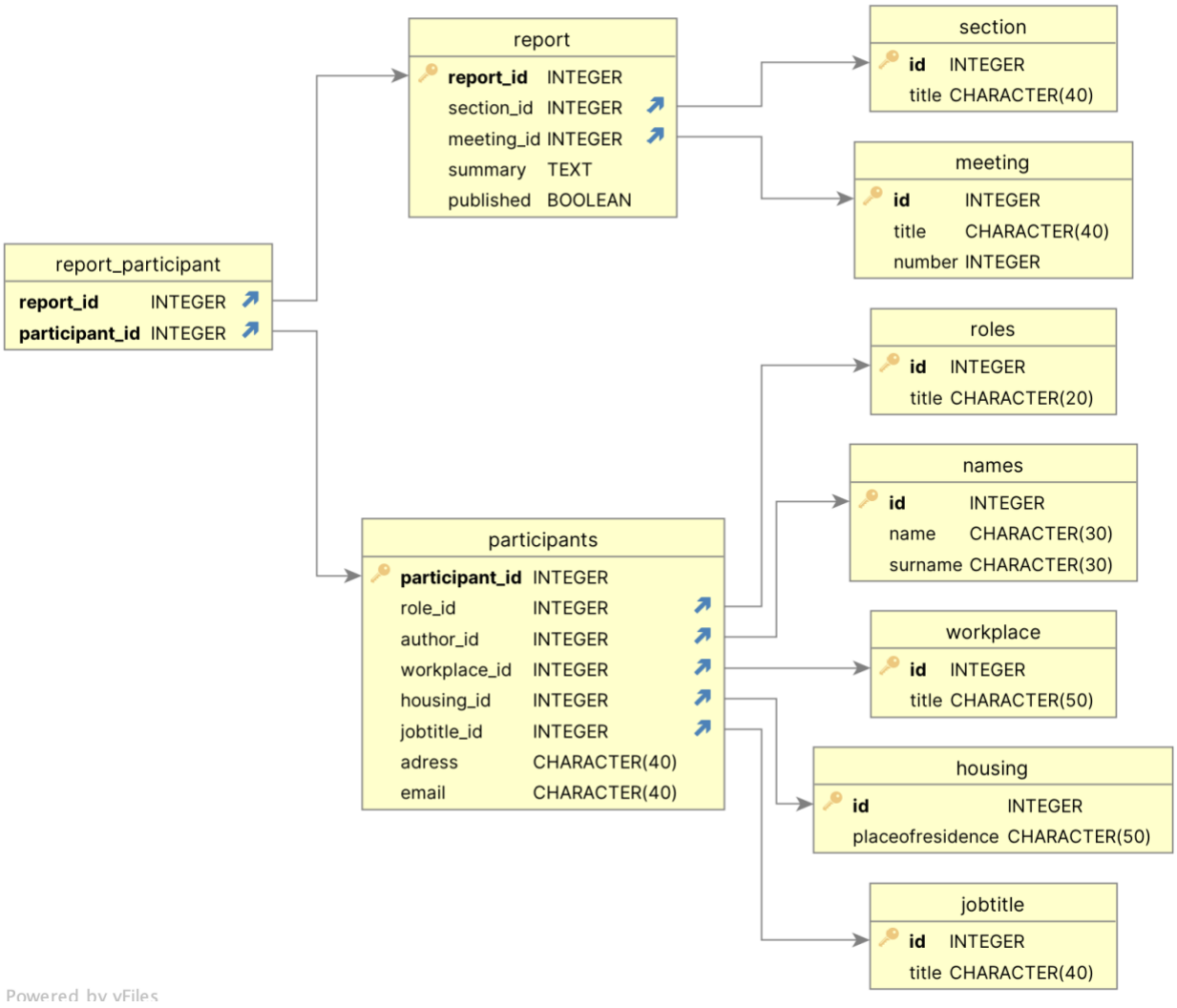
Лабораторная работа 10

1. База данных “Конференция”, нормализованная в 3НФ



2. Построение структуры БД с помощью SQL

```
CREATE TABLE participants(
    participant_id INTEGER PRIMARY KEY,
    role_id INTEGER,
    author_id INTEGER,
    workplace_id INTEGER,
    housing_id INTEGER,
    jobTitle_id INTEGER,
    adress CHARACTER(40),
    email CHARACTER(40)
);


CREATE TABLE roles (
```

```
    id INTEGER PRIMARY KEY,
    title CHARACTER(20)
);


CREATE TABLE authors (
    id INTEGER PRIMARY KEY,
    name CHARACTER(30),
    surname CHARACTER(30)
);


CREATE TABLE workplace (
    id INTEGER PRIMARY KEY,
    title CHARACTER(50)
);


CREATE TABLE jobTitle (
    id INTEGER PRIMARY KEY,
    title CHARACTER(40)
);


CREATE TABLE housing (
    id INTEGER PRIMARY KEY,
    placeOfResidence CHARACTER(50)
);


CREATE TABLE report (
    report_id INTEGER PRIMARY KEY,
    section_id INTEGER,
    meeting_id INTEGER,
    summary TEXT,
    published BOOL
);


CREATE TABLE meeting (
    id INTEGER PRIMARY KEY,
    title CHARACTER(40),
    number INTEGER
);


CREATE TABLE section (
    id INTEGER PRIMARY KEY,
    title CHARACTER(40)
);


ALTER TABLE participants
ADD CONSTRAINT fk_role
FOREIGN KEY (role_id) REFERENCES roles (id);
```

```
ALTER TABLE participants
ADD CONSTRAINT fk_author
FOREIGN KEY (author_id) REFERENCES authors (id);


ALTER TABLE participants
ADD CONSTRAINT fk_workplace
FOREIGN KEY (workplace_id) REFERENCES workplace (id);


ALTER TABLE participants
ADD CONSTRAINT fk_jobTitle
FOREIGN KEY (jobTitle_id) REFERENCES jobTitle (id);


ALTER TABLE participants
