1) `select ENGINE from information_schema.TABLES where table_schema = "university";`

Database information_schema

Structure for view TABLES

Column	Type	Null	Default
TABLE_CATALOG	varchar(64)	Yes	NULL
TABLE_SCHEMA	varchar(64)	Yes	NULL
TABLE_NAME	varchar(64)	Yes	NULL
TABLE_TYPE	enum('BASE TABLE', 'VIEW', 'SYSTEM VIEW')	No	
ENGINE	varchar(64)	Yes	NULL
VERSION	int	Yes	NULL
ROW_FORMAT	enum('Fixed', 'Dynamic', 'Compressed', 'Redundant', 'Compact', 'Paged')	Yes	NULL
TABLE_ROWS	bigint	Yes	NULL
AVG_ROW_LENGTH	bigint	Yes	NULL
DATA_LENGTH	bigint	Yes	NULL
MAX_DATA_LENGTH	bigint	Yes	NULL
INDEX_LENGTH	bigint	Yes	NULL
DATA_FREE	bigint	Yes	NULL
AUTO_INCREMENT	bigint	Yes	NULL
CREATE_TIME	timestamp	No	
UPDATE_TIME	datetime	Yes	NULL
CHECK_TIME	datetime	Yes	NULL
TABLE_COLLATION	varchar(64)	Yes	NULL
CHECKSUM	bigint	Yes	NULL
CREATE_OPTIONS	varchar(256)	Yes	NULL
TABLE_COMMENT	text	Yes	NULL

Dumping data for table TABLES

InnoDB

InnoDB

InnoDB

InnoDB

InnoDB

    2) `ALTER TABLE instructor ENGINE = 'myisam';`

Database information_schema

Structure for view TABLES

Column	Type	Null	Default
TABLE_CATALOG	varchar(64)	Yes	NULL
TABLE_SCHEMA	varchar(64)	Yes	NULL
TABLE_NAME	varchar(64)	Yes	NULL
TABLE_TYPE	enum('BASE TABLE', 'VIEW', 'SYSTEM VIEW')	No	
ENGINE	varchar(64)	Yes	NULL
VERSION	int	Yes	NULL
ROW_FORMAT	enum('Fixed', 'Dynamic', 'Compressed', 'Redundant', 'Compact', 'Paged')	Yes	NULL
TABLE_ROWS	bigint	Yes	NULL
AVG_ROW_LENGTH	bigint	Yes	NULL
DATA_LENGTH	bigint	Yes	NULL
MAX_DATA_LENGTH	bigint	Yes	NULL
INDEX_LENGTH	bigint	Yes	NULL
DATA_FREE	bigint	Yes	NULL
AUTO_INCREMENT	bigint	Yes	NULL
CREATE_TIME	timestamp	No	
UPDATE_TIME	datetime	Yes	NULL
CHECK_TIME	datetime	Yes	NULL
TABLE_COLLATION	varchar(64)	Yes	NULL
CHECKSUM	bigint	Yes	NULL
CREATE_OPTIONS	varchar(256)	Yes	NULL
TABLE_COMMENT	text	Yes	NULL

Dumping data for table TABLES

MyISAM

3) `alter table instructor MODIFY salary BIGINT;`

Database INFORMATION_SCHEMA

Table structure for table COLUMNS

Column	Type	Null	Default
TABLE_CATALOG	varchar(64)	Yes	NULL
TABLE_SCHEMA	varchar(64)	Yes	NULL
TABLE_NAME	varchar(64)	Yes	NULL
COLUMN_NAME	varchar(64)	Yes	NULL
ORDINAL_POSITION	int	No	
COLUMN_DEFAULT	text	Yes	NULL
IS_NULLABLE	varchar(3)	No	
DATA_TYPE	longtext	Yes	NULL
CHARACTER_MAXIMUM_LENGTH	bigint	Yes	NULL
CHARACTER_OCTET_LENGTH	bigint	Yes	NULL
NUMERIC_PRECISION	bigint	Yes	NULL
NUMERIC_SCALE	bigint	Yes	NULL
DATETIME_PRECISION	int	Yes	NULL
CHARACTER_SET_NAME	varchar(64)	Yes	NULL
COLLATION_NAME	varchar(64)	Yes	NULL
COLUMN_TYPE	mediumtext	No	
COLUMN_KEY	enum('', 'PRI', 'UNI', 'MUL')	No	
EXTRA	varchar(256)	Yes	NULL
PRIVILEGES	varchar(154)	Yes	NULL
COLUMN_COMMENT	text	No	
GENERATION_EXPRESSION	longtext	No	
SRS_ID	int	Yes	NULL

