1)SELECT `ENGINE` FROM `information\_schema`.`TABLES` WHERE `TABLE\_SCHEMA`='University' AND `TABLE\_NAME`='Student';

**Database information\_schema**

## Structure for view TABLES

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| TABLE\_CATALOG | varchar(512) | No |  |
| TABLE\_SCHEMA | varchar(64) | No |  |
| TABLE\_NAME | varchar(64) | No |  |
| TABLE\_TYPE | varchar(64) | No |  |
| ENGINE | varchar(64) | Yes | NULL |
| VERSION | bigint(21) | Yes | NULL |
| ROW\_FORMAT | varchar(10) | Yes | NULL |
| TABLE\_ROWS | bigint(21) | Yes | NULL |
| AVG\_ROW\_LENGTH | bigint(21) | Yes | NULL |
| DATA\_LENGTH | bigint(21) | Yes | NULL |
| MAX\_DATA\_LENGTH | bigint(21) | Yes | NULL |
| INDEX\_LENGTH | bigint(21) | Yes | NULL |
| DATA\_FREE | bigint(21) | Yes | NULL |
| AUTO\_INCREMENT | bigint(21) | Yes | NULL |
| CREATE\_TIME | datetime | Yes | NULL |
| UPDATE\_TIME | datetime | Yes | NULL |
| CHECK\_TIME | datetime | Yes | NULL |
| TABLE\_COLLATION | varchar(32) | Yes | NULL |
| CHECKSUM | bigint(21) | Yes | NULL |
| CREATE\_OPTIONS | varchar(2048) | Yes | NULL |
| TABLE\_COMMENT | varchar(2048) | No |  |
| MAX\_INDEX\_LENGTH | bigint(21) | Yes | NULL |
| TEMPORARY | varchar(1) | Yes | NULL |

## Dumping data for table TABLES

|  |
| --- |
| InnoDB |

2)ALTER TABLE Student ENGINE='MyISAM';

SELECT `ENGINE` FROM `information\_schema`.`TABLES` WHERE `TABLE\_SCHEMA`='University' AND `TABLE\_NAME`='Student';

## Dumping data for table TABLES

|  |
| --- |
| MyISAM |

3)ALTER TABLE Instructor MODIFY COLUMN Instructor.Salary BIGINT;

SELECT COLUMN\_NAME,DATA\_TYPE FROM `INFORMATION\_SCHEMA`.`COLUMNS` WHERE TABLE\_NAME LIKE 'Instructor' ;

## Dumping data for table COLUMNS

|  |  |
| --- | --- |
| Instructor\_ID | int |
| Instructor\_Name | varchar |
| Department\_Name | varchar |
| Salary | bigint |

4)ALTER TABLE Teaches

ADD FOREIGN KEY (Course\_ID) REFERENCES Course(Course\_ID);

ALTER TABLE Teaches

ADD FOREIGN KEY (Instructor\_ID) REFERENCES Instructor(Instructor\_ID);

SELECT CONSTRAINT\_NAME,TABLE\_NAME,COLUMN\_NAME,REFERENCED\_TABLE\_NAME,REFERENCED\_COLUMN\_NAME FROM INFORMATION\_SCHEMA.KEY\_COLUMN\_USAGE WHERE TABLE\_NAME = 'Teaches' AND CONSTRAINT\_NAME !='PRIMARY' ;

## Dumping data for table KEY\_COLUMN\_USAGE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Teaches\_ibfk\_1 | Teaches | Course\_ID | Course | Course\_ID |
| Teaches\_ibfk\_2 | Teaches | Instructor\_ID | Instructor | Instructor\_ID |

5)ALTER TABLE Takes ADD FOREIGN KEY (Course\_ID) REFERENCES Course(Course\_ID);

ALTER TABLE Takes ADD FOREIGN KEY (Student\_ID) REFERENCES Student(Student\_ID);

SELECT CONSTRAINT\_NAME,TABLE\_NAME,COLUMN\_NAME,REFERENCED\_TABLE\_NAME,REFERENCED\_COLUMN\_NAME FROM INFORMATION\_SCHEMA.KEY\_COLUMN\_USAGE WHERE TABLE\_NAME = 'Takes' AND CONSTRAINT\_NAME !='PRIMARY' ;

## Dumping data for table KEY\_COLUMN\_USAGE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Takes\_ibfk\_1 | Takes | Course\_ID | Course | Course\_ID |
| Takes\_ibfk\_2 | Takes | Student\_ID | Student | Student\_ID |

6)ALTER TABLE Student ADD Birthdate Date;

SELECT \* FROM Student;

