

به نام خدا

تکلیف اول از دیتابیس

حدیث غفوری 9825413

سوال 1

ساخت جدول Departmentst

```
create table Departments(  
Name varchar(60) not null,  
ID char (5) primary key,  
Budget numeric(12,2),  
Category varchar(15)  
);  
  
--create table Teachers(  

```

177 %

Messages

Commands completed successfully.

Completion time: 2022-02-28T14:46:34.5643018+03:30

ساخت جدول Teachers

```
create table Teachers(  
  FristName varchar(20) not null,  
  LastName varchar(30) not null,  
  ID char(7) primary key,  
  BirthYear int,  
  DepartmentID char(5),  
  Salary numeric(7,2) default 10000.00,  
  foreign key (DepartmentID) references Departments(ID)  
);
```

177 %

Messages

Commands completed successfully.

Completion time: 2022-02-28T14:30:11.4268001+03:30

ساخت جدول Students

```
create table Students(  
  FirstName varchar(20) not null,  
  LastName varchar(30) not null,  
  StudentNumber char(7) primary key,  
  BirthYear int,  
  DepartmentID char(5),  
  AdvisorID char(7),  
  foreign key (DepartmentID) references Departments(ID),  
  foreign key (AdvisorID) references Teachers(ID)  
);
```

7 %

Messages

Commands completed successfully.

Completion time: 2022-02-28T14:31:14.2655758+03:30

افزودن داده به جدول ها

```
insert into Departments values(  
'Electrical & Computer Engineering Department',  
'ECE',  
1200000.00,  
'Engineering');  
insert into Departments values(  
'Physics Department',  
'P',  
1000000.00,  
'Science');  
insert into Departments values(  
'Mechanical Engineering Department',  
'ME',  
1100000.00,  
'Engineering');
```

0 %

Messages

(1 row affected)

(1 row affected)

(1 row affected)

Completion time: 2022-02-28T14:48:08.7357695+03:30

```
--1000000.00,  
--'Science');  
--insert into Departments values(  
--'Mechanical Engineering Department',  
--'ME',  
--1100000.00,  
--'Engineering');
```

```
select * from Departments;
```

5 %

Results Messages

Name	ID	Budget	Category
Electrical & Computer Engineering Department	ECE	1200000.00	Engineering
Mechanical Engineering Department	ME	1100000.00	Engineering
Physics Department	P	1000000.00	Science

```

insert into Teachers values('Hosein','Yavari',1111111,1358,'ECE',11000);
insert into Teachers values('FatemeH','Mousavi',1111112,1357,'ECE',14000);
insert into Teachers values('Reza','Hasanpour',1111113,1358,'P',10000);
insert into Teachers values('Mohammad','Kazemi',1111114,1360,'ME',13000);

```

146 %

Messages

(1 row affected)

(1 row affected)

(1 row affected)

(1 row affected)

Completion time: 2022-02-28T14:57:45.5544965+03:30

```

--insert into Teachers values('Hosein','Yavari',1111111,1358,'ECE',11000);
--insert into Teachers values('FatemeH','Mousavi',1111112,1357,'ECE',14000);
--insert into Teachers values('Reza','Hasanpour',1111113,1358,'P',10000);
--insert into Teachers values('Mohammad','Kazemi',1111114,1360,'ME',13000);

```

```

select * from Teachers ;

```

```

--insert into Students values('hadis','ghafouri',9825413,1380,'ECE',1111111);

```

165 %

Results Messages

	FristName	LastName	ID	BirthYear	DepartmentID	Salary
1	Hosein	Yavari	1111111	1358	ECE	11000.00
2	FatemeH	Mousavi	1111112	1357	ECE	14000.00
3	Reza	Hasanpour	1111113	1358	P	10000.00
4	Mohammad	Kazemi	1111114	1360	ME	13000.00

```

insert into Students values('hadis','ghafouri',9825413,1380,'ECE',1111111);
insert into Students values('hadi','hoseini',9823563,1380,'P',1111113);
insert into Students values('fatemeh','karimi',9783543,1378,'ECE',1111112);
insert into Students values('hasan','rajabi',9753593,1378,'ECE',1111112);
insert into Students values('ehsan','emami',9613583,1377,'ECE',1111111);
insert into Students values('shamim','tavakoli',9624593,1377,'ME',1111114);

```

146 %
Messages

(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)

