



SEPTEMBER 6, 2024



LAB 1

ASSIGNMENT

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IS 6420-001 Fall 2024 Database Theory/Design

SQL Lab 1

Screenshot:

The screenshot shows the DBeaver interface with the following details:

- Database Navigator:** Shows the database structure for 'postgres' on 'localhost:5432'. It includes Schemas (public), Tables (department, employee, student), Foreign Tables, Views, Materialized Views, Functions, Sequences, Data types, Aggregate functions, Event Triggers, Extensions, Storage, System Info, Roles, Administer, and System info.
- Script Editor:** Displays the SQL script for creating the 'employee' table and inserting data. The script is as follows:

```
1 DROP TABLE IF EXISTS employee;
2 CREATE TABLE employee (
3     first_name VARCHAR(15) NOT NULL,
4     middle_initial CHAR(1),
5     last_name VARCHAR(15) NOT NULL,
6     SSN CHAR(9) NOT NULL,
7     DOB DATE,
8     address VARCHAR(30),
9     gender CHAR(1),
10    salary MONEY,
11    SSN_supervisor CHAR(9),
12    department_id SMALLINT NOT NULL,
13    PRIMARY KEY (SSN)
14 )
15 ALTER TABLE employee ALTER COLUMN SSN TYPE INTEGER
16 USING(SSN::INTEGER);
17
18 ALTER TABLE employee ALTER COLUMN SSN TYPE CHAR(9);
19
20 INSERT INTO employee VALUES ('Doug', 'E', 'Gilbert',
21 123456789, '1960-06-09', '300 South 200 West', 'M',
22 '$81,200.05', NULL);
23
24 INSERT INTO employee VALUES ('Amy', 'C', 'Elyot',
25 123456789, '1973-03-26', '100 Main St.', 'F',
26 '$80,000.00', NULL);
27
28 INSERT INTO employee (first_name, last_name, SSN,
29 SSN_supervisor, department_id) VALUES ('Richard', 'Smith',
30 987654321, 123456789, 1)
31
32 INSERT INTO employee (first_name, last_name, SSN,
33 department_id)
34 VALUES ('George', 'Haman', 123456783, 2);
35
36 SELECT *
37 FROM employee
```

- Output Window:** Shows the message: "table \"employee\" does not exist, skipping".
- Table View:** Shows the 'employee' table with 4 rows of data. The columns are: first_name, middle_initial, last_name, SSN, dob, address, gender, salary, and SSN_supervisor.

Name	DataSource
1 Doug	E
2 Amy	C
3 Richard	[NULL]
4 George	[NULL]

Below the table view, it says: 4 row(s) fetched - 0.003s, on 2024-09-06 at 16:32:42.

