Learning management system

<u>Database : University</u>

Table 1 (colleges) :-
<u>Attribute</u>: id-int(4) ,name-varchar(20),location-varchar(20)
<u>Constrains</u> : (id) must be primary key , (name) must be not null and unique , (location) must be not null.

Table 2 (departments) : -
<u>Attribute</u>: id-int(4),name-varchar(20),college_id-int(4).
<u>Constrains :</u> (id) must be primary key , (name) must be not null and unique , (college_id) foreign key with id in college table .

Table 3 (classes) :-
<u>Attribute</u>: id-int(4),type-varchar(10), department_id-int(4),students_limit-int(2).
<u>Constrains:</u> (id) must be primary key , (name) must be not null , (department_id) foreign key with id in department table , (students_limit) must be not null .

Tablee 4 (instructors) :-
<u>Attribute</u>: id-int(4), fullname-varchar(30), email-varchar(30),phone_number-varchar(10), department_id-int(4).
<u>Constrains:</u> (id) must be primary key,(fullname)must be not null,(email) must be not null and unique, (phone_number) must be not null and unique , (department_id) foreign key with id in department table.

Table 5 (students) : -
<u>Attribute</u>: student_id-int(9) , fullname-varchar(30) , email -varchar(30),phone_number-varchar(10) , GPA-float(4), class_id-int(4).
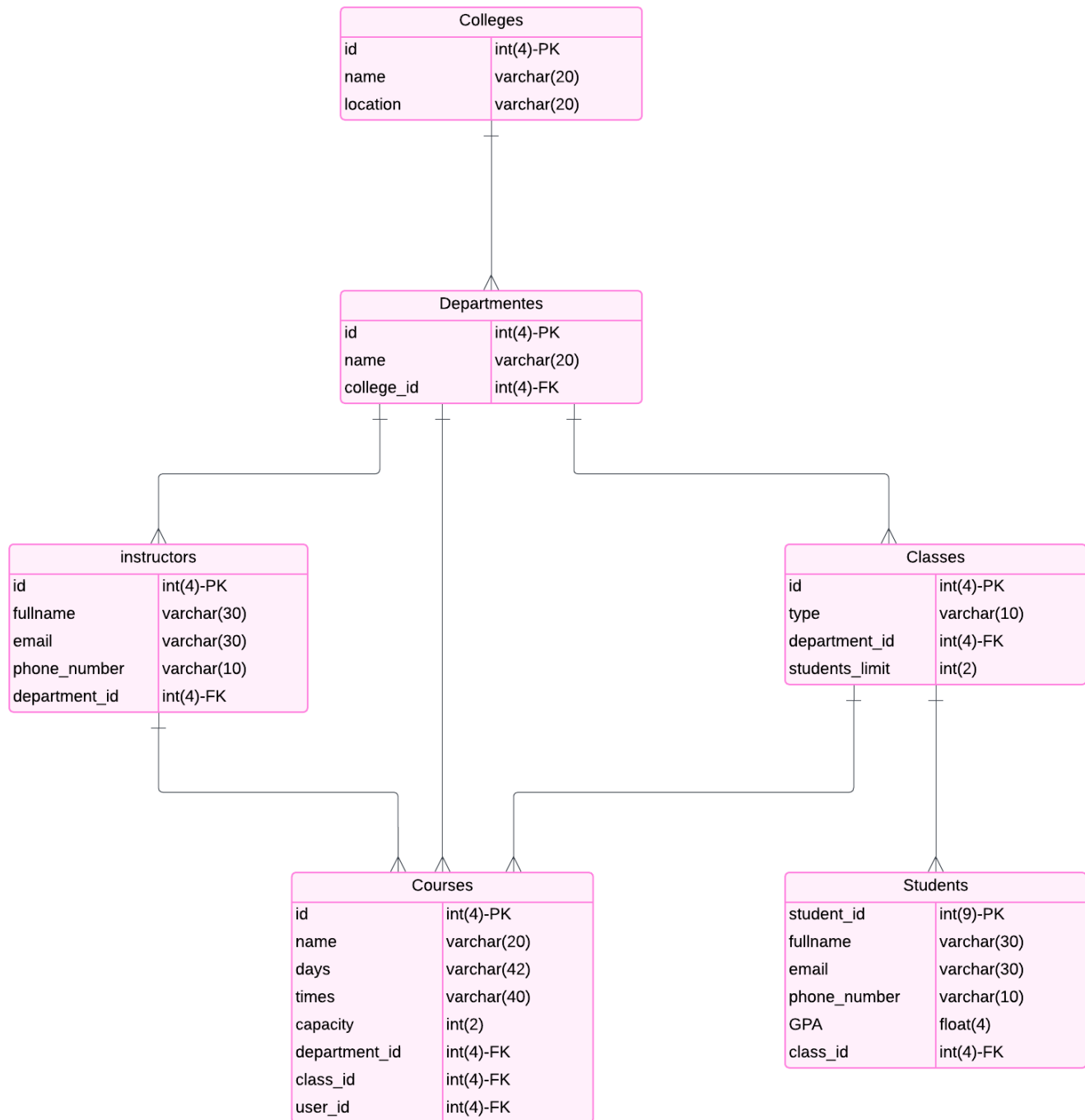<u>Constrains:</u> (id) must be primary key,(fullname)must be not null,(email) must be not null and unique, (phone_number) must be not null and unique,(class_id) foreign key with id in course table,(GPA) must be not null and with default value 0.0 .