Completion time: 2022-02-28T15:02:08.5549741+03:30

نمایش جدول Students

```
select * from Students;
```

146 %

Results Messages

	FirstName	LastName	StudentNumber	BirthYear	DepartmentID	AdvisorID
1	ehsan	emami	9613583	1377	ECE	1111111
2	shamim	tavakoli	9624593	1377	ME	1111114
3	hasan	rajabi	9753593	1378	ECE	1111112
4	fatemeh	karimi	9783543	1378	ECE	1111112
5	hadi	hoseini	9823563	1380	P	1111113
6	hadis	ghafouri	9825413	1380	ECE	1111111

اضافه کردن فیلد تعداد واحد ها:

```
alter table Students add totCred numeric(3,0) not null default (0);
```

```
--alter table Students drop column totCred;
```

165 %

Messages

Commands completed successfully.

Completion time: 2022-03-01T11:26:32.5070106+03:30

```
select * from Students;
```

165 %

Results Messages

	FirstName	LastName	StudentNumber	BirthYear	DepartmentID	AdvisorID	totCred
1	ehsan	emami	9613583	1377	ECE	1111111	0
2	shamim	tavakoli	9624593	1377	ME	1111114	0
3	hasan	rajabi	9753593	1378	ECE	1111112	0
4	fatemeh	karimi	9783543	1378	ECE	1111112	0
5	hadi	hoseini	9823563	1380	P	1111113	0
6	hadis	ghafouri	9825413	1380	ECE	1111111	0

ساخت جدول Courses

```
create table Courses(  
ID varchar(10) not null primary key,  
Title varchar(50) not null,  
Credits numeric(2,0),  
DepartmentID char(5),  
foreign key (DepartmentID) references Departments(ID)  
);
```

100 %

Messages

Commands completed successfully.

Completion time: 2022-02-28T15:31:55.4411344+03:30

ساخت جدول Available_Courses

```
create table Available_Courses(  
ID varchar(10) not null primary key,  
CourseID varchar(10),  
Semester varchar(10) check(Semester in ('fall','spring')),  
Year numeric(4,0),  
TeacherID char(7),  
foreign key (CourseID) references Courses(ID),  
foreign key (TeacherID) references Teachers(ID)  
);
```

150 %

Messages

Commands completed successfully.

Completion time: 2022-02-28T15:54:51.0174058+03:30

ساخت جدول Taken_Courses

```
create table Taken_Courses(  
  CourseID varchar(10),  
  StudentID char(7),  
  Semester varchar(10) check(Semester in ('fall','spring')),  
  Year numeric(4,0),  
  Grade varchar(2),  
  primary key(CourseID,StudentID,Semester,Year),  
  foreign key (CourseID) references Available_Courses(ID),  
  foreign key (StudentID) references Students(StudentNumber)  
);
```

165 %

Messages

Commands completed successfully.

Completion time: 2022-03-01T11:56:46.6722297+03:30

ساخت جدول Prerequisites

```
create table Prerequisites (  
  CourseId      varchar(10) REFERENCES Courses(ID),  
  PrereqID      varchar(10) REFERENCES Courses(ID),  
  PRIMARY KEY (CourseId,PrereqID)  
);
```

150 %

Messages

Commands completed successfully.

Completion time: 2022-02-28T16:09:29.9330176+03:30


```
INSERT INTO Courses VALUES
```

```
(1, 'DB', 3, 'ECE'),  
(2, 'Machine', 3, 'ME'),  
(3, 'AP', 3, 'ECE'),  
(4, 'Machine Learning', 4, 'ECE');
```

165 %

Messages

(4 rows affected)

Completion time: 2022-02-28T17:49:41.0393255+03:30

```
--INSERT INTO Courses VALUES
```

```
-- (1, 'DB', 3, 'ECE'),  
-- (2, 'Machine', 3, 'ME'),  
-- (3, 'AP', 3, 'ECE'),  
-- (4, 'Machine Learning', 4, 'ECE');
```

```
select * from Courses;
```

165 %

Results

Messages

	ID	Title	Credits	DepartmentID
1	1	DB	3	ECE
2	2	Machine	3	ME
3	3	AP	3	ECE
4	4	Machine Learning	4	ECE

```
INSERT INTO Available_Courses VALUES
  (1,1,'spring', 1399, 1111111),
  (2,2,'fall', 1398, 1111114),
  (3,3,'fall', 1400,1111111 ),
  (4,4,'spring',1399,1111112);
```

165 %

Messages

(4 rows affected)

