Белорусский Государственный Университет
Информатики и Радиоэлектроники
Кафедра ЭВМ

Отчет по лабораторной работе № 5

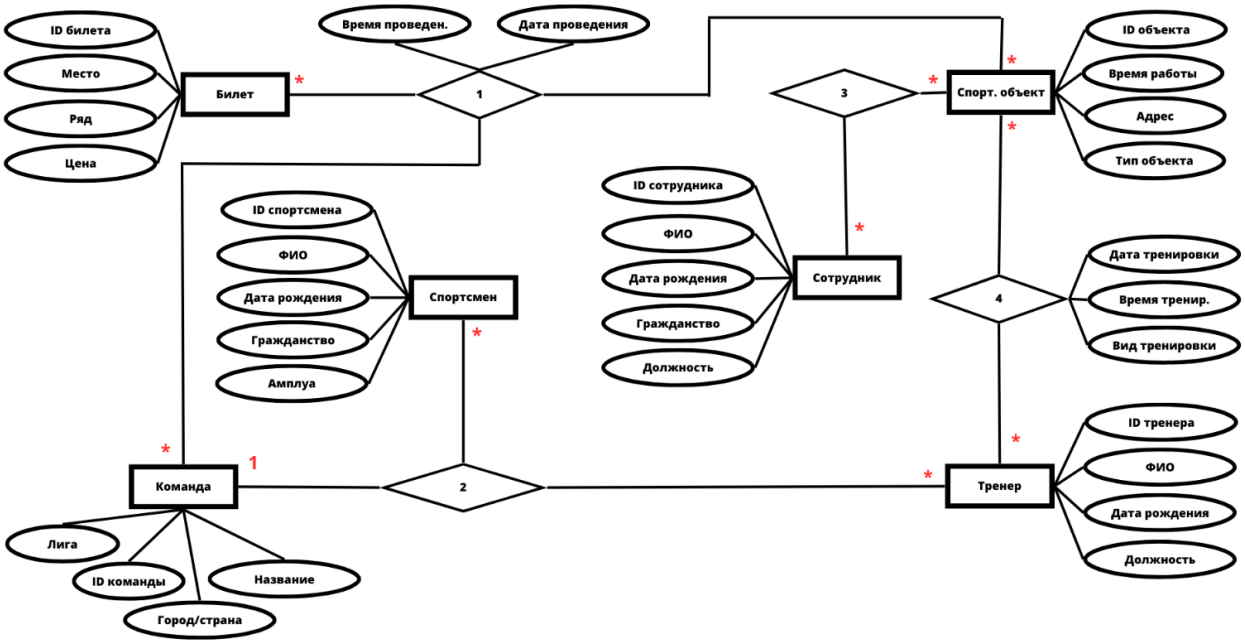
Тема: «Реализация SQL-запросов на выборку данных с использованием подзапросов, агрегатных функций, группировки и операций над множествами»

Выполнил:
ст. гр. 050503
Липский Г.В.