ADD CONSTRAINT fk_housing
FOREIGN KEY (housing_id) REFERENCES housing (id);

ALTER TABLE report
ADD CONSTRAINT fk_section
FOREIGN KEY (section_id) REFERENCES section (id);


ALTER TABLE report
ADD CONSTRAINT fk_meeting
FOREIGN KEY (meeting_id) REFERENCES meeting (id);


CREATE TABLE report_participant (
    report_id INTEGER REFERENCES report (report_id),
    participant_id INTEGER REFERENCES participants (participant_id),
    PRIMARY KEY (report_id, role_id, participant_id)
);
```

3. Внесение в созданные таблицы БД информацию:

	participant_id [PK] integer	role_id integer	author_id integer	workplace_id integer	housing_id integer	jobtitle_id integer	adress character	email character
1	1	1	1	1	1	1	Independence st.,42	sobel@gmail.com
2	2	1	2	1	4	1	Independence st.,15	altolst@gmail.com
3	3	1	3	1	5	1	Independence st.,23	kot@gmail.com
4	4	4	[null]	1	5	[null]	[null]	sec1@gmail.com
5	5	4	5	2	4	[null]	[null]	sec2@gmail.com
6	6	4	4	3	4	[null]	[null]	sec3@gmail.com
7	7	2	7	1	[null]	6	[null]	part1@gmail.com
8	8	2	6	2	[null]	6	[null]	part2@gmail.com
9	9	4	8	3	[null]	6	[null]	part3@gmail.com
10	10	3	9	4	2	3	Oktyabrskay st., 10	org1@gmail.com
11	11	3	10	5	3	2	Oktyabrskay st., 2	org2@gmail.com

	id [PK] integer	name character	surname character
1	1	Sobolevskaya	Elena
2	2	Alexander	Tolstikov
3	3	Kotov	Vladimir
4	4	Vaskovsky	Maksim
5	5	Razmyslovich	Gregory
6	6	Bezmen	Nikolay
7	7	Blagodarniy	Artyom
8	8	Volkov	Pavel
9	9	Vorobyova	Ulyana
10	10	Obykhovich	Ulyana

	id [PK] integer	title character	number integer
1	1	summer internships	1
2	2	how to enter IT	2
3	3	internships in Yandex	3
4	4	internships in Tinkoff	4
5	5	internships in EPAM	5

