1.

```
CREATE TABLE Employee (
    emp_id INTEGER
    CONSTRAINT Employee_PK
    PRIMARY KEY,
    salary MONEY NOT NULL ,
    hire_date DATE NOT NULL ,
    title VARCHAR (30) NOT
    NULL )

CREATE TABLE Faculty ( faculty_id
    INTEGER CONSTRAINT
    Faculty_PK PRIMARY KEY,
    name VARCHAR (30) NOT NULL ,
    location_id INTEGER NOT
    NULL ,
    "desc"  VARCHAR (30), emp_id INTEGER
    NOT NULL ,
    CONSTRAINT
    Faculty_Employee_FK
    FOREIGN KEY (emp_id)
    REFERENCES
    Employee(emp_id)
```

2.

Pytanie 2

Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie Edy

Select department name if the number of its current employees is greater than 5. Display also the number of employees.

Line 1	SELECT d.name AS 'Department name',
Line 2	COUNT(*) AS 'The number of employees'
Line 3	FROM Employment em JOIN
Line 4	Department d ON em.dept_id=d.dept_id
Line 5	WHERE em.end_date IS NULL
Line 6	GROUP BY d.name
Line 7	HAVING COUNT(*)> 5

Pytanie 3

Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie

Select department names and the average salary for each of them calculated for current employees.

Line 1	SELECT d.name AS 'Department name',
Line 2	avg(salary) AS 'The average salary'
Line 3	FROM Employment em JOIN Department d
Line 4	ON em.dept_id=d.dept_id
Line 5	WHERE em.end_date IS NULL
Line 6	GROUP BY d.name

Pytanie 4

Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie Edytuj pytanie

Select the names of all departments and the average number of workdays in each of them. Calculations should be performed only for current employees.

Line 1	select d.name,
Line 2	avg(datediff(day,start_date,getdate())) 'Average number of work days'
Line 3	from Department d join Employment em
Line 4	on d.dept_id=em.dept_id
Line 5	where end_date is null
Line 6	group by d.name

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Consider the following Employee table:
CREATE TABLE Employee (emp_id int IDENTITY CONSTRAINT PK_Employee_Emp_id PRIMARY KEY NONCLUSTERED,first_name varchar(25) NOT NULL,last_name varchar(30) NOT NULL,birth_date date NOT NULL,gender char(1) CONSTRAINT CH_Employee_gen CHECK(gender='M' OR gender='F'), email varchar(40) CONSTRAINT U_Employee_Email UNIQUE,salary float not null,account_no varchar(26))
Create a filtered index with two key columns (last_name and salary) and one non-key included column (account_no). The filter predicate should select only the employees who have a bank account.

Line 1	CREATE NONCLUSTERED INDEX idx_Emp_lName_Sal	WHERE account_no IS NOT NULL
Line 2	ON Employee(last_name,salary)	INCLUDE (account_no)
Line 3	INCLUDE (account_no)	WHERE account_no IS NOT EMPTY
Line 4	WHERE account_no IS NOT NULL	CREATE NONCLUSTERED INDEX idx_Emp_lName_Sal
		CREATE FILTERED INDEX idx_Emp_lName_Sal
		ON Employee(last_name,salary)

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Consider the following table

CREATE TABLE dbo.Student ([index] varchar(10) CONSTRAINT PK_Student_Index PRIMARY KEY,
first_name varchar(25) NOT NULL,
last_name varchar(30) NOT NULL,
birth_date date NOT NULL,
gender char(1) CONSTRAINT CH_Employee_gen CHECK(gender='M' OR gender='F'),
email varchar(40))

Which of the following statements run correctly:

- [ ] a. drop index PK_Student_Index on dbo.Student
- [ ] b. create clustered index idx_email on dbo.Student(email)
- [x] c. create index idx_email on dbo.Student(email)
- [x] d. create nonclustered index idx_gender on dbo.Student(gender)
- [x] e. alter index PK_Student_Index on dbo.Student rebuild

First one fails as we have primary key constraint on the column index.

