MUL | NULL              |                   |
| Return_book      | varchar(25) | NO   |     | NULL              |                   |
| Return_date      | timestamp   | NO   |     | CURRENT_TIMESTAMP | DEFAULT_GENERATED |
| isbn_book2       | int         | NO   | MUL | NULL              |                   |
+------------------+-------------+------+-----+-------------------+-------------------+
5 rows in set (0.00 sec)


mysql> describe student;
+-----------------+-------------+------+-----+-------------------+-------------------+
| Field           | Type        | Null | Key | Default           | Extra             |
+-----------------+-------------+------+-----+-------------------+-------------------+
| student_ID      | int         | NO   | PRI | NULL              |                   |
| Dept            | varchar(10) | NO   |     | NULL              |                   |
| student_Name    | varchar(20) | YES  |     | NULL              |                   |
| student_Email   | varchar(25) | NO   |     | NULL              |                   |
| student_Address | varchar(50) | NO   |     | NULL              |                   |
| Regd_date       | timestamp   | NO   |     | CURRENT_TIMESTAMP | DEFAULT_GENERATED |
+-----------------+-------------+------+-----+-------------------+-------------------+
6 rows in set (0.00 sec)
```

```
mysql> INSERT INTO books
    -> VALUES (1001, "Half Girlfriend","Romantic",500,"Available","Chetan
Bhagatt","Rupa Publications",'2017-07-08 12:49:09'), (1002, "PHP And MySql
programming","Management",2000,"Available","Mike McGrath","Mike Murach &
Associates Inc.",'2018-08-18 15:40:31'), (1003, "HC
Verma","Science",700,"Not-Available","HC Verma","BHARATI BHAWAN Publishers
& Distributors",'2016-07-08 11:30:29'), (1004, "RD
SHARMA","Mathematics",1500,"Available","RD SHARMA","Dhanpat Rai
Publications",'2019-10-17 10:09:55');
Query OK, 4 rows affected (0.49 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

```
mysql> select * from books;
+------+--------------------------+-------------+-------+---------------+---------------+----------------------------------------+---------------------+
| isbn | Title                    | Category    | Price | Status        | Author        | Publisher                              | Updatation_Date     |
+------+--------------------------+-------------+-------+---------------+---------------+----------------------------------------+---------------------+
| 1001 | Half Girlfriend          | Romantic    |   500 | Available     | Chetan Bhagatt| Rupa Publications                      | 2017-07-08 12:49:09 |
| 1002 | PHP And MySql programming | Management  |  2000 | Available     | Mike McGrath  | Mike Murach & Associates Inc.          | 2018-08-18 15:40:31 |
| 1003 | HC Verma                 | Science     |   700 | Not-Available | HC Verma      | BHARATI BHAWAN Publishers & Distributors| 2016-07-08 11:30:29 |
| 1004 | RD SHARMA                | Mathematics |  1500 | Available     | RD SHARMA     | Dhanpat Rai Publications               | 2019-10-17 10:09:55 |
+------+--------------------------+-------------+-------+---------------+---------------+----------------------------------------+---------------------+
4 rows in set (0.00 sec)
```

mysql> INSERT INTO employee
    -> VALUES (1202, "Rakesh Kumar","rk141@gmail.com","Admin"), (1205, "Rupali Singh","rupali@gmail.com","Assistant"), (1211, "Ranbir Rathore","Rathore_ranbir@gmail.com","Manager");
Query OK, 3 rows affected (0.34 sec)
Records: 3 Duplicates: 0 Warnings: 0

```
mysql> select * from employee;
+--------+----------------+--------------------------+-----------+
| Emp_ID | E_name         | E_Email                  | Position  |
+--------+----------------+--------------------------+-----------+
|   1202 | Rakesh Kumar   | rk141@gmail.com          | Admin     |
|   1205 | Rupali Singh   | rupali@gmail.com         | Assistant |
|   1211 | Ranbir Rathore | Rathore_ranbir@gmail.com | Manager   |
+--------+----------------+--------------------------+-----------+
3 rows in set (0.00 sec)
```

