Assignment 2

Download the Schema *friends.sql* from the Moodle Course and import it into your Postgres DBMS. (Download Link: https://www.postgresql.org/download/)

Exercise 1 – XML Publishing

Create an SQL query that exports all groups with their group owners and their members in the following XML format:

```
<groups>
        <group title="CSI Miami" owner="OwnerName">
                <member name="someMemberName" email="someMemberEmail">
                …
        </group>
        …
</groups>
```

Exercise 2 – JSON Publishing

Create an SQL query that exports all groups with their group owners and all members in the following JSON format:

```
{
        "groups" : [
                {"title": "CSI Miami", "owner": "OwnerName", "members" : [
                        {"name" : "someMemberName", "email" : "someMemberEmail"},
                        …
                ]
                },
                …
        ]
}
```

Exercise 3 – Querying JSON

a) Create a new table *myFiles(key,content)*, where *key* is a unique string and *content* is of type *jsonb*. Insert a new file into myfiles with *key = groups* and content is the result of the query from Exercise 2.

b) Write a query querying *myFiles*, that returns the title and owner name of all groups, where *Hanna Schmidt* is a member. The result should be a standard relation (no JSON).

Exercise 4 – Window Functions

Execute the script *department.sql* from the moodle course to create the department table. Write an SQL query returning all department names, the number of employees and the max number of employees of any sister-department. Sister departments have the same parent. The number of employees per department should only contain employees that are direct assigned to the specific department. Therefore, no recursion is required.

Exercise 5 – Hierarchical Queries

- Create a recursive SQL query that returns the name and number of employees of all F&E departments (F&E department and all its descendants).
- Create a query that returns the total number of people employed in each department including all employees of its sub-departments.