Dumping data for table COLUMNS

salary	bigint	NULL

```
4) ALTER TABLE teaches ADD FOREIGN KEY (instructor_id) REFERENCES instru
   ctor (instructor_id), ADD FOREIGN KEY (course_id) REFERENCES course (
   course_id);
```

Database INFORMATION_SCHEMA

Table structure for table KEY_COLUMN_USAGE

Column	Type	Null	Default
CONSTRAINT_CATALOG	varchar(64)	Yes	NULL
CONSTRAINT_SCHEMA	varchar(64)	Yes	NULL
CONSTRAINT_NAME	varchar(64)	Yes	NULL
TABLE_CATALOG	varchar(64)	Yes	NULL
TABLE_SCHEMA	varchar(64)	Yes	NULL
TABLE_NAME	varchar(64)	Yes	NULL
COLUMN_NAME	varchar(64)	Yes	NULL
ORDINAL_POSITION	int	No	0
POSITION_IN_UNIQUE_CONSTRAINT	int	Yes	NULL
REFERENCED_TABLE_SCHEMA	varchar(64)	Yes	NULL
REFERENCED_TABLE_NAME	varchar(64)	Yes	NULL
REFERENCED_COLUMN_NAME	varchar(64)	Yes	NULL

Dumping data for table KEY_COLUMN_USAGE

course_id	teaches_ibfk_1	course	course_id
course_id	teaches_ibfk_2	course	course_id
instructor_id	teaches_ibfk_3	instructor	instructor_id
course_id	teaches_ibfk_4	course	course_id

```
5) ALTER TABLE takes ADD FOREIGN KEY (student_id) REFERENCES student (st
   udent_id), ADD FOREIGN KEY (course_id) REFERENCES course (course_id);
```

Database INFORMATION_SCHEMA

Table structure for table KEY_COLUMN_USAGE

Column	Type	Null	Default
CONSTRAINT_CATALOG	varchar(64)	Yes	NULL
CONSTRAINT_SCHEMA	varchar(64)	Yes	NULL
CONSTRAINT_NAME	varchar(64)	Yes	NULL
TABLE_CATALOG	varchar(64)	Yes	NULL
TABLE_SCHEMA	varchar(64)	Yes	NULL
TABLE_NAME	varchar(64)	Yes	NULL
COLUMN_NAME	varchar(64)	Yes	NULL
ORDINAL_POSITION	int	No	0
POSITION_IN_UNIQUE_CONSTRAINT	int	Yes	NULL
REFERENCED_TABLE_SCHEMA	varchar(64)	Yes	NULL
REFERENCED_TABLE_NAME	varchar(64)	Yes	NULL
REFERENCED_COLUMN_NAME	varchar(64)	Yes	NULL

Dumping data for table KEY_COLUMN_USAGE

student_id	PRIMARY	NULL	NULL
course_id	PRIMARY	NULL	NULL
student_id	takes_ibfk_1	student	student_id
course_id	takes_ibfk_2	course	course_id

```
6) ALTER table student add birthdate DATE;
```

Database INFORMATION_SCHEMA

Table structure for table COLUMNS

Column	Type	Null	Default
TABLE_CATALOG	varchar(64)	Yes	NULL
TABLE_SCHEMA	varchar(64)	Yes	NULL