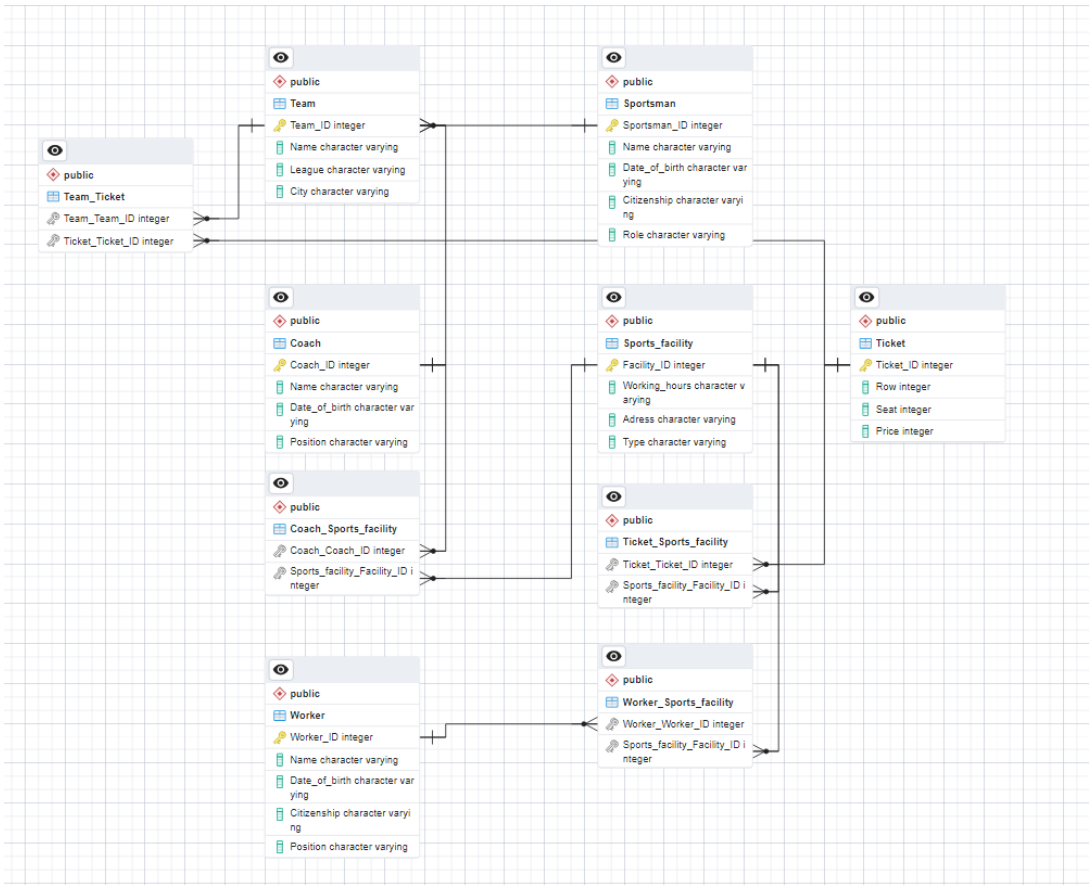
Проверила:
Куприянова Д.В.

Минск 2023

ER-диаграмма «Хоккейный клуб» и сравнение с реляционной схемой



ER – модель хоккейного клуба



Реляционная схема данных «Хоккейный клуб»

1 – Матч

Билет – Спортивный объект: связь *"многие-ко-многим" с дополнительными атрибутами*.

Билет – Команда: связь "многие-ко-многим" с дополнительными атрибутами.

2 – Принадлежность

Команда – Спортсмен: связь *"один-ко-многим"*.

Команда – Тренер: связь "один-ко-многим".

3 – Место работы

Сотрудник – Спортивный объект: связь *"многие-ко-многим"*.

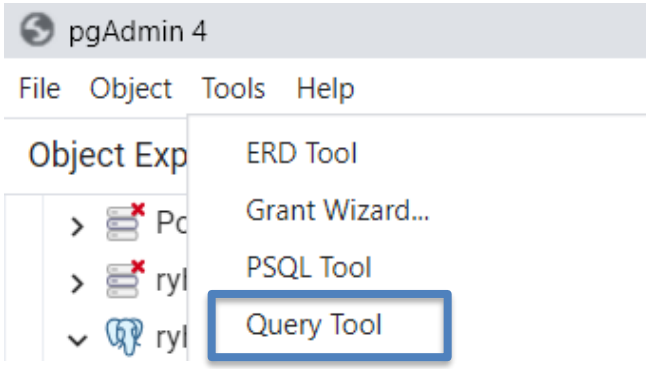
4 – Тренировка

Тренер – Спортивный объект: связь "многие-ко-многим" с дополнительными атрибутами.

Спортсмен – Спортивный объект: связь "многие-ко-многим" с дополнительными атрибутами.

1. Запросы на выборку данных

Для создания запросов в pgAdmin4 необходимо выбрать инструмент Query Tool:



Для каждой из таблиц сделаем по три запроса.

1.1 Таблица “Sportsman”

Первоначальный вид таблицы получим с помощью запроса:

```
SELECT * FROM "Sportsman"
```

