

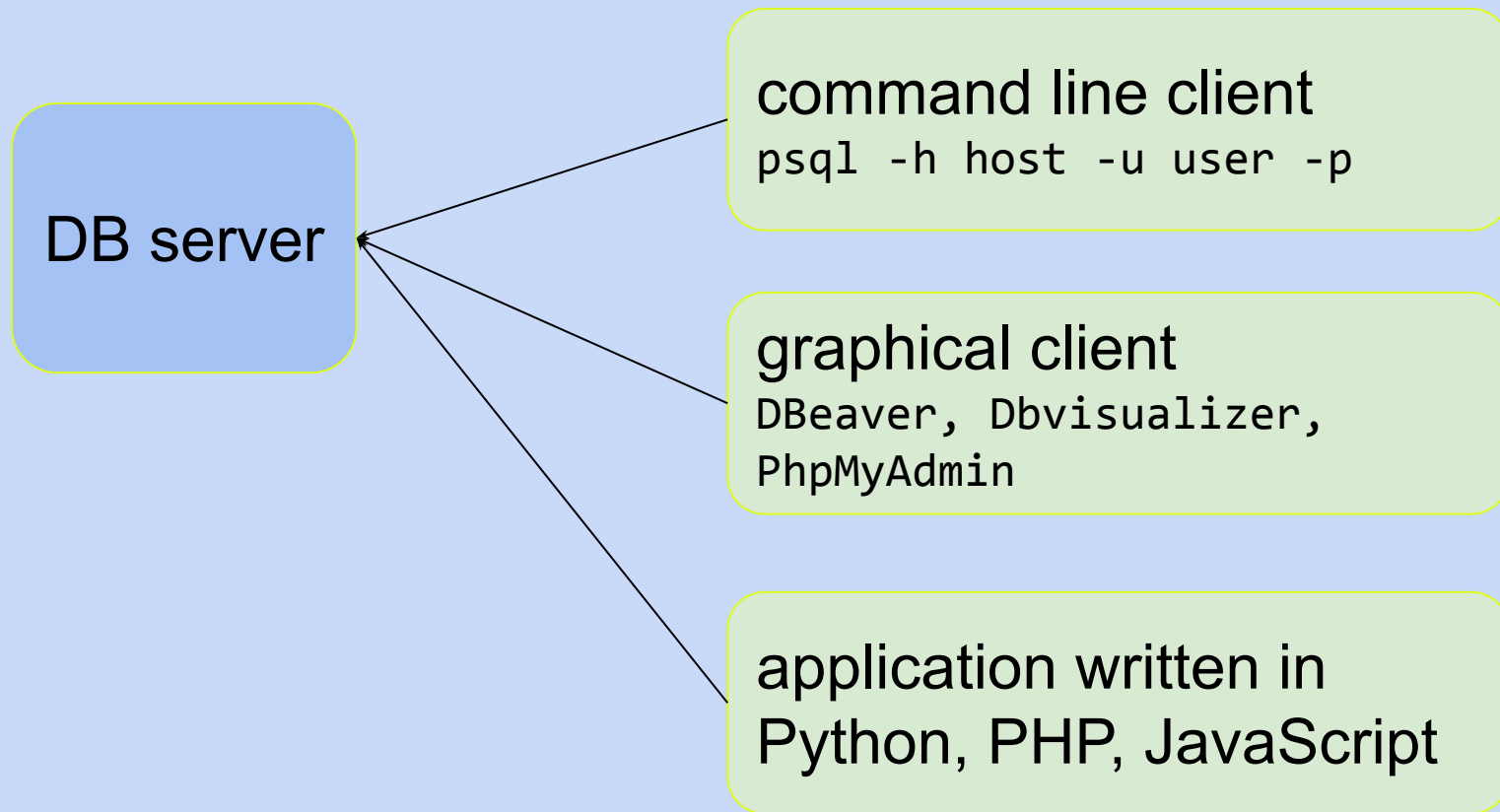
Python training - lab 15

Databases

- RDBMS – Relational Database Management System
- SQL – structured query language
- Examples: PostgreSQL, MySQL, MariaDB, Oracle

Table Employee					
id	surname	name	department	birth_date	position
1	Popescu	Elena	DevOps	1985-10-11	Senior
2	Ionescu	Marcel	Front-end	1997-05-21	Junior

Connecting to the DB server



Data types

- <https://www.postgresql.org/docs/14/datatype.html>
- Numeric types: smallint, integer, bigint, decimal, real, serial
- Character types: varchar, text
- Date and time types: timestamp, date, time
 - date: YYYY-MM-DD 2022-06-12
 - time: HH:MM:SS 14:23:31
 - timestamp: YYYY-MM-DD HH:MM:SS

DDL - Data definition language

- **create**

```
create database mydb;  
create table employee (  
    id serial primary key,  
    surname varchar(20),  
    first_name varchar(20),  
    birth_date date  
);
```

- **alter**

```
alter table employee add column department varchar(15);
```

- **drop**

```
drop table employee;  
drop database mydb;
```

DML - Data manipulation language

- **insert**

```
insert into employee (surname, first_name, birth_date)
values ('Popescu', 'Elena', '1985-10-11');
```

- **update**

```
update employee set birth_date = '1987-10-11' where id = 1;
```

- **delete**

```
delete from employee where department = 'DevOps';
```

- **select**

```
select surname, first_name from employee where birth_date >
'2000-01-01';
```

DCL - Data control language

- **create**

```
create user myuser password 'some-password';
```

- **grant**

```
grant select on all tables in schema public to myuser;
```

- **revoke**

```
revoke all privileges on database mydb from myuser;
```

- **drop**

```
drop user myuser;
```

Data selection, sorting, filtering

```
select *  
from employee  
where  
    surname like '%escu' and  
    birth_date  
        between '1980-01-01' and '2000-01-01'  
order by surname desc, birth_date asc  
limit 10;
```