LEK SQL

GENERAL QUESTIONS

What does SQL stand for?
SQL stands for Structured Query Language.

Name two Python Modules that work with SQL.
For example, sqlite3 and psycopg2.

SQL TABLES

Which two methods do you know to create tables in SQL? Give an example command for each of them.

Method 1:

```
CREATE TABLE account (
        user_id SERIAL PRIMARY KEY,
        username VARCHAR (50) UNIQUE NOT NULL,
        password VARCHAR (50) NOT NULL,
        email VARCHAR (250) UNIQUE NOT NULL,
        create_on TIMESTAMP NOT NULL,
        last_login TIMESTAMP);
```

(comment: SERIAL datatype is used by PostgreSQL for a PRIMARY KEYs)

Method 2:

```
CREATE TABLE new_account AS
SELECT username, created_on
FROM account
WHERE user_id > 3;
```

How can you enter data into a table in SQL?

```
INSERT INTO account (user_id, username, password, email, create_on)
VALUES (1, 'Maria', 'password', 'maria_2@mail.com', CURRENT_TIMESTAMP );
```

How can you change data in your table?

```
UPDATE account
SET email= 'maria_2@hotmail.com'
WHERE user_id = 1;
```

Name and describe 4 constraints you can add to columns in SQL.
1. PRIMARY KEY – this constraint is the combination of NOT NULL and UNIQUE constraints. It uniquely identifies each record in a table.
2. NOT NULL – the value of the column cannot be NULL .
3. CHECK – enables to check a condition when one inserts or updates data.
4. DEFAULT - used to set a default value for a column.

Give an example for all of them.
Examples of the PRIMARY KEY, NOT NULL, CHECK, and DEFAULT constraints are shown below, using employees table:

```
CREATE TABLE employees (
        emp_id SERIAL PRIMART KEY,
        first_name VARCHAR (50) NOT NULL,
        last_name VARCHAR (50) NOT NULL,
        birthdate date CHECK (birthdate > '1900-01-01'),
        hire_date date CHECK (hire_date > birthdate),
        salary INTEGER CHECK (salary > 0),
        city VARCHAR (50) DEFAULT 'Berlin');
```

SELECTIONS
How can you select all entries in a table in SQL?
SELECT * FROM account;

What are the meanings of NOT NULL, ORDER BY and WHERE in SQL?
NOT NULL - used with IS to filter records without values.
ORDER BY - allows a suer to sort the rows returned from the SELECT statement in ascending or descending order based on criteria specified by different criteria.
WHERE - allows a user to add conditions so that to filter the rows returned from the SELECT statement.

Give an example for all three of them.

(NOT NULL)
```
SELECT last_login FROM account
WHERE last_login IS NOT NULL;
```

(ORDER BY)
```
SELECT customer_id, first_name, last_name, address_id FROM customer
WHERE first_name LIKE 'E%' AND address_id < 500
ORDER BY customer_id DESC
LIMIT 1;
```

(WHERE)
```
SELECT first_name, last_name FROM customer
WHERE first_name LIKE 'J%';
```