

Университет ИТМО, факультет ПИиКТ

Курсовая работа. Часть №2

Дисциплина: Информационные системы и базы данных

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Группа: Р33113

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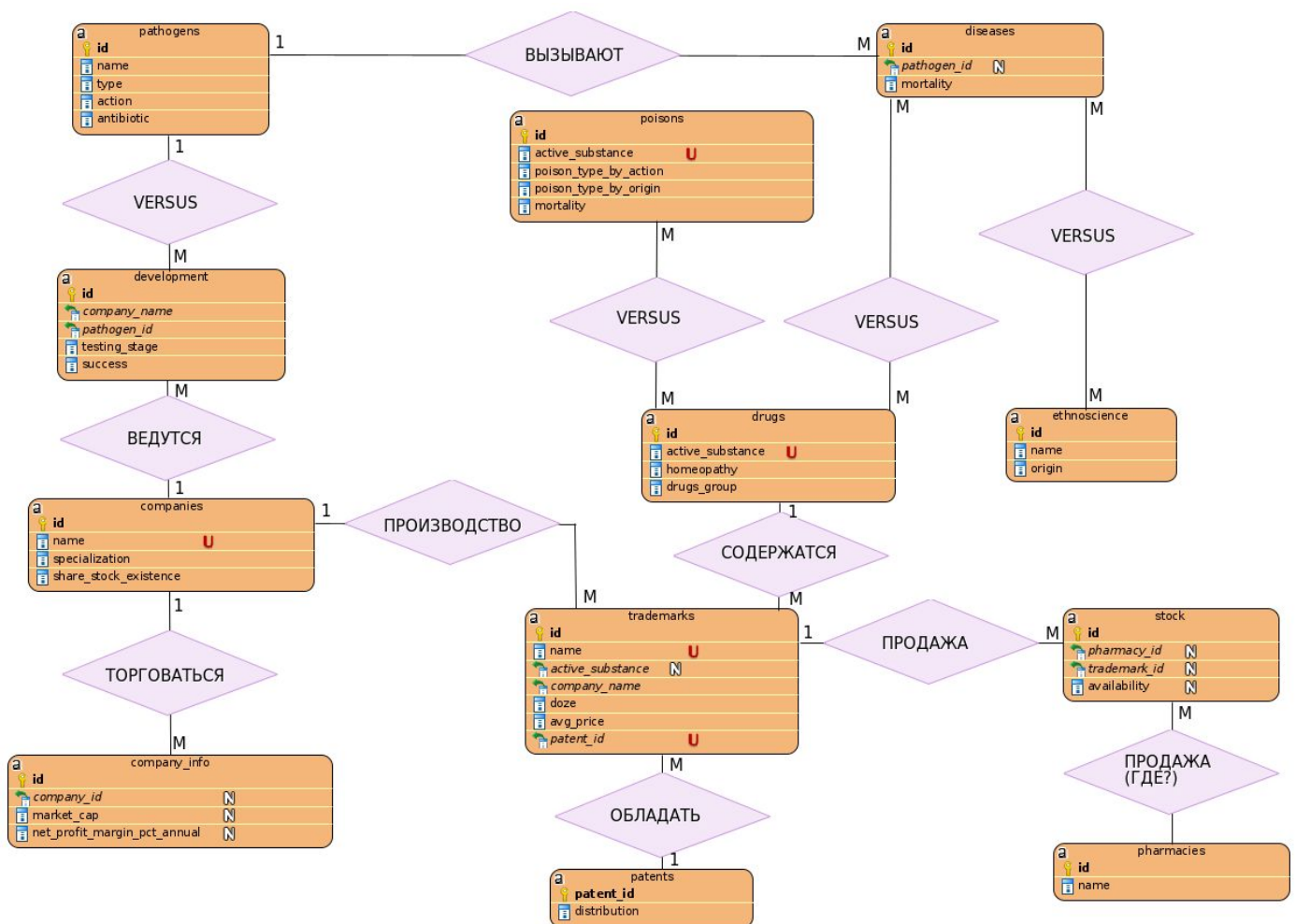
г. Санкт-Петербург

2020 г.