	id [PK] integer	placeofresidence character
1	1	hotel "Belarus"
2	2	hostel 6
3	3	hostel 2
4	4	hotel "View"
5	5	BonHotel

	id [PK] integer	title character
1	1	lecter at university
2	2	software developer
3	3	data scientist
4	4	school teacher
5	5	laboratory assistant
6	6	student

	report_id [PK] integer	section_id integer	meeting_id integer	summary text	published boolean
1	1	1	1	introduction to anyone	false
2	2	2	1	Yandex	true
3	3	3	1	Tinkoff	true
4	4	4	1	Epam	true
5	5	5	1	summary	false

	id [PK] integer	title character
1	1	Introduction
2	2	University aducation
3	3	News in IT
4	4	Vacancy
5	5	Conclusion

	id [PK] integer	title character
1	1	lecture
2	2	listener
3	3	organizer
4	4	security
5	5	guest

	id [PK] integer	title character
1	1	BSU
2	2	BSUIR
3	3	BSTU
4	4	Yandex
5	5	IsSoft

	report_id integer	participant_id integer
1	1	9
2	2	2
3	3	3
4	4	1
5	5	10

```
INSERT INTO names VALUES
    (1, 'Sobolevskaya', 'Elena'),
    (2, 'Alexander', 'Tolstikov'),
    (3, 'Kotov', 'Vladimir'),
    (4, 'Vaskovsky', 'Maksim'),
    (5, 'Razmyslovich', 'Gregory'),
    (6, 'Bezmen', 'Nikolay'),
    (7, 'Blagodarniy', 'Artyom'),
    (8, 'Volkov', 'Pavel'),
    (9, 'Vorobyova', 'Ulyana'),
    (10, 'Obykhovich', 'Ulyana');

INSERT INTO roles VALUES
    (1, 'lecture'),
    (2, 'listener'),
    (3, 'organizer'),
    (4, 'security'),
    (5, 'guest');


INSERT INTO workplace VALUES
    (1, 'BSU'),
    (2, 'BSUIR'),
    (3, 'BSTU'),
    (4, 'Yandex'),
    (5, 'IsSoft');


INSERT INTO housing VALUES
    (1, 'hotel "Belarus"'),
    (2, 'hostel 6'),
    (3, 'hostel 2'),
    (4, 'hotel "View"'),
    (5, 'BonHotel');


INSERT INTO jobTitle VALUES
    (1, 'lecter at university'),
    (2, 'software developer'),
    (3, 'data scientist'),
```

```
    (4, 'school teacher'),
    (5, 'laboratory assistant'),
    (6, 'student');


INSERT INTO section VALUES
    (1, 'Introduction'),
    (2, 'University aducation'),
    (3, 'News in IT'),
    (4, 'Vacancy'),
    (5, 'Conclusion');


INSERT INTO meeting VALUES
    (1, 'summer internships', 1),
    (2, 'how to enter IT', 2),
    (3, 'internships in Yandex', 3),
    (4, 'internships in Tinkoff', 4),
    (5, 'internships in EPAM', 5);


INSERT INTO participants VALUES
    (1, 1, 1, 1, 1, 1, 'Independence st.,42','sobel@gmail.com'),
    (2, 1, 2, 1, 4, 1, 'Independence st.,15','altolst@gmail.com'),
    (3, 1, 3, 1, 5, 1, 'Independence st.,23','kot@gmail.com'),
    (4, 4, NULL, 1, 5, NULL, NULL, 'sec1@gmail.com'),
    (5, 4, 5, 2, 4, NULL, NULL, 'sec2@gmail.com'),
    (6, 4, 4, 3, 4, NULL, NULL, 'sec3@gmail.com'),
    (7, 2, 7, 1, NULL, 6, NULL, 'part1@gmail.com'),
    (8, 2, 6, 2, NULL, 6, NULL, 'part2@gmail.com'),
    (9, 4, 8, 3, NULL, 6, NULL, 'part3@gmail.com'),
    (10, 3, 9, 4, 2, 3, 'Oktyabrskay st., 10', 'org1@gmail.com'),
    (11, 3, 10, 5, 3, 2, 'Oktyabrskay st., 2', 'org2@gmail.com');



INSERT INTO report VALUES
    (1, 1, 1, 'introduction to anyone', false),
    (2, 2, 1, 'Yandex', true),
    (3, 3, 1, 'Tinkoff', true),
    (4, 4, 1, 'Epam', true),
    (5, 5, 1, 'summary', false);


INSERT INTO report_participant VALUES
    (1, 9),
    (2, 2),
    (3, 3),
    (4, 1),
    (5, 10);
```

4. Сформировать не менее 10 запросов на выборку данных

1. Запрос на количество участников в конференции

```
SELECT COUNT(*) AS количество_участников
FROM participants;
```

	количество_участников bigint
1	11

2. Запрос узнать фамилии лекторов с конференции

```
SELECT name, surname AS фио_лекторов
FROM participants
INNER JOIN names ON participants.name_id = names.id
WHERE role_id = 1;
```

	name character	фио_лекторов character
1	Sobolevskaya ...	Elena
2	Alexander ...	Tolstikov
3	Kotov	Vladimir

3.Запрос на количество слушателей

```
SELECT COUNT(*) AS количество_слушателей
FROM participants
WHERE role_id = 2;
```

	количество_слушателей bigint
1	2

4.Запрос на план конференции

```
SELECT title AS план_мероприятия
FROM section;
```

	план_мероприятия character
1	Introduction
2	University aducation ...
3	News in IT
4	Vacancy
5	Conclusion

5.Запрос узнать кто из участников конференции живёт в общежитии 2

```
SELECT name AS имя, surname AS фамилия
FROM participants
INNER JOIN names ON participants.name_id = names.id
INNER JOIN housing ON participants.housing_id = housing.id
WHERE placeofresidence = 'hostel 2';
```

	имя character	фамилия character
1	Obykhovich	Ulyana

6. Запрос узнать темы опубликованных выступлений

```
SELECT summary AS публикации
FROM report
WHERE published = true;
```

	публикации text
1	Yandex
2	Tinkoff
3	Epam

7. Запрос узнать кто из разработчиков ПО выступал на конференции

```
SELECT title AS должность, name AS имя, surname AS фамилия, summary AS
выступление
FROM participants
INNER JOIN jobtitle ON participants.jobtitle_id = jobtitle.id
INNER JOIN names ON participants.name_id = names.id
INNER JOIN report_participant USING(participant_id)
INNER JOIN report USING(report_id)
WHERE jobtitle.title = 'software developer';
```

	должность character	имя character	фамилия character	выступление text
1	software developer	Alexander	Tolstikov	Yandex

8. Запрос узнать кто организатор конференции и их адреса и email-ы

```
SELECT name, surname, adress, email
FROM participants
INNER JOIN names ON participants.name_id = names.id
INNER JOIN roles ON participants.role_id = roles.id
WHERE roles.title = 'organizer';
```

	name character	surname character	adress character	email character
1	Vorobyova	Ulyana	Oktyabrskay st., 10 ...	org1@gmail.com
2	Obykhovich	Ulyana	Oktyabrskay st., 2	org2@gmail.com

9. Запрос узнать откуда охрана на конференции

```
SELECT name AS имя, surname AS фамилия, housing.placeofresidence AS место
FROM participants
INNER JOIN housing ON participants.housing_id = housing.id
INNER JOIN names ON participants.name_id = names.id
INNER JOIN roles ON participants.role_id = roles.id
WHERE roles.title = 'security';
```

	имя character	фамилия character	место character
1	Razmyslovich	Gregory	hotel "View"
2	Vaskovsky	Maksim	hotel "View"

10. Запрос узнать какие секции были на первой встрече

```
SELECT meeting.title AS встреча, section.title AS тема
FROM report
INNER JOIN meeting ON report.meeting_id = meeting.id
INNER JOIN section ON report.section_id = section.id
WHERE meeting.number = 1;
```

	встреча character	тема character
1	summer internships	Introduction
2	summer internships	University aducation
3	summer internships	News in IT
4	summer internships	Vacancy
5	summer internships	Conclusion