Second one fails as there is already clustered index on the table Student (on the column called index). By default, clustered index is created on the primary key columns if we do not specify ‘primary key nonclustered clause

Pytanie 7 Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie Edytuj pytanie

Consider the below database diagram and increase salary by 5% for all current employees who met deadline for the tasks completed. Task is completed when end_date is not null.

update	Employment
set	salary = salary*1.05
where end_date is null	and e_id not in
(select em.e_id	from Employment em join Task t on em.e_id=t.e_id
where em.end_date is null and	t.end_date is not null and t.end_date > t.deadline)

Pytanie 8

Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie Edytuj pytanie

The considered table has the following structure

```
CREATE TABLE [dbo].[Task](
[task_id] [int] IDENTITY(1,1) NOT NULL primary key,
[name] [varchar](40) NOT NULL,
[e_id] [int] NOT NULL FOREIGN KEY([e_id]) REFERENCES [dbo].[Employment] ([e_id]),
[start_date] [datetime] NOT NULL,
[end_date] [datetime] ,
[deadline] [datetime] NOT NULL,
[desc] [varchar](max) NULL
)
```

Write the statement to increase deadline by two weeks for the tasks which are not completed and their deadline is less than 3 days. Task is not completed if end_date has no value.

Line 1	update Task
Line 2	set deadline = dateadd(day, 14, deadline)
Line 3	where datediff(day, getdate(), deadline) < 3
Line 4	and end_date is NULL

Pytanie 9

Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj p

Write the statement to increase the salary by 15% for the current employees earning between 2000 and 4000.

The considered table has the following structure

```
CREATE TABLE [dbo].[Employment](
[e_id] [int] IDENTITY(1,1) NOT NULL primary key,
[emp_id] [int] NOT NULL,
[dept_id] [int] NOT NULL,
[p_id] [int] NOT NULL,
[start_date] [date] NOT NULL,
[end_date] [date] NULL,
[salary] [money] NULL,
)
```

Line 1	update Employment
Line 2	set salary = salary *1.15
Line 3	where salary between 2000 and 4000
Line 4	and end_date is NULL

Pytanie 10

Nie udzielc

Select the names of all current employees and their department names.

Line 1	SELECT e.first_name, e.last_name,
Line 2	d.name FROM Employee e JOIN Employment em
Line 3	ON e.emp_id = em.emp_id JOIN
Line 4	Department d ON
Line 5	em.dept_id = d.dept_id
Line 6	WHERE em.end_date IS NULL

Pytanie 11

Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie Edytuj pytanie

Select the names of all employees and their addresses, including those ones without address assigned as well as those addresses that are not assigned to any employees.

Line 1	SELECT first_name, last_name,
Line 2	street, city FROM Employee e
Line 3	FULL OUTER JOIN
Line 4	Address a ON
Line 5	e.address_id = a.address_id

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Print the names of all current employees whose salary exceeded 4000 and if they work longer than 100 days.

Print also their start day and salary.

```
Line 1  select first_name,last_name,
Line 2  em.start_date,salary
Line 3  from Employee e join
Line 4  Employment em on
Line 5  e.emp_id=em.emp_id
Line 6  where em.end_date is null
Line 7  and salary>4000
Line 8  and DATEDIFF(day, start_date, getdate())>100
```

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Select the oldest woman (women). Display first and last name.

```
Line 1  SELECT first_name, last_name
Line 2  FROM Employee
Line 3  WHERE birth_date =
Line 4  (SELECT MIN(birth_date)
Line 5  FROM Employee e2
Line 6  WHERE e2.gender='F')
Line 7  and gender='F'
```

Pytanie 14

Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie

Get current employees earning more than the average salary (calculated for current employees) in their departments

```
Line 1  SELECT e1.first_name, e1.last_name
Line 2  FROM Employee e1 JOIN Employment
Line 3  em1 ON e1.emp_id = em1.emp_id
Line 4  WHERE em1.end_date IS NULL
Line 5  AND em1.salary > (
Line 6  SELECT AVG(em2.salary)
Line 7  FROM Employment em2
Line 8  WHERE em2.end_date IS NULL
Line 9  AND em2.dept_id=em1.dept_id)
```

Pytanie 15

Nie udzielono odpowiedzi Punkty maks.: 1,00

Print the names of each current employee whose salary exceeds the average salary in the IT department.

```
Line 1  select last_name,first_name
Line 2  from Employee e join Employment
Line 3  em on e.emp_id=em.emp_id
Line 4  where em.end_date is null
Line 5  and em.salary > (select avg(salary)
Line 6  from Employment em2 join
Line 7  Department d on em2.dept_id=d.dept_id
Line 8  where em2.end_date
Line 9  is null and d.name='IT')
```

Pytanie 16

Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie Edytuj pytanie

Consider the following table:

CREATE TABLE dbo.Student ([index] varchar(10) CONSTRAINT PK_Student_Index PRIMARY KEY,
first_name varchar(25) NOT NULL,
last_name varchar(30) NOT NULL,
birth_date date NOT NULL,
gender char(1) CONSTRAINT CH_Employee_gen CHECK(gender='M' OR gender='F'),
email varchar(40))

Prepare the statement to create a view named dbo.V_Stud which stores the indices, names and birth dates of students whose age exceeds 21. Ensure the following:

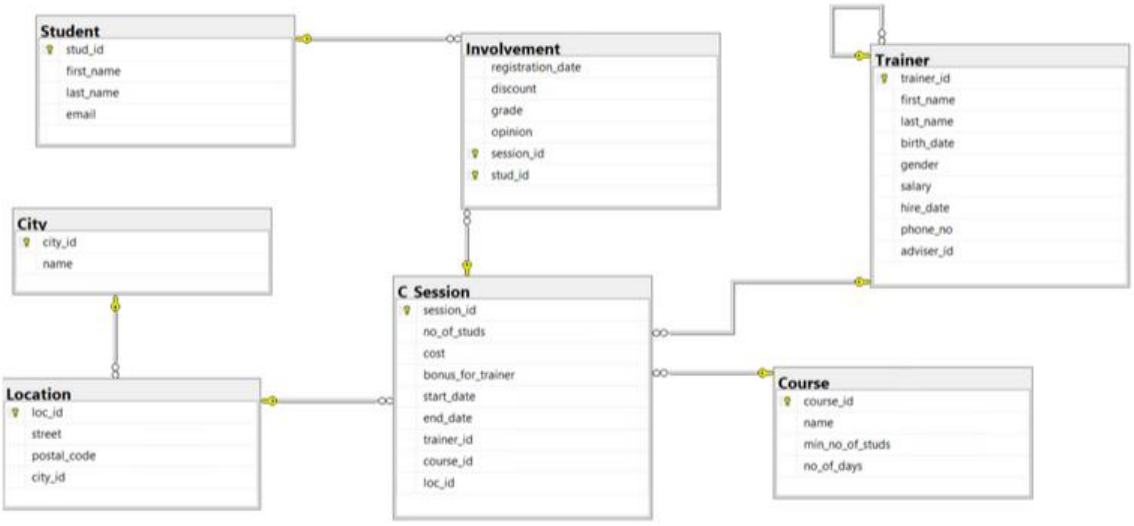
- the base table Student cannot be modified in a way that would affect the view definition
- when rows are updated through a view the data will remain visible through the view after the modification

Line 1	CREATE VIEW dbo.V_Stud
Line 2	WITH SCHEMABINDING
Line 3	AS SELECT [index],first_name,last_name,birth_date
Line 4	FROM dbo.Student
Line 5	WHERE DATEDIFF(year, birth_date, GETDATE())> 21
Line 6	WITH CHECK OPTION

Consider the following database diagram:

There are many course sessions (C_Session) run for one course (Course).

Students can take part in many course sessions (C_Session) and one C_Session can by attended by many students. Hence the table Involvement stores information about students and their course sessions.



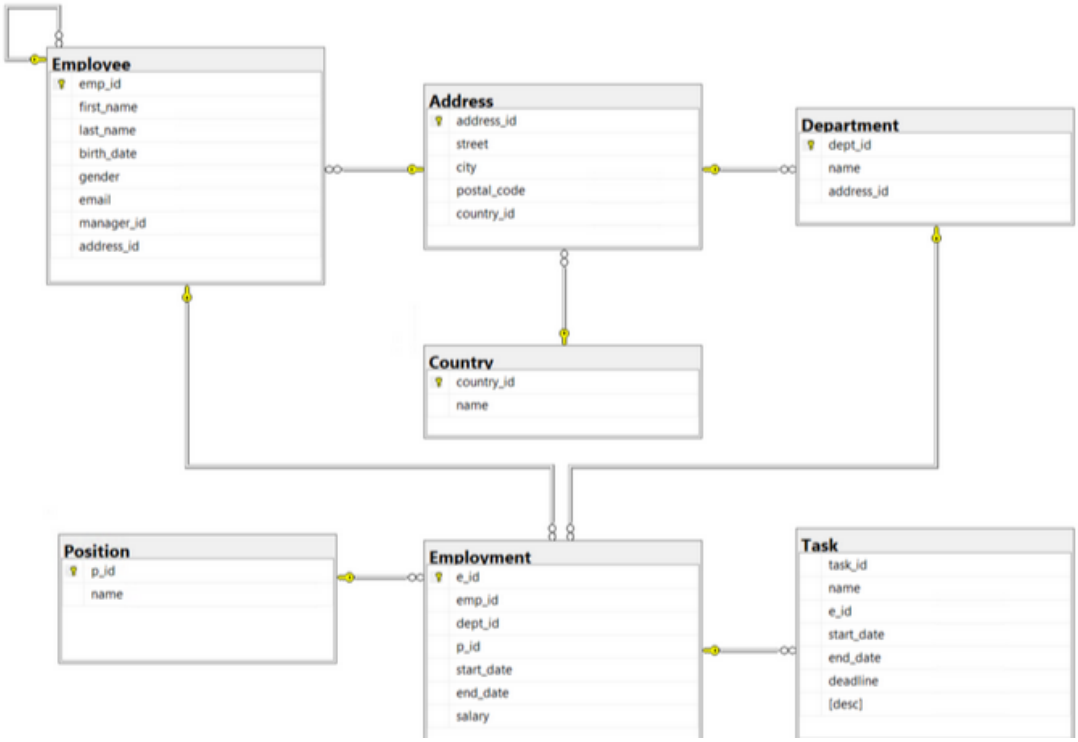
Prepare the statements to create the view called [dbo].[v_student_course] which stores the following data for completed course sessions.