mysql> INSERT INTO student VALUES (2101, "ENTC","Aarti Rathi","aartirathi@gmail.com","Pune",'2019-07-08 11:30:29'), (2106, "COMP","Riya Singh","riya@gmail.com","Jaipur",'2019-10-18 16:02:22'), (2108, "ENTC","Aditya Kumar","adiKumar@gmail.com","Bhopal",'2018-04-10 12:03:51'),(2111, "IT","Isha tyagi","isha_here@gmail.com","Ambala",'2018-03-16 13:40:21'), (2104, "MECH","Nishu Rai","RaiNishu@gmail.com","Bangalore",'2019-02-21 17:23:21'),(2118, "IT","Shambhavi","shambhavi@gmail.com","New Delhi",'2019-07-31 13:58:29');
Query OK, 6 rows affected (0.38 sec)
Records: 6 Duplicates: 0 Warnings: 0

```
mysql> select * from student;
+------------+------+--------------+----------------------+-----------------+---------------------+
| student_ID | Dept | student_Name | student_Email        | student_Address | Regd_date           |
+------------+------+--------------+----------------------+-----------------+---------------------+
|       2101 | ENTC | Aarti Rathi  | aartirathi@gmail.com | Pune            | 2019-07-08 11:30:29 |
|       2104 | MECH | Nishu Rai    | RaiNishu@gmail.com   | Bangalore       | 2019-02-21 17:23:21 |
|       2106 | COMP | Riya Singh   | riya@gmail.com       | Jaipur          | 2019-10-18 16:02:22 |
|       2108 | ENTC | Aditya Kumar | adiKumar@gmail.com   | Bhopal          | 2018-04-10 12:03:51 |
|       2111 | IT   | Isha tyagi   | isha_here@gmail.com  | Ambala          | 2018-03-16 13:40:21 |
|       2118 | IT   | Shambhavi    | shambhavi@gmail.com  | New Delhi       | 2019-07-31 13:58:29 |
+------------+------+--------------+----------------------+-----------------+---------------------+
6 rows in set (0.00 sec)
```

```
mysql> INSERT INTO issue_status VALUES (1314, 2108,"HC Verma",'2020-03-28
10:30:29',1003), (1374, 2101,"RD SHARMA",'2021-11-18 15:12:25',1004),(1302,
2111,"Half Girlfriend",'2020-05-14 11:44:05',1001);
Query OK, 3 rows affected (0.44 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

```
mysql> select * from issue_status;
+----------+-----------+-----------------+---------------------+-----------+
| Issue_ID | StudentID | Issued_book     | Issue_date          | isbn_book |
+----------+-----------+-----------------+---------------------+-----------+
|     1302 |      2111 | Half Girlfriend | 2020-05-14 11:44:05 |      1001 |
|     1314 |      2108 | HC Verma        | 2020-03-28 10:30:29 |      1003 |
|     1374 |      2101 | RD SHARMA       | 2021-11-18 15:12:25 |      1004 |
+----------+-----------+-----------------+---------------------+-----------+
3 rows in set (0.00 sec)
```

```
mysql> INSERT INTO return_status VALUES (1412, 2108,"HC Verma",'2020-07-15
12:05:20',1003),(1421, 2111,"Half Girlfriend",'2020-10-16 15:31:15',1001);
Query OK, 2 rows affected (0.28 sec)
Records: 2  Duplicates: 0  Warnings: 0
```

```
mysql> select * from return_status;
+-----------+------------------+-----------------+---------------------+------------+
| Return_ID | Return_StudentID | Return_book     | Return_date         | isbn_book2 |
+-----------+------------------+-----------------+---------------------+------------+
|      1412 |             2108 | HC Verma        | 2020-07-15 12:05:20 |       1003 |
|      1421 |             2111 | Half Girlfriend | 2020-10-16 15:31:15 |       1001 |
+-----------+------------------+-----------------+---------------------+------------+
2 rows in set (0.00 sec)
```

```
mysql> INSERT INTO return_status VALUES (1416, 2104,"HC Verma",'2020-09-15 12:05:20',1003);
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails (`mydb`.`return_status`, CONSTRAINT `retu
rn_status_ibfk_2` FOREIGN KEY (`Return_StudentID`) REFERENCES `issue_status` (`StudentID`))
```

Since student_ID 2104 isn't taken any book, we cannot blindly give the input!!