Table 6 (courses) :-
<u>Attribute</u>: id-int(4),name-varchar(20),days-varchar(42),times-varchar(40),capacity-int(2), department_id-int(4),class_id-int(4),user_id-int(4).
<u>Constrains:</u> (id) must be primary key,(name)must be not null ,(days) must be not null , (times) must be not null (department_id) foreign key with id in department table, (class_id) foreign key with id in class table, (user_id) foreign key with id in users table.

University System

Colleges

id	int(4)-PK
name	varchar(20)
location	varchar(20)

Departmentes

id	int(4)-PK
name	varchar(20)
college_id	int(4)-FK

instructors

id	int(4)-PK
fullname	varchar(30)
email	varchar(30)
phone_number	varchar(10)
department_id	int(4)-FK

Classes

id	int(4)-PK
type	varchar(10)
department_id	int(4)-FK
students_limit	int(2)

Courses

id	int(4)-PK
name	varchar(20)
days	varchar(42)
times	varchar(40)
capacity	int(2)
department_id	int(4)-FK
class_id	int(4)-FK
user_id	int(4)-FK

Students

student_id	int(9)-PK
fullname	varchar(30)
email	varchar(30)
phone_number	varchar(10)
GPA	float(4)
class_id	int(4)-FK

Code :
create database university;

```sql
create table colleges (
    id int(4) primary key,
    name varchar(20) not null unique ,
    location varchar(20) not null
);


create table departments (
    id int(4) primary key,
    name varchar(20) not null unique ,
    college_id int(4),
    foreign key (college_id) references colleges(id)
);


create table classes (
    id int(4) primary key,
    type varchar(10) not null  ,
    department_id int(4),
    students_limit int(2) not null  ,
    foreign key (department_id) references departments(id)
);


create table instructors (
    id int(4) primary key,
    fullname varchar(30) not null  ,
    email varchar(30) not null unique ,
    phone_number varchar(10) not null unique ,
    department_id int(4),
    foreign key (department_id) references departments(id)
);


create table students (
    student_id int(9) primary key,
    fullname varchar(30) not null  ,
    email varchar(30) not null unique ,
    phone_number varchar(10) not null unique ,
    GPA float(4) not null default 0.0,
    class_id int(4),
    foreign key (class_id) references classes(id) );
```

```sql
create table courses (
    id int(4) primary key,
    name varchar(20) not null  ,
    days varchar(42) not null  ,
    times varchar(40) not null  ,
    capacity int(2),
    department_id int(4),
    class_id int(4),
    instructor_id int(4),
    foreign key (department_id) references departments(id),
    foreign key (class_id) references classes(id),
    foreign key (instructor_id) references instructors(id)
);


insert into colleges values (1, 'College of computers', 'kharj');
insert into colleges values (2, 'College of law', 'Hawtah');
INSERT INTO colleges values (3, 'College of Science', 'Hawtah');
insert into colleges values (4, 'College of Business', 'kharj');
insert into colleges values (5, 'College of Art', 'kharj');

insert into departments  values (1, 'Computer Science', 1);
insert into departments  values (2, 'Computer Engineering', 1);
insert into departments  values (3, 'general law', 2);
insert into departments  values (4, 'Biology', 3);
insert into departments  values (5, 'Finance', 4);


insert into classes  values (1, 'Lecture', 1, 50);
insert into classes  values (2, 'Lab', 2, 30);
insert into classes  values (3, 'Lecture', 3, 30);
insert into classes  values (4, 'Lecture', 4, 20);
insert into classes  values (5, 'Lecture', 5, 15);


insert into instructors
values (1, 'mohammed ahmed', 'mohammedahmed@gmail.com', '0540058223', 1);
insert into instructors
values (2, 'nasser omar', 'nasseromar@gmail.com', '0548812556', 2);
insert into instructors
values (3, 'yazeed salem', 'yazeedsalem@gmail.com', '0539958112', 3);
insert into instructors
values (4, 'Sarah salem', 'sarahsalem@gmail.com', '0529949331', 4);
```

```sql
insert into instructors
values (5, 'Meshal musa', 'Meshalmusa@gmail.com', '0539948771', 5);


insert into students
values (1000, 'osama alghamdi', 'osamagh@gmail.com', '0540060772', 3.5, 1);
insert into students
values (1001, 'saleh fahad', 'salehfahad@gmail.com', '0582284551', 3.2, 2);
insert into students
values (1002, 'hatem ahmed', 'hatimahmed@gmail.com', '0539958112', 3.8, 3);
insert into students
values (1003, 'khaled yasser', 'khaledyasser@gmail.com', '0549982774', 3.6, 4);
insert into students
values (1004, 'khaled hussin', 'khaledhussin@gmail.com', '0598837441', 3.6, 4);


insert into courses
values (1, 'database management', 'Mon,Wed', '10:00 AM - 12:00 PM', 40, 1, 1, 1);
insert into courses
values (2, 'electrical circuits', 'Tue,Thu', '2:00 PM - 4:00 PM', 25, 2, 2, 2);
insert into courses
values (3, 'systems KSA', 'son,Thu', '2:00 PM - 4:00 PM', 20, 3, 3, 3);
insert into courses
values (4, 'genetics', 'Wed,Fri', '9:00 AM - 11:00 AM', 30, 4, 3, 3);
insert into courses
values (5, 'financial accounting', 'Mon,Wed', '1:00 PM - 3:00 PM', 20, 5, 4, 4);

select * from colleges;
select * from departments;
select * from classes;
select * from instructors;
select * from students;
select * from courses;


update departments set name = 'information systems' where id = 1;

update instructors set email = 'sarahsalem001@gmail.com' where id = 4;

update students set class_id = 4 where student_id = 1003;

delete from colleges where id=5;
```