19. Connecting the MySQL database with programming languages

MySQL ma'lumotlar bazasini dasturlash tillari bilan bog'lash.

ass. Baltayev Rustambek