stud_id	first_name	last_name	courseName	end_date	grade
1	Filiph	Miller	Java EE 6 Programmer	2011-06-10	5
3	James	Collins	Java EE 6 Programmer	2011-06-10	4.5

Line 1	create view [dbo].[v_student_course] as
Line 2	select s.[stud_id], first_name , last_name ,
Line 3	c.name courseName, cs.end_date , i.grade
Line 4	from [dbo].[Course] c join [dbo].[C_Session] cs
Line 5	on c.course_id=cs.course_id join [dbo].[Involvement] i
Line 6	on i.[session_id]=cs.[session_id] join [dbo].[Student] s on s.[stud_id]=i.[stud_id]
Line 7	where cs.end_date is not null

Pytanie 18 Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie Edytuj pytanie

Which of the following statements will fail against the below database schema? It is assumed that each statement is run independently.



- [x] a. drop table Employee
- [x] b. drop table Employment
- [x] c. drop table Country
- [ ] d. drop table task

1st fails as foreign key in Employment which points to Employee

2nd fails as foreign key in Task which points to Employment

3rd fails as foreign key in Task which points to Employment

Pytanie 19 Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie Edytuj pytanie

Create the table Department with the primary key constraint on the dept_id column and foreign key on the adress_id column (the foreign key points to the primary key column called address_id in the Address table). The table Department should also have the column department_name.

```
Line 1  CREATE TABLE [dbo].[Department](
Line 2  [dept_id] [int] IDENTITY(1,1) NOT NULL, [name] [varchar](50) NULL,
Line 3  [address_id] [int] NULL,
Line 4  CONSTRAINT [PK_Department_Dept_id] PRIMARY KEY CLUSTERED ([dept_id] )
Line 5  CONSTRAINT [FK_Department_address_id] FOREIGN KEY([address_id])
Line 6  references Address([address_id]) )
```

Pytanie 20 Nie udzielono odpowiedzi Punkty maks.: 1,00 Oflaguj pytanie Edy

Create three tables as per below requirements. The instructions implemented should reflect the order of the sentences in the question.

a) Book(isbn, title, year_of_publication, price) with primary key on isbn and all attributes required (NOT NULL).

b) Author(author_id, first_name, last_name, birth_date) with primary key on author_id and all attributes required.

c) BookAuthor(isbn, author_id) with all attributes required.

d) Add the column quantity to Book and set the default value to 10.

e) Set the foreign key on BookAuthor.isbn which refers to Book.isbn.

f) Set the foreign key on BookAuthor.author_id which refers to Author.author_id.

```
Line 1  create table Book(isbn varchar(100) primary key, title varchar(max) not null,
Line 2  year_of_publication int not null, price money not null)
Line 3  create table Author(author_id int primary key, first_name varchar(200) not null,
Line 4  last_name varchar(200) not null, birth_date date not null)
Line 5  create table BookAuthor(
Line 6  isbn varchar(100) not null, author_id int not null)
Line 7  alter table book add quantity int default 10
Line 8  alter table BookAuthor add constraint fk_isbn foreign key(isbn) references Book(isbn)
Line 9  alter table BookAuthor add constraint fk_auth_id foreign key(author_id) references Author(author_id)
```