TABLE_NAME	varchar(64)	Yes	NULL
COLUMN_NAME	varchar(64)	Yes	NULL
ORDINAL_POSITION	int	No	
COLUMN_DEFAULT	text	Yes	NULL
IS_NULLABLE	varchar(3)	No	
DATA_TYPE	longtext	Yes	NULL
CHARACTER_MAXIMUM_LENGTH	bigint	Yes	NULL
CHARACTER_OCTET_LENGTH	bigint	Yes	NULL
NUMERIC_PRECISION	bigint	Yes	NULL
NUMERIC_SCALE	bigint	Yes	NULL
DATETIME_PRECISION	int	Yes	NULL
CHARACTER_SET_NAME	varchar(64)	Yes	NULL
COLLATION_NAME	varchar(64)	Yes	NULL
COLUMN_TYPE	mediumtext	No	
COLUMN_KEY	enum('', 'PRI', 'UNI', 'MUL')	No	
EXTRA	varchar(256)	Yes	NULL
PRIVILEGES	varchar(154)	Yes	NULL
COLUMN_COMMENT	text	No	
GENERATION_EXPRESSION	longtext	No	
SRS_ID	int	Yes	NULL

Dumping data for table COLUMNS

birthdate	date	NULL

7) `ALTER TABLE student ADD UNIQUE (student_name);`

Database INFORMATION_SCHEMA

Table structure for table KEY_COLUMN_USAGE

Column	Type	Null	Default
CONSTRAINT_CATALOG	varchar(64)	Yes	NULL
CONSTRAINT_SCHEMA	varchar(64)	Yes	NULL

CONSTRAINT_NAME	varchar(64)	Yes	NULL
TABLE_CATALOG	varchar(64)	Yes	NULL
TABLE_SCHEMA	varchar(64)	Yes	NULL
TABLE_NAME	varchar(64)	Yes	NULL
COLUMN_NAME	varchar(64)	Yes	NULL
ORDINAL_POSITION	int	No	0
POSITION_IN_UNIQUE_CONSTRAINT	int	Yes	NULL
REFERENCED_TABLE_SCHEMA	varchar(64)	Yes	NULL
REFERENCED_TABLE_NAME	varchar(64)	Yes	NULL
REFERENCED_COLUMN_NAME	varchar(64)	Yes	NULL

Dumping data for table KEY_COLUMN_USAGE

student_id	PRIMARY	NULL	NULL
student_name	student_name	NULL	NULL

```
8) ALTER table student add fine int(30);
```

Database INFORMATION_SCHEMA

Table structure for table COLUMNS

Column	Type	Null	Default
TABLE_CATALOG	varchar(64)	Yes	NULL
TABLE_SCHEMA	varchar(64)	Yes	NULL
TABLE_NAME	varchar(64)	Yes	NULL
COLUMN_NAME	varchar(64)	Yes	NULL
ORDINAL_POSITION	int	No	
COLUMN_DEFAULT	text	Yes	NULL
IS_NULLABLE	varchar(3)	No	
DATA_TYPE	longtext	Yes	NULL
CHARACTER_MAXIMUM_LENGTH	bigint	Yes	NULL
CHARACTER_OCTET_LENGTH	bigint	Yes	NULL
NUMERIC_PRECISION	bigint	Yes	NULL

NUMERIC_SCALE	bigint	Yes	NULL
DATETIME_PRECISION	int	Yes	NULL
CHARACTER_SET_NAME	varchar(64)	Yes	NULL
COLLATION_NAME	varchar(64)	Yes	NULL
COLUMN_TYPE	mediumtext	No	
COLUMN_KEY	enum('', 'PRI', 'UNI', 'MUL')	No	
EXTRA	varchar(256)	Yes	NULL
PRIVILEGES	varchar(154)	Yes	NULL
COLUMN_COMMENT	text	No	
GENERATION_EXPRESSION	longtext	No	
SRS_ID	int	Yes	NULL

Dumping data for table COLUMNS

fine	int	NULL

```
9) ALTER TABLE student MODIFY fine INT(30) DEFAULT 0;
   UPDATE student SET fine = 0;
```