**Database University**

## Table structure for table Student

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Student\_ID** | int(5) | No |  |
| Student\_Name | varchar(10) | Yes | NULL |
| Dept\_Name | varchar(10) | Yes | NULL |
| Total\_Credits | int(2) | Yes | NULL |
| Birthdate | date | Yes | NULL |

## Dumping data for table Student

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2001 | Sam | Computer | 4 | NULL |
| 2002 | Mary | Civil | 3 | NULL |
| 2003 | Judy | Electrical | 4 | NULL |
| 2004 | Alice | Computer | 4 | NULL |

7)ALTER TABLE Student ADD UNIQUE (Student\_Name);

## Dumping data for table COLUMNS

|  |  |
| --- | --- |
| Student\_Name | UNI |

8)ALTER TABLE Student ADD Fine INT(10);

SELECT \* FROM Student;

## Table structure for table Student

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Student\_ID** | int(5) | No |  |
| **Student\_Name** | varchar(10) | Yes | NULL |
| Dept\_Name | varchar(10) | Yes | NULL |
| Total\_Credits | int(2) | Yes | NULL |
| Birthdate | date | Yes | NULL |
| Fine | int(10) | Yes | NULL |

## Dumping data for table Student

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2001 | Sam | Computer | 4 | NULL | NULL |
| 2002 | Mary | Civil | 3 | NULL | NULL |
| 2003 | Judy | Electrical | 4 | NULL | NULL |
| 2004 | Alice | Computer | 4 | NULL | NULL |

9)ALTER TABLE Student ALTER Fine SET DEFAULT 0;

SELECT COLUMN\_NAME,COLUMN\_DEFAULT FROM `INFORMATION\_SCHEMA`.`COLUMNS` WHERE TABLE\_NAME LIKE 'Student' AND COLUMN\_NAME='Fine' ;

## Dumping data for table COLUMNS

|  |  |
| --- | --- |
| Fine | 0 |

10)ALTER TABLE Instructor MODIFY COLUMN Instructor.Department\_Name VARCHAR(50);

SELECT COLUMN\_NAME,DATA\_TYPE,CHARACTER\_MAXIMUM\_LENGTH FROM `INFORMATION\_SCHEMA`.`COLUMNS` WHERE TABLE\_NAME LIKE 'Instructor';

## Dumping data for table COLUMNS

|  |  |  |
| --- | --- | --- |
| Instructor\_ID | int | NULL |
| Instructor\_Name | varchar | 10 |
| Department\_Name | varchar | 50 |
| Salary | bigint | NULL |

11)ALTER TABLE Student DROP COLUMN Birthdate;

SELECT COLUMN\_NAME FROM `INFORMATION\_SCHEMA`.`COLUMNS` WHERE TABLE\_NAME LIKE 'Student';

## Dumping data for table COLUMNS

|  |
| --- |
| Student\_ID |
| Student\_Name |
| Dept\_Name |
| Total\_Credits |
| Fine |

12)sudo /opt/lampp/bin/mysqldump -u root University > University.sql

13)CREATE DATABASE DummyUniversity;

USE DummyUniversity;

14)CREATE TABLE DummyInstructor AS SELECT \* FROM University.Instructor;

SELECT \* FROM DummyInstructor;

**Database DummyUniversity**

## Table structure for table DummyInstructor

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| Instructor\_ID | int(5) | No |  |
| Instructor\_Name | varchar(10) | Yes | NULL |
| Department\_Name | varchar(50) | Yes | NULL |
| Salary | bigint(20) | Yes | NULL |

## Dumping data for table DummyInstructor

|  |  |  |  |
| --- | --- | --- | --- |
| 5001 | AAA | Computer | 100000 |
| 5002 | BBB | Computer | 50000 |
| 5003 | CCC | Civil | 150000 |
| 5004 | DDD | Electrical | 75000 |

15)CREATE TABLE DummyStudent LIKE University.Student;

INSERT INTO DummyStudent SELECT \* FROM University.Student;

SELECT \* FROM DummyStudent;

## Table structure for table DummyStudent

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Student\_ID** | int(5) | No |  |
| **Student\_Name** | varchar(10) | Yes | NULL |
| Dept\_Name | varchar(10) | Yes | NULL |
| Total\_Credits | int(2) | Yes | NULL |
| Fine | int(10) | Yes | 0 |

## Dumping data for table DummyStudent

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2001 | Sam | Computer | 4 | NULL |
| 2002 | Mary | Civil | 3 | NULL |
| 2003 | Judy | Electrical | 4 | NULL |
| 2004 | Alice | Computer | 4 | NULL |

16)DELETE FROM DummyStudent;

SELECT \* FROM DummyStudent;

## Dumping data for table DummyStudent

|  |
| --- |
|  |

**Conclusion:**

The data definition commands were studied and successfully implemented.