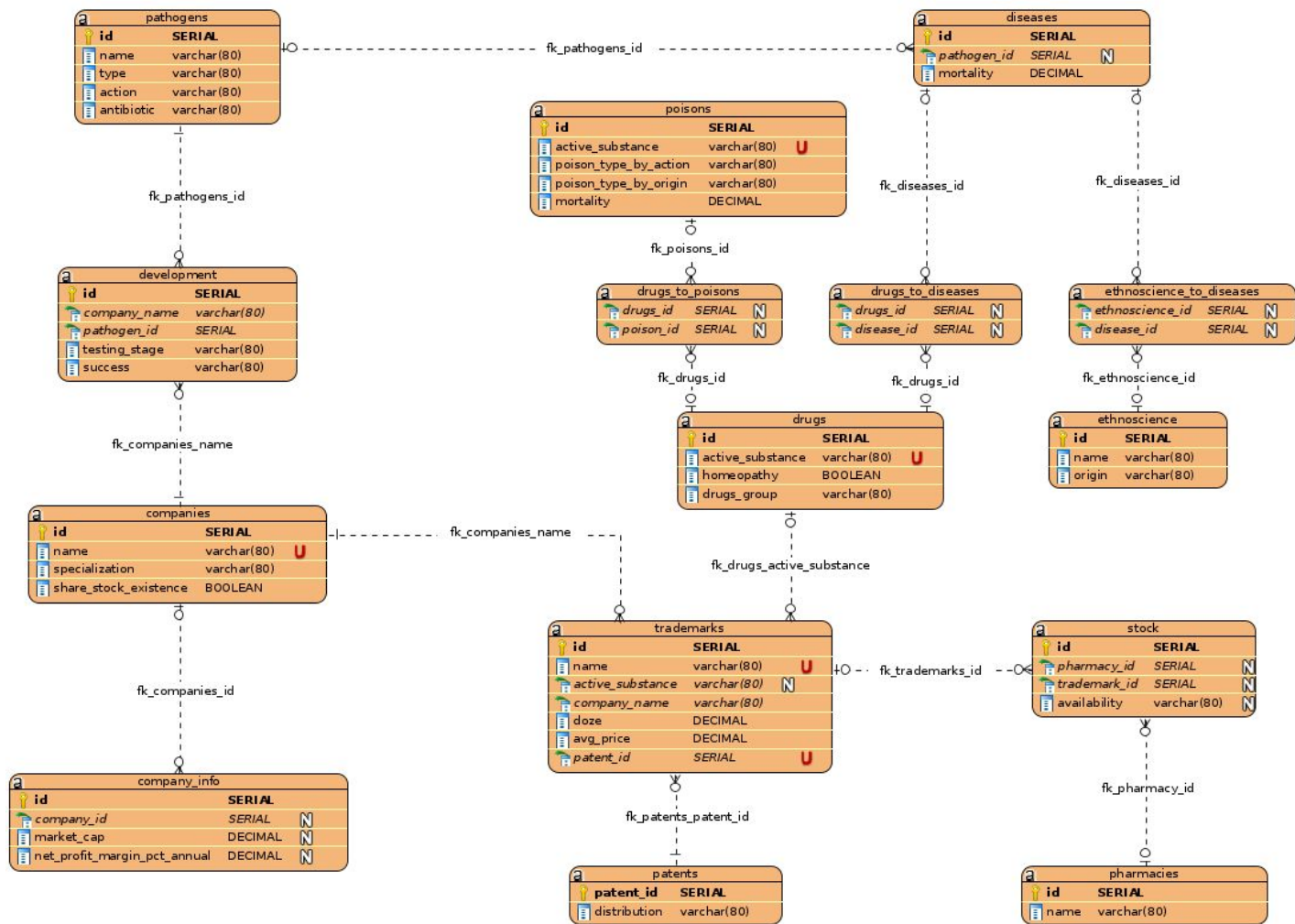
Задание

- Сформировать ER-модель базы данных.
- ER-модель должна:
 - включать в себя не менее 10 сущностей.
 - содержать хотя бы одно отношение вида “многие-ко-многим”
- Даталогическая модель

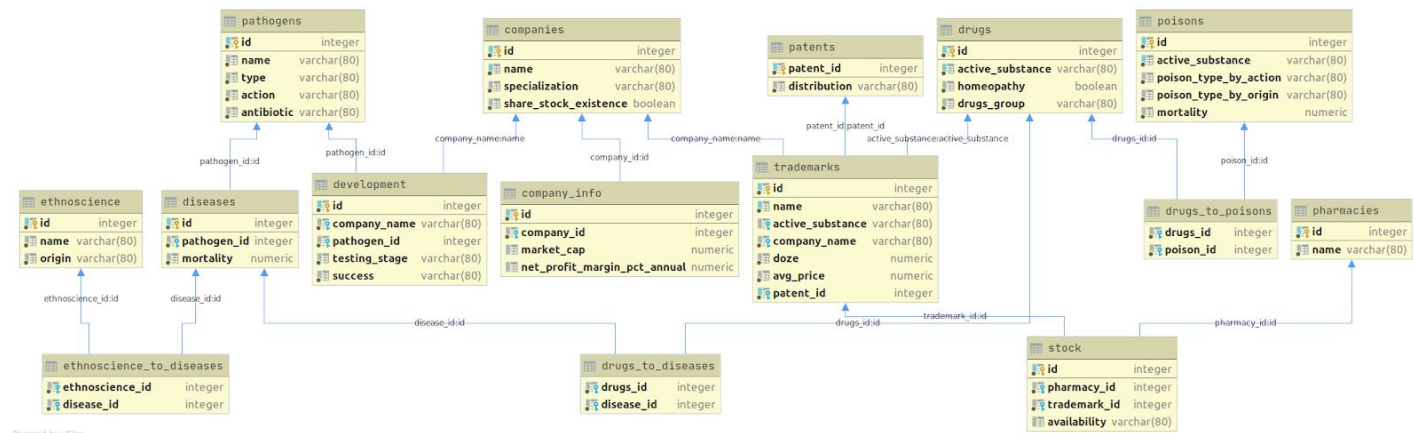
Инфологическая модель:



Даталогическая модель:



UML:



КОД создания в PostgreSQL:

```
CREATE TABLE pathogens
(
    id          SERIAL PRIMARY KEY,
    name        VARCHAR(80) NOT NULL,
    type        VARCHAR(80) NOT NULL,
    action      VARCHAR(80) NOT NULL,
    antibiotic  VARCHAR(80) NOT NULL
);
CREATE TABLE diseases
(
    id          SERIAL PRIMARY KEY,
    pathogen_id SERIAL
        CONSTRAINT fk_pathogens_id REFERENCES pathogens (id),
    mortality   DECIMAL NOT NULL
        DEFAULT 0 CHECK ( mortality >= 0 and mortality <= 1 )
);
CREATE TABLE companies
(
    id          SERIAL PRIMARY KEY,
    name        VARCHAR(80) UNIQUE NOT NULL,
    specialization VARCHAR(80) NOT NULL,
    share_stock_existence BOOLEAN NOT NULL
);
CREATE TABLE company_info
(
    id          SERIAL PRIMARY KEY,
    company_id  SERIAL
        CONSTRAINT fk_companies_id REFERENCES companies (id),
    market_cap DECIMAL,
    net_profit_margin_pct_annual DECIMAL
);
CREATE TABLE drugs
(
    id          SERIAL PRIMARY KEY,
    active_substance VARCHAR(80) UNIQUE NOT NULL,
    homeopathy     BOOLEAN NOT NULL,
    drugs_group    VARCHAR(80) NOT NULL
);
CREATE TABLE poisons
(
    id          SERIAL PRIMARY KEY,
    active_substance VARCHAR(80) UNIQUE NOT NULL,
    poison_type_by_action VARCHAR(80) NOT NULL,
    poison_type_by_origin VARCHAR(80) NOT NULL,
    mortality     DECIMAL NOT NULL
        DEFAULT 0 CHECK ( mortality >= 0 and mortality <= 1 )
);
CREATE TABLE development
(
    id          SERIAL PRIMARY KEY,
    company_name VARCHAR(80)
        CONSTRAINT fk_companies_name
```

```

        REFERENCES companies (name) NOT NULL,
    pathogen_id SERIAL
        CONSTRAINT fk_pathogens_id
            REFERENCES pathogens (id) NOT NULL,
    testing_stage VARCHAR(80) NOT NULL,
    success VARCHAR(80) NOT NULL
);
CREATE TABLE patents
(
    patent_id SERIAL PRIMARY KEY,
    distribution VARCHAR(80) NOT NULL
);
CREATE TABLE trademarks
(
    id SERIAL PRIMARY KEY,
    name VARCHAR(80) UNIQUE NOT NULL,
    active_substance VARCHAR(80)
        CONSTRAINT fk_drugs_active_substance
            REFERENCES drugs (active_substance),
    company_name VARCHAR(80)
        CONSTRAINT fk_companies_name
            REFERENCES companies (name) NOT NULL,
    doze DECIMAL NOT NULL,
    avg_price DECIMAL NOT NULL,
    patent_id SERIAL
        CONSTRAINT fk_patents_patent_id
            REFERENCES patents (patent_id) UNIQUE NOT NULL
);
CREATE TABLE pharmacies
(
    id SERIAL PRIMARY KEY,
    name VARCHAR(80) NOT NULL
);
CREATE TABLE stock
(
    id SERIAL PRIMARY KEY,
    pharmacy_id SERIAL
        CONSTRAINT fk_pharmacy_id REFERENCES pharmacies (id),
    trademark_id SERIAL
        CONSTRAINT fk_trademarks_id REFERENCES trademarks (id),
    availability VARCHAR(80) --in stock, pharmacy_id, null
);
CREATE TABLE ethnoscience
(
    id SERIAL PRIMARY KEY,
    name VARCHAR(80) NOT NULL,
    origin VARCHAR(80) NOT NULL
);
CREATE TABLE drugs_to_diseases
(
    drugs_id SERIAL
        CONSTRAINT fk_drugs_id REFERENCES drugs (id),
    disease_id SERIAL
        CONSTRAINT fk_diseases_id REFERENCES diseases (id)
);
CREATE TABLE drugs_to_poisons
(

```

```
    drugs_id SERIAL
        CONSTRAINT fk_drugs_id REFERENCES drugs (id),
    poison_id SERIAL
        CONSTRAINT fk_poisons_id REFERENCES poisons (id)
);
CREATE TABLE ethnoscience_to_diseases
(
    ethnoscience_id SERIAL
        CONSTRAINT fk_ethnoscience_id REFERENCES ethnoscience (id),
    disease_id SERIAL
        CONSTRAINT fk_diseases_id REFERENCES diseases (id)
);
```