Database university

Table structure for table student

Column	Type	Null	Default
student_id	int	No	
student_name	varchar(25)	Yes	NULL
department_name	varchar(25)	Yes	NULL
total_credits	int	Yes	NULL
birthdate	date	Yes	NULL
fine	int	Yes	0

Dumping data for table student

2001	jason	comp	8	NULL	0

2002	johnson	civil	7	NULL	0
2003	judit	electronics	4	NULL	0
2004	Martin	comp	4	NULL	0

10) `ALTER table instructor MODIFY department_name varchar(50);`

Database INFORMATION_SCHEMA

Table structure for table COLUMNS

Column	Type	Null	Default
TABLE_CATALOG	varchar(64)	Yes	NULL
TABLE_SCHEMA	varchar(64)	Yes	NULL
TABLE_NAME	varchar(64)	Yes	NULL
COLUMN_NAME	varchar(64)	Yes	NULL
ORDINAL_POSITION	int	No	
COLUMN_DEFAULT	text	Yes	NULL
IS_NULLABLE	varchar(3)	No	
DATA_TYPE	longtext	Yes	NULL
CHARACTER_MAXIMUM_LENGTH	bigint	Yes	NULL
CHARACTER_OCTET_LENGTH	bigint	Yes	NULL
NUMERIC_PRECISION	bigint	Yes	NULL
NUMERIC_SCALE	bigint	Yes	NULL
DATETIME_PRECISION	int	Yes	NULL
CHARACTER_SET_NAME	varchar(64)	Yes	NULL
COLLATION_NAME	varchar(64)	Yes	NULL
COLUMN_TYPE	mediumtext	No	
COLUMN_KEY	enum('', 'PRI', 'UNI', 'MUL')	No	
EXTRA	varchar(256)	Yes	NULL
PRIVILEGES	varchar(154)	Yes	NULL
COLUMN_COMMENT	text	No	
GENERATION_EXPRESSION	longtext	No	

SRS_ID	int	Yes	NULL

Dumping data for table COLUMNS

department_name	varchar	50

11)   `ALTER TABLE student DROP COLUMN birthdate;`

Database university

Table structure for table student

Column	Type	Null	Default
student_id	int	No	
student_name	varchar(25)	Yes	NULL
department_name	varchar(25)	Yes	NULL
total_credits	int	Yes	NULL
fine	int	Yes	0

Dumping data for table student

2001	jason	comp	8	0
2002	johnson	civil	7	0
2003	judit	electronics	4	0
2004	Martin	comp	4	0

12)   `create database dummyuniversity;`

Database
boltcabs
dummyuniversity
information_schema
mysql
performance_schema
sys
university

```
13)     create table dummyinstructor as select * from University.instru
   ctor;
```

Database dummyuniversity

Table structure for table dummyinstructor

Column	Type	Null	Default
instructor_id	int	No	
instructor_name	varchar(25)	Yes	NULL
department_name	varchar(50)	Yes	NULL
salary	bigint	Yes	NULL

Dumping data for table dummyinstructor

5001	john	comp	100000
5002	bob	comp	50000
5003	dwayne	civil	150000
5004	amita	electronics	75000

```
14)     create table dummystudent as select * from University.student;
```

Database dummyuniversity

Table structure for table dummystudent

Column	Type	Null	Default
student_id	int	No	
student_name	varchar(25)	Yes	NULL
department_name	varchar(25)	Yes	NULL
total_credits	int	Yes	NULL
fine	int	Yes	0

Dumping data for table dummystudent

2001	jason	comp	8	0

2002	johnson	civil	7	0
2003	judit	electronics	4	0
2004	Martin	comp	4	0

15)   `TRUNCATE table dummystudent;`

`SELECT COUNT(*) AS row_count FROM dummystudent;`

Database dummyuniversity

Table structure for table dummystudent

Column	Type	Null	Default
student_id	int	No	
student_name	varchar(25)	Yes	NULL
department_name	varchar(25)	Yes	NULL
total_credits	int	Yes	NULL
fine	int	Yes	0

Dumping data for table dummystudent

0