	Sportsman_ID [PK] integer	Name character varying	Date_of_birth character varying	Citizenship character varying	Role character varying
1	0	Pinchuk Vitaly	2002-01-11	Belarus	Forward
2	1	Anas Sam	1993-01-06	USA	Forward
3	2	Kurran Kodie	1989-12-18	Canada	Defender
4	3	Kolosov Alexei	2002-01-04	Belarus	Goalkeeper
5	4	Protas Alexei	2001-01-06	Belarus	Forward
6	5	Stas Andrei	1988-10-18	Belarus	Forward
7	6	Kuznetsov Sergei	2002-05-14	Belarus	Forward
8	7	Merkley Nick	1997-05-23	Canada	Forward
9	8	Liamkin Nikita	1996-02-06	Russia	Defender
10	9	Safonov Ilia	2001-05-30	Russia	Forward
11	10	Tolstushko Vsevolod	1993-05-31	Ukraine	Defender
12	11	Borodai Denis	2002-07-10	Ukraine	Forward
13	12	Kostitsyn Sergei	1987-03-20	Belarus	Forward
14	13	Kudryavtsev Sergei	1995-04-05	Kazakhstan	Goalkeeper
15	14	Lipski Mikita	2003-01-28	Belarus	Forward
16	15	Lipski Ryhor	2003-08-26	Belarus	Defender
17	16	Vikhrov Maxim	2003-01-15	Belarus	Forward
18	17	Marozau Ilia	2003-05-28	Belarus	Forward
19	18	Smirnov Andrey	1994-12-09	Russia	Goalkeeper
20	19	Kripan Gleb	1990-11-11	Belarus	Defender
21	20	Streltsou Edvard	1997-03-05	Belarus	Forward
22	21	Kniga Vladislav	2004-02-07	Russia	Forward
23	22	Pugach Yevgen	1993-05-30	Ukraine	Forward
24	23	Andruskonis Vsevolod	2000-01-06	Latvia	Forward
25	24	Mainich Pavel	2005-02-24	Belarus	Defender
26	25	Bobariko Stanislav	1987-03-08	Russia	Forward
27	26	Kazachenka Dzmitry	1990-06-01	Belarus	Forward
28	27	Maximenka Yegor	2002-10-23	Belarus	Forward
29	28	Fisher Sam	1997-03-04	USA	Defender
30	29	Navitski Zahar	2004-04-18	Belarus	Forward

1. Вывести количество белорусов в таблице

```
SELECT COUNT(*) AS belarussians FROM "Sportsman"
WHERE "Citizenship" = 'Belarus'
```

Результат выполнения запроса:

	belarussians bigint
1	16

2. Вывести спортсменов с ID отличными от 5-12:

```
SELECT * FROM "Sportsman"
WHERE "Sportsman_ID" NOT IN (5,6,7,8,9,10,11,12)
```

Результат выполнения запроса:

	Sportsman_ID [PK] integer	Name character varying	Date_of_birth character varying	Citizenship character varying	Role character varying
1	0	Pinchuk Vitaly	2002-01-11	Belarus	Forward
2	1	Anas Sam	1993-01-06	USA	Forward
3	2	Kurran Kodie	1989-12-18	Canada	Defender
4	3	Kolosov Alexei	2002-01-04	Belarus	Goalkeeper
5	4	Protas Alexei	2001-01-06	Belarus	Forward
6	13	Kudryavtsev Sergei	1995-04-05	Kazakhstan	Goalkeeper
7	14	Lipski Mikita	2003-01-28	Belarus	Forward
8	15	Lipski Ryhor	2003-08-26	Belarus	Defender
9	16	Vikhrov Maxim	2003-01-15	Belarus	Forward
10	17	Marozau Ilia	2003-05-28	Belarus	Forward
11	18	Smirnov Andrey	1994-12-09	Russia	Goalkeeper
12	19	Kripan Gleb	1990-11-11	Belarus	Defender
13	20	Streltsou Edvard	1997-03-05	Belarus	Forward
14	21	Kniga Vladislav	2004-02-07	Russia	Forward
15	22	Pugach Yevgen	1993-05-30	Ukraine	Forward
16	23	Andruskonis Vsevolod	2000-01-06	Latvia	Forward
17	24	Mainich Pavel	2005-02-24	Belarus	Defender
18	25	Bobariko Stanislav	1987-03-08	Russia	Forward
19	26	Kazachenka Dzmitry	1990-06-01	Belarus	Forward
20	27	Maximenka Yegor	2002-10-23	Belarus	Forward
21	28	Fisher Sam	1997-03-04	USA	Defender
22	29	Navitski Zahar	2004-04-18	Belarus	Forward

3. Посчитать количество спортсменов каждого амплуа

```
SELECT "Role", COUNT(*) AS total
FROM "Sportsman" GROUP BY "Role"
```

Результат выполнения запроса:

	Role character varying	total bigint
1	Defender	7
2	Forward	20
3	Goalkeeper	3

1.2 Таблица “Coach”

Первоначальный вид таблицы получим с помощью запроса:

```
SELECT * FROM "Coach"
```

	Coach_ID [PK] integer	Name character varying	Date_of_birth character varying	Position character varying
1	0	Kvartalnov Dmitry	1966-03-25	Head coach
2	1	Andrievski Aliaksandr	1993-01-06	Coach
3	2	Zhuravski Dzmitry	1987-07-11	Goaltending coach
4	3	Silinsh Normunds	1983-09-12	Physical coach
5	4	Carbery Spencer	1981-11-09	Head coach
6	5	Allen Scott	1966-04-06	Coach
7	6	Love Mitch	1984-06-15	Coach
8	7	Muller Kirk	1966-02-08	Coach
9	8	Letov Evgenii	1976-02-22	Head coach
10	9	Kravchenko Dmitry	1975-05-12	Head coach
11	10	Bakurin Aliaksandr	1976-05-15	Doctor
12	11	Bilyaletdinov Zinetula	1955-03-15	Head coach
13	12	Pringle Jamie	1982-06-10	Belarus
14	13	Huska Ryan	1975-07-02	Head coach
15	14	MacLean Cail	1976-11-20	Coach
16	15	Tivunov Pavel	1999-01-06	Coach
17	16	Askerka Ivan	1978-11-26	Head coach
18	17	Gorbach Trifon	1956-05-12	Coach
19	18	Reddirs Tom	1987-07-02	Goaltending coach
20	19	Afanasiev Petr	1978-12-18	Head coach
21	20	Zubritski Maksim	1969-02-27	Goaltending coach
22	21	Chorny Andrey	1991-03-07	Physical coach
23	22	Ramanouski Uladzis...	1967-12-02	Head coach
24	23	Rogovoy Evgeniy	1972-03-25	Coach
25	24	Anisenka Aleksandr	1978-04-12	Physical coach
26	25	Ng On Yee	1990-08-17	Coach
27	26	Hurkach Tommie	1987-12-01	Head coach
28	27	Topalov Veselin	1969-11-04	Coach
29	28	Petrov Andres	1987-05-23	Coach
30	29	Sinitsin Vladimir	1994-09-13	Coach

1. Вывести самого старого тренера

```
SELECT * FROM "Coach"
WHERE "Date_of_birth" = (SELECT MIN("Date_of_birth") FROM "Coach")
```

Результат выполнения запроса:

	Coach_ID [PK] integer	Name character varying	Date_of_birth character varying	Position character varying
1	11	Bilyaletdinov Zinetula	1955-03-15	Head coach

2. Объединить столбцы “Name”, “Date_of_birth”, “Role” таблицы Sportsman и столбцы “Name” “Date_of_birth”, “Position” таблицы Coach

```
SELECT "Name", "Date_of_birth", "Position" FROM "Coach" UNION ALL
SELECT "Name", "Date_of_birth", "Role" FROM "Sportsman"
```

Результат выполнения запроса

	Name character varying	Date_of_birth character varying	Position character varying
1	Kvartalnov Dmitry	1966-03-25	Head coach
2	Andrievski Aliaksandr	1993-01-06	Coach
3	Zhuravski Dzmitry	1987-07-11	Goaltending coach
4	Silinsh Normunds	1983-09-12	Physical coach
5	Carbery Spencer	1981-11-09	Head coach
6	Allen Scott	1966-04-06	Coach
7	Love Mitch	1984-06-15	Coach
8	Muller Kirk	1966-02-08	Coach
9	Letov Evgenii	1976-02-22	Head coach
10	Kravchenko Dmitry	1975-05-12	Head coach
11	Bakurin Aliaksandr	1976-05-15	Doctor
12	Bilyaletdinov Zinetula	1955-03-15	Head coach
13	Pringle Jamie	1982-06-10	Belarus
14	Huska Ryan	1975-07-02	Head coach
15	MacLean Cail	1976-11-20	Coach
16	Tivunov Pavel	1999-01-06	Coach
17	Askerka Ivan	1978-11-26	Head coach
18	Gorbach Trifon	1956-05-12	Coach
19	Reddirs Tom	1987-07-02	Goaltending coach
20	Afanasiev Petr	1978-12-18	Head coach
21	Zubritski Maksim	1969-02-27	Goaltending coach
22	Chorny Andrey	1991-03-07	Physical coach
23	Ramanouski Uladzis…	1967-12-02	Head coach
24	Rogovoy Evgeniy	1972-03-25	Coach
25	Anisenka Aleksandr	1978-04-12	Physical coach
26	Ng On Yee	1990-08-17	Coach
27	Hurkach Tommie	1987-12-01	Head coach
28	Topalov Veselin	1969-11-04	Coach
29	Petrov Andres	1987-05-23	Coach
30	Sinitsin Vladimir	1994-09-13	Coach
31	Kvartalnov Dmitry	1966-03-25	Head coach
32	Pinchuk Vitaly	2002-01-11	Forward
33	Anas Sam	1993-01-06	Forward
34	Kurran Kodie	1989-12-18	Defender
35	Kolosov Alexei	2002-01-04	Goalkeeper
36	Protas Alexei	2001-01-06	Forward
37	Stas Andrei	1988-10-18	Forward
38	Kuznetsov Sergei	2002-05-14	Forward
39	Merkley Nick	1997-05-23	Forward
40	Liamkin Nikita	1996-02-06	Defender
41	Safonov Ilia	2001-05-30	Forward
42	Tolstushko Vsevolod	1993-05-31	Defender
43	Borodai Denis	2002-07-10	Forward
44	Kostitsyn Sergei	1987-03-20	Forward
45	Kudryavtsev Sergei	1995-04-05	Goalkeeper
46	Lipski Mikita	2003-01-28	Forward
47	Lipski Ryhor	2003-08-26	Defender
48	Vikhrov Maxim	2003-01-15	Forward
49	Marozau Ilia	2003-05-28	Forward
50	Smirnov Andrey	1994-12-09	Goalkeeper
51	Kripan Gleb	1990-11-11	Defender
52	Streltsou Edvard	1997-03-05	Forward
53	Kniga Vladislav	2004-02-07	Forward
54	Pugach Yevgen	1993-05-30	Forward
55	Andruskonis Vsevol…	2000-01-06	Forward
56	Mainich Pavel	2005-02-24	Defender
57	Bobariko Stanislav	1987-03-08	Forward
58	Kazachenka Dzmitry	1990-06-01	Forward
59	Maximenka Yegor	2002-10-23	Forward
60	Fisher Sam	1997-03-04	Defender
61	Navitski Zahar	2004-04-18	Forward

3. Вывести самого молодого тренера вратарей

```
SELECT * FROM "Coach"
WHERE ("Position" = 'Goaltending coach'
AND "Date_of_birth" = (SELECT MAX("Date_of_birth")
                       FROM "Coach"
                       WHERE "Position" = 'Goaltending coach'))
```

Результат выполнения запроса:

	Coach_ID [PK] integer	Name character varying	Date_of_birth character varying	Position character varying
1	2	Zhuravski Dzmitry	1987-07-11	Goaltending coach

1.3 Таблица “Worker”

Первоначальный вид таблицы получим с помощью запроса:

```
SELECT * FROM "Worker"
```

	Worker_ID [PK] integer	Name character varying	Date_of_birth character varying	Citizenship character varying	Position character varying
1	0	Bedzyk Stanislav	2002-07-09	Belarus	Programmer
2	1	Kazachenka Dzmitry	1999-01-06	Belarus	Manager
3	2	Niamtsov Vitaly	1989-09-23	Belarus	Camerman
4	3	Maglich Hanna	1966-01-03	Belarus	Cleaner
5	4	Frolovich Andrei	1988-01-06	Belarus	Watchman
6	5	Gurski Maksim	1988-10-18	Belarus	Security guard
7	6	Prozorov Vadim	1992-01-14	Belarus	Watchman
8	7	Kreidich Vasil	1997-09-03	Russia	Security guard
9	8	Androsau Ilia	1976-12-22	Belarus	Camerman
10	9	Klimovich Ludmila	1962-03-30	Belarus	Cleaner
11	10	Dudnik Viktor	1955-03-22	Kyrgyztan	Plumber
12	11	Baranovski Andrei	2002-07-10	Belarus	Programmer
13	12	Ekimenko Valeriya	1987-03-20	Belarus	Watchman
14	13	Skripnik Vladlen	1975-11-15	Belarus	Manager
15	14	Safronov Ryhor	1993-07-21	Belarus	Manager
16	15	Overchenko Vitaliy	1976-02-17	Russia	Handyman
17	16	Zayats Vital	1988-07-19	Belarus	Manager
18	17	Paroshchanka Ryhor	1999-05-28	Belarus	Manager
19	18	Ruf Aleksei	1978-12-05	Belarus	Handyman
20	19	Borikov Egor	1990-03-25	Russia	Manager
21	20	Letau Pavel	1986-11-04	Belarus	Handyman
22	21	Marhun Mikalai	1998-08-12	Belarus	Camerman
23	22	Apanasevich Yegor	1968-11-19	Belarus	Handyman
24	23	Smirnou Pavel	1972-03-20	Belarus	Handyman
25	24	Zaharchanka Adam	1962-11-04	Belarus	Cleaner
26	25	Strok Dzmitry	1964-12-09	Belarus	Cleaner
27	26	Aleinik Vsevolod	1987-01-19	Belarus	Manager
28	27	Mihalchanka Makism	1987-06-30	Belarus	Handyman
29	28	Bely Raman	1992-08-23	Belarus	Camerman
30	29	Dudnik Vasil	1991-03-12	Belarus	Handyman

1. Вывести всех работников не белорусов

```
SELECT * FROM "Worker"
WHERE "Citizenship" NOT IN ('Belarus')
```

Результат выполнения запроса:

	Worker_ID [PK] integer	Name character varying	Date_of_birth character varying	Citizenship character varying	Position character varying
1	7	Kreidich Vasil	1997-09-03	Russia	Security guard
2	10	Dudnik Viktor	1955-03-22	Kyrgyztan	Plumber
3	15	Overchenko Vitaliy	1976-02-17	Russia	Handyman
4	19	Borikov Egor	1990-03-25	Russia	Manager
5	31	Kvartalnov Dmitry	1966-03-25	Russia	Head Coach

2. Вывести количество сотрудников которых пора отправить на пенсию

```
SELECT COUNT(*) AS pensiya FROM "Worker"
WHERE "Date_of_birth" <= '1963-12-31'
```

Результат выполнения запроса:

	pensiya bigint
1	3

3. Вывести имена сотрудников, которые также представлены в таблице тренеров

```
SELECT "Name" FROM "Worker"
INTERSECT SELECT "Name" FROM "Coach"
```

Результат выполнения запроса:

	Name character varying
1	Kvartalnov Dmitry

1.4 Таблица “Sports facility”

Первоначальный вид таблицы получим с помощью запроса:

```
SELECT * FROM "Sports_facility"
```

	Facility_ID [PK] integer	Working_hours character varying	Adress character varying	Type character varying
1	0	8-22	Minsk, Kolasa 38	Hockey Palace
2	1	8-22	Minsk, Kolasa 24	Hockey Palace
3	2	9-23	Minsk, Surganova 15/2	Swimming pool
4	3	8-24	Minsk, Rokossovskogo 44	Tennis Center
5	4	6-24	Minsk, P.Brovki 10	Stadium
6	5	8-24	Minsk, Alibegova 44	Sports Center
7	6	6-24	Minsk, Dziarzhynskaga 128	Stadium
8	7	6-24	Minsk, Nezalezhnastsi 12	Hockey Palace
9	8	6-24	Zhlobin, K.Marksa 5	Hockey Palace
10	9	8-23	Grodno, Kazachenka 32	Hockey Palace
11	10	0-24	Minsk, Nezalezhnastsi 44	Stadium
12	11	6-24	Kazan, Suvorova 32/3	Hockey Palace
13	12	0-0	Kyiv, Centralna 50	Hockey Palace
14	13	7-24	Kyiv, Mista Shalett 6	Hockey Palace
15	14	6-24	Gomel, Mazurava 110	Hockey Palace
16	15	6-23	Rechitsa, Marksa 44	Stadium
17	16	9-23	Minsk, Dziarzhynskaga 24	Stadium
18	17	8-22	Minsk, Kolasa 21/2	Swimming pool
19	18	6-24	Minsk, Alibegova 12	Hockey Palace
20	19	6-24	Minsk, Nezalezhnastsi 120	Hockey Palace
21	20	8-22	Minsk, Nezalezhnastsi 100	Stadium
22	21	6-24	Grodno, Shipko 34	Hockey Palace
23	22	8-22	Minsk, Surganova 12	Swimming pool
24	23	9-23	Kyiv, Shevchenka 23	Hockey Palace
25	24	6-24	Minsk, Surganova 32	Hockey Palace
26	25	0-24	Minsk, Rokossovskogo 123	Stadium
27	26	8-22	Minsk, Kolasa 101	Hockey Palace
28	27	9-23	Minsk, Nezalezhnastsi 57	Hockey Palace
29	28	0-24	Minsk, Dziarzhynskaga 67	Stadium
30	29	0-24	Minsk, Brovki 6	Stadium

1. Создать временную таблицу в которую занести все ледовые дворцы и вывести её

```
WITH "Hockey_palace" AS (
    SELECT * FROM "Sports_facility"
    WHERE "Type" = 'Hockey Palace'
)
SELECT * FROM "Hockey_palace"
```

Результат выполнения запроса:

	Facility_ID [PK] integer	Working_hours character varying	Adress character varying	Type character varying
1	0	8-22	Minsk, Kolasa 38	Hockey Palace
2	1	8-22	Minsk, Kolasa 24	Hockey Palace
3	7	6-24	Minsk, Nezalezhnastsi 12	Hockey Palace
4	8	6-24	Zhlobin, K.Marksa 5	Hockey Palace
5	9	8-23	Grodno, Kazachenka 32	Hockey Palace
6	11	6-24	Kazan, Suvorova 32/3	Hockey Palace
7	12	0-0	Kyiv, Centralna 50	Hockey Palace
8	13	7-24	Kyiv, Mista Shalett 6	Hockey Palace
9	14	6-24	Gomel, Mazurava 110	Hockey Palace
10	18	6-24	Minsk, Alibegova 12	Hockey Palace
11	19	6-24	Minsk, Nezalezhnastsi 120	Hockey Palace
12	21	6-24	Grodno, Shipko 34	Hockey Palace
13	23	9-23	Kyiv, Shevchenka 23	Hockey Palace
14	24	6-24	Minsk, Surganova 32	Hockey Palace
15	26	8-22	Minsk, Kolasa 101	Hockey Palace
16	27	9-23	Minsk, Nezalezhnastsi 57	Hockey Palace

2. Вывести количество и типы объектов которые открываются в 8 часов утра

```
SELECT "Type", COUNT(*) AS total
FROM "Sports_facility"
WHERE "Working_hours" LIKE '8-%'
GROUP BY "Type";
```

Результат выполнения запроса:

	Type character varying	total bigint
1	Hockey Palace	4
2	Sports Center	1
3	Stadium	1
4	Swimming pool	2

3. Вывести стадионы с ID в диапазоне 14-19

```
SELECT * FROM "Sports_facility"
WHERE ("Facility_ID" IN (14,15,16,17,18)
       AND "Type" = 'Stadium')
```

Результат выполнения запроса:

	Facility_ID [PK] integer	Working_hours character varying	Adress character varying	Type character varying
1	15	6-23	Rechitsa, Marksa 44	Stadium
2	16	9-23	Minsk, Dziarzhynskaga 24	Stadium

1.5 Таблица “Ticket”

Первоначальный вид таблицы получим с помощью запроса:

```
SELECT * FROM "Ticket"
```

	Ticket_ID [PK] integer	Row integer	Seat integer	Price integer
1	0	8	1	7
2	1	1	1	5
3	2	1	2	5
4	3	1	3	5
5	4	1	4	5
6	5	1	5	5
7	6	1	6	5
8	7	3	1	6
9	8	3	2	6
10	9	3	3	6
11	10	3	4	6
12	11	3	5	6
13	12	3	6	6
14	13	3	7	6
15	14	3	8	6
16	15	4	1	4
17	16	4	2	4
18	17	4	3	4
19	18	4	4	4
20	19	4	5	4
21	20	4	6	4
22	21	4	7	4
23	22	4	8	4
24	23	5	1	5
25	24	5	2	5
26	25	5	3	5
27	26	5	4	5
28	27	5	5	5
29	28	5	6	5
30	29	5	7	5

1. Вывести среднюю стоимость билета

```
SELECT AVG("Price") as Average FROM "Ticket"
```

Результат выполнения запроса:

	average numeric
1	5.0666666666666667

2. Вывести сумму выручки с продажи билетов на каждый из рядов

```
SELECT SUM("Price") AS "total_price", "Row"
FROM "Ticket" GROUP BY "Row"
```

Результат выполнения запроса:

	total_price bigint	Row integer
1	48	3
2	35	5
3	32	4
4	30	1
5	7	8

3. Вывести ряды с выручкой более 30

```
SELECT SUM("Price") AS "total_price", "Row"
FROM "Ticket" GROUP BY "Row"
HAVING SUM("Price")> 30
```

Результат выполнения запроса:

	total_price bigint	Row integer
1	48	3
2	35	5
3	32	4

4. Вывести ряды с выручкой больше чем у 8 ряда либо у 1 ряда либо у 5 ряда

```
SELECT SUM("Price") AS "total_price", "Row"
FROM "Ticket"
GROUP BY "Row"
HAVING SUM("Price") > ANY (SELECT SUM("Price")
                           FROM "Ticket"
                           WHERE "Row" IN (8, 1, 5)
                           GROUP BY "Row");
```

Результат выполнения запроса:

	total_price bigint	Row integer
1	48	3
2	35	5
3	32	4
4	30	1

5. Вывести ряды с выручкой больше чем у 8 ряда и у 1 ряда и у 5 ряда

```
SELECT SUM("Price") AS "total_price", "Row"
FROM "Ticket"
GROUP BY "Row"
HAVING SUM("Price") > ALL (SELECT SUM("Price")
                           FROM "Ticket"
                           WHERE "Row" IN (8, 1, 5)
                           GROUP BY "Row");
```

Результат выполнения запроса:

	total_price bigint	Row integer
1	48	3

1.6 Таблица “Team”

Первоначальный вид таблицы получим с помощью запроса:

```
SELECT * FROM "Team"
```

	Team_ID [PK] integer	Name character varying	League character varying	City character varying
1	0	Dinamo-Mn	KHL	Minsk
2	1	Metallurg-Mg	KHL	Magnitogorsk
3	2	Ak-Bars	KHL	Kazan
4	3	Avangard	KHL	Omsk
5	4	Barys	KHL	Astana
6	5	Admiral	KHL	Vladivostok
7	6	Lokomotiv	KHL	Yaroslavl
8	7	Sokol	UHL	Kyiv
9	8	Dnepr	UHL	Kherson
10	9	Metallurg-Zhl	Extraliga-BLR	Zhlobin
11	10	Neman	Extraliga-BLR	Grodno
12	11	Dinamo-Mol	Extraliga-BLR	Molodechno
13	12	Vitebsk	Extraliga-BLR	Vitebsk
14	13	Flames	NHL	Calgary
15	14	Capitals	NHL	Washington
16	15	Lida	Extraliga-BLR	Lida
17	16	Mogilev	Extraliga-BLR	Mogilev
18	17	Lokomotiv-Orsha	Extraliga-BLR	Orsha
19	18	Gomel	Extraliga-BLR	Gomel
20	19	Brest	Extraliga-BLR	Brest
21	20	Yunost	Extraliga-BLR	Minsk
22	21	Sochi	KHL	Sochi
23	22	Lada	KHL	Tolyatti
24	23	SKA	KHL	St-Peterburg
25	24	Spartak	KHL	Moskow
26	25	Severstal	KHL	Cherepovets
27	26	Rangers	NHL	NYC
28	27	Predators	NHL	Nashville
29	28	Golden Knights	NHL	Vegas
30	29	Panters	NHL	Florida

1. Создать временную таблицу с командами лиги КХЛ и вывести её

```
WITH "KHL-teams" AS (
    SELECT * FROM "Team"
    WHERE "League" = 'KHL'
)
SELECT * FROM "KHL-teams"
```

Результат выполнения запроса:

	Team_ID [PK] integer	Name character varying	League character varying	City character varying
1	0	Dinamo-Mn	KHL	Minsk
2	1	Metallurg-Mg	KHL	Magnitogorsk
3	2	Ak-Bars	KHL	Kazan
4	3	Avangard	KHL	Omsk
5	4	Barys	KHL	Astana
6	5	Admiral	KHL	Vladivostok
7	6	Lokomotiv	KHL	Yaroslavl
8	21	Sochi	KHL	Sochi
9	22	Lada	KHL	Tolyatti
10	23	SKA	KHL	St-Peterburg
11	24	Spartak	KHL	Moskow
12	25	Severstal	KHL	Cherepovets

2. Вывести команды с ID равный среднему, 10 и 11.

```
SELECT * FROM "Team"
WHERE "Team_ID" IN ((SELECT AVG("Team_ID") FROM "Team")+0.5, 10, 11)
```

Результат выполнения запроса:

	Team_ID [PK] integer	Name character varying	League character varying	City character varying
1	10	Neman	Extraliga-BLR	Grodno
2	11	Dinamo-Mol	Extraliga-BLR	Molodechno
3	15	Lida	Extraliga-BLR	Lida

3. Посчитать количество команд в каждой из лиг

```
SELECT "League", COUNT(*) AS total
FROM "Team" GROUP BY "League"
```

Результат выполнения запроса:

	League character varying	total bigint
1	Extraliga-BLR	10
2	KHL	12
3	NHL	6
4	UHL	2

ВЫВОД

В ходе выполнения лабораторной работы были изучены и использованы на практике различные операторы для взаимодействия с базой данных такие как AVG, COUNT, MAX, MIN, SUM, GROUP BY оператора SELECT, HAVING в предложении GROUP BY, Подзапросы в операторе SELECT, IN, NOT IN, ANY, ALL, INTERSECT, UNION, WITH.