

CSG1207/CSI5135: Systems and Database Design

Lab 07 - Solutions

Standard Disclaimer

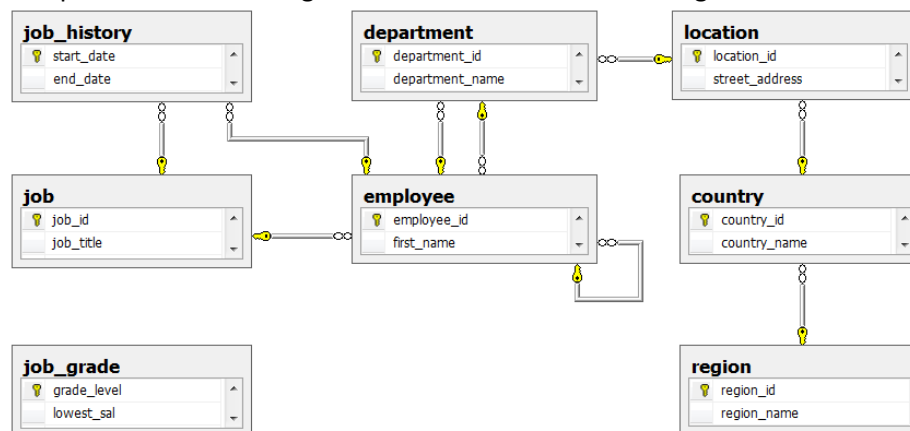
Many questions you encounter in this and other labs have more than one solution which is valid and correct. There are often numerous ways to achieve the same results in an SQL query.

The solutions provided here may NOT be the only correct answers to the questions. If you have arrived at solution to a lab task that differs substantially from what is provided here and would like feedback on your solution, please contact your tutor.

Lab Tasks

Q1. The database has been implemented correctly, except for one constraint. The foreign key constraint between “job_history” and “department” is missing.

Q2. This picture shows Management Studio’s ERD after moving entities about:



As you can see, the relationship between “job_history” and “department” is missing.

Q3.

```

ALTER TABLE job_history
ADD CONSTRAINT jhist_dept_fk FOREIGN KEY (department_id)
REFERENCES department(department_id);
    
```

Note: Make sure that you do not have any database diagrams still open from before you added the new constraint, or new diagrams will not reflect the change you have made.

- Q4.** "emp_salary_min" (CHECK) ensures that salaries are greater than 0.
"gender_char" (CHECK) ensures that gender is either "F" or "M".
"emp_email_uk" (UNIQUE) ensures that the email column is unique.

Q5.

```
CREATE TABLE project
(
    project_id INT NOT NULL CONSTRAINT proj_pk PRIMARY KEY IDENTITY,
    project_name VARCHAR(50) NOT NULL,
    project_desc TEXT NULL,
    creation_date SMALLDATETIME NOT NULL DEFAULT GETDATE()
);
```

Q6.

```
ALTER TABLE project
    ADD project_leader INT NOT NULL
        CONSTRAINT proj_lead_fk FOREIGN KEY
        REFERENCES employee(employee_id);
```

(Note: This could be done in two separate ALTER TABLE statements if desired)

Q7. (Note: The first statement assumes that your PK constraint is named "proj_pk")

```
ALTER TABLE project
    DROP CONSTRAINT proj_pk;

ALTER TABLE project
    DROP COLUMN project_id;

ALTER TABLE project
    ADD project_code CHAR(5) CONSTRAINT proj_pk PRIMARY KEY;
```

Q8.

```
DROP TABLE project;

CREATE TABLE project
(
    project_code CHAR(5) NOT NULL CONSTRAINT proj_pk PRIMARY KEY,
    project_name VARCHAR(50) NOT NULL CONSTRAINT proj_uk UNIQUE,
    project_desc TEXT NULL,
    creation_date SMALLDATETIME NOT NULL DEFAULT GETDATE(),
    project_leader INT NOT NULL CONSTRAINT proj_lead_fk FOREIGN KEY
        REFERENCES employee(employee_id)
);
```

Q9.

```
CREATE TABLE project_work
(
    employee_id INT NOT NULL CONSTRAINT pwrk_emp_fk FOREIGN KEY
        REFERENCES employee(employee_id),
    project_code CHAR(5) NOT NULL CONSTRAINT pwrk_proj_fk FOREIGN KEY
        REFERENCES project(project_code),
    CONSTRAINT pwrk_pk PRIMARY KEY (employee_id, project_code)
);
```

Challenge Query!

Q10.

```
CREATE TABLE item
(
  item_id INT IDENTITY(100, 20) CONSTRAINT item_PK PRIMARY KEY,
  item_name VARCHAR(50) NOT NULL CONSTRAINT item_name_uk UNIQUE,
  item_desc VARCHAR(250) NOT NULL CONSTRAINT desc_check
                                CHECK (LEN(item_desc) >= 40),
  initial_stock SMALLINT NOT NULL DEFAULT 100,
  reorder_level SMALLINT NOT NULL DEFAULT 25,
  created_by INT NULL CONSTRAINT item_create_fk FOREIGN KEY
                                REFERENCES item(item_id),
  CONSTRAINT stock_check CHECK (reorder_level < initial_stock)
);
```