Completion time: 2022-02-28T17:57:50.2838908+03:30

```
--INSERT INTO Available_Courses VALUES
-- (1,1,'spring', 1399, 1111111),
-- (2,2,'fall', 1398, 1111114),
-- (3,3,'fall', 1400,1111111 ),
-- (4,4,'spring',1399,1111112);
```

```
select * from Available_Courses;
```

165 %

Results

Messages

	ID	CourseID	Semester	Year	TeacherID
1	1	1	spring	1399	1111111
2	2	2	fall	1398	1111114
3	3	3	fall	1400	1111111
4	4	4	spring	1399	1111112

```
INSERT INTO Taken_Courses VALUES
(3,9825413, 'fall',1400,18),
(2,9823563, 'fall',1398,15),
(1,9825413, 'spring',1399,17),
(3,9783543, 'fall',1400,19),
(4,9613583, 'spring',1399,13);
```

%

Messages

(5 rows affected)

Completion time: 2022-03-01T11:20:58.0872364+03:30

```
--INSERT INTO Taken_Courses VALUES
-- (3,9825413, 'fall',1400,18),
-- (2,9823563, 'fall',1398,15),
-- (1,9825413, 'spring',1399,17),
-- (3,9783543, 'fall',1400,19),
-- (4,9613583, 'spring',1399,13);
```

```
select * from Taken_Courses;
```

165 %

Results Messages

	CourseID	StudentID	Semester	Year	Grade
1	1	9825413	spring	1399	17
2	2	9823563	fall	1398	15
3	3	9783543	fall	1400	19
4	3	9825413	fall	1400	18
5	4	9613583	spring	1399	13

```
INSERT INTO Prerequisites VALUES
```

```
(1, 3),
```

```
(4, 3);
```

165 %

Messages

(2 rows affected)

Completion time: 2022-02-28T18:00:30.4457055+03:30

پیدا کردن مشخصات دانشکده ی دانشجویی که شماره ایدی به خصوصی دارد

(به جای 123 عدد 9825413 در نظر گرفته شده)

```
select * from Students s inner join Departments d on
```

```
(s.DepartmentID = d.ID)
```

```
where StudentNumber =9825413;
```

```
--select *
```

165 %

Results Messages

	FirstName	LastName	StudentNumber	BirthYear	DepartmentID	AdvisorID	totCred	Name	ID	Budget	Category
1	hadis	ghafouri	9825413	1380	ECE	1111111	0	Electrical & Computer Engineering Department	ECE	1200000.00	Engineering

اضافه کردن یک نمره به نمرات هر دانشجو در هر درس:

در ابتدا:

```
select * from Taken_Courses;
```

165 %

Results

Messages

	CourseID	StudentID	Semester	Year	Grade
1	1	9825413	spring	1399	17
2	2	9823563	fall	1398	15
3	3	9783543	fall	1400	19
4	3	9825413	fall	1400	18
5	4	9613583	spring	1399	13

```
select * from Taken_Courses;  
update Taken_Courses  
set Grade = Grade +1  
where Grade is not null And  
Grade <=19;
```

165 %

Messages

(5 rows affected)

Completion time: 2022-03-01T11:39:59.5825075+03:30

پس از آپدیت :

```
select * from Taken_Courses;  
--update Taken_Courses  
--set Grade = Grade +1  
--where Grade is not null And  
--Grade <=19;
```

165 %

Results

Messages

	CourseID	StudentID	Semester	Year	Grade
1	1	9825413	spring	1399	18
2	2	9823563	fall	1398	16
3	3	9783543	fall	1400	20
4	3	9825413	fall	1400	19
5	4	9613583	spring	1399	14

دانشجویانی که درس دیتابیس را اخذنکرده اند:

```
select *  
from Students s  
where s.StudentNumber not in(  
select StudentNumber  
from Students  
inner join Taken_Courses t  
on(s.StudentNumber = t.StudentID)  
inner join Courses c  
on(c.ID = t.CourseID)  
where c.Title = 'DB'  
)
```

165 %

Results

Messages

	FirstName	LastName	StudentNumber	BirthYear	DepartmentID	AdvisorID	totCred
1	ehsan	emami	9613583	1377	ECE	1111111	0
2	shamim	tavakoli	9624593	1377	ME	1111114	0
3	hasan	rajabi	9753593	1378	ECE	1111112	0
4	fatemeh	karimi	9783543	1378	ECE	1111112	0
5	hadi	hoseini	9823563	1380	P	1111113	0