Syntax:

```
DROP TABLE IF EXISTS employee;
CREATE TABLE employee (
    first_name VARCHAR(15) NOT NULL,
    middle_initial CHAR(1),
    last_name VARCHAR(15) NOT NULL,
    SSN CHAR(9) NOT NULL,
    DOB DATE,
    address VARCHAR(30),
    gender CHAR(1),
    salary MONEY,
    SSN_supervisor CHAR(9),
    department_id SMALLINT NOT NULL,
    PRIMARY KEY (SSN)
)
ALTER TABLE employee ALTER COLUMN SSN TYPE INTEGER
USING(SSN::INTEGER);

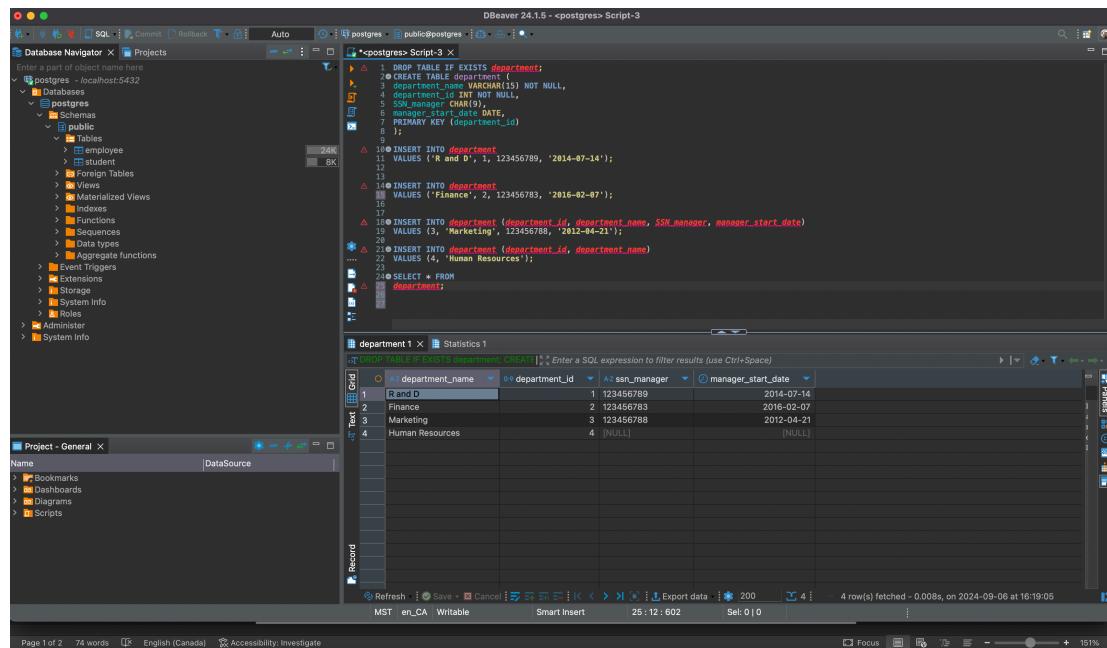
ALTER TABLE employee ALTER COLUMN SSN TYPE CHAR(9);
```

```
INSERT INTO employee VALUES ('Doug', 'E', 'Gilbert',
123456780,
'1960-06-09', '300 South 200 West', 'M', 81200.05, NULL, 1)
;
INSERT INTO employee VALUES ('Amy', 'C', 'Elyot',
123456789,
'1973-03-26', '100 Main St.', 'F', 80000.00, NULL, 1)
;
INSERT INTO employee (first_name, last_name, SSN,
SSN_supervisor, department_id) VALUES ('Richard', 'Smith',
987654321, 123456789, 1)
;
INSERT INTO employee (first_name, last_name, SSN,
department_id)
VALUES ('George', 'Haman', 123456783, 2);

SELECT *
FROM employee
```

Challenge 1

Screenshot:



Syntax:

```

DROP TABLE IF EXISTS department;
CREATE TABLE department (
    department_name VARCHAR(15) NOT NULL,
    department_id INT NOT NULL,
    SSN_manager CHAR(9),
    manager_start_date DATE,
    PRIMARY KEY (department_id)
);

INSERT INTO department
VALUES ('R and D', 1, 123456789, '2014-07-14');

INSERT INTO department
VALUES ('Finance', 2, 123456783, '2016-02-07');

INSERT INTO department (department_id, department_name,
SSN_manager, manager_start_date)
VALUES (3, 'Marketing', 123456788, '2012-04-21');

INSERT INTO department (department_id, department_name)
VALUES (4, 'Human Resources');

SELECT * FROM
department;

```

Challenge – 2

Screenshot:

The screenshot shows the DBeaver interface with a PostgreSQL database connection. The Database Navigator pane on the left lists databases, schemas, and tables. The employee table is selected. The Script-4 tab in the top right contains the following SQL code:

```

SELECT * FROM employee;
SELECT * FROM department;
SELECT e.first_name, e.last_name, d.department_name
FROM employee AS e
LEFT JOIN department AS d
USING(department_id)

```

The results pane shows the output of the query:

	AZ first_name	AZ last_name	AZ department_name
1	Doug	Gilbert	R and D
2	Amy	Elyot	R and D
3	Richard	Smith	R and D
4	George	Haman	Finance

Syntax:

```
SELECT * FROM employee;
SELECT * FROM department;
```

```
SELECT e.first_name, e.last_name, d.department_name
FROM employee AS e
LEFT JOIN department AS d
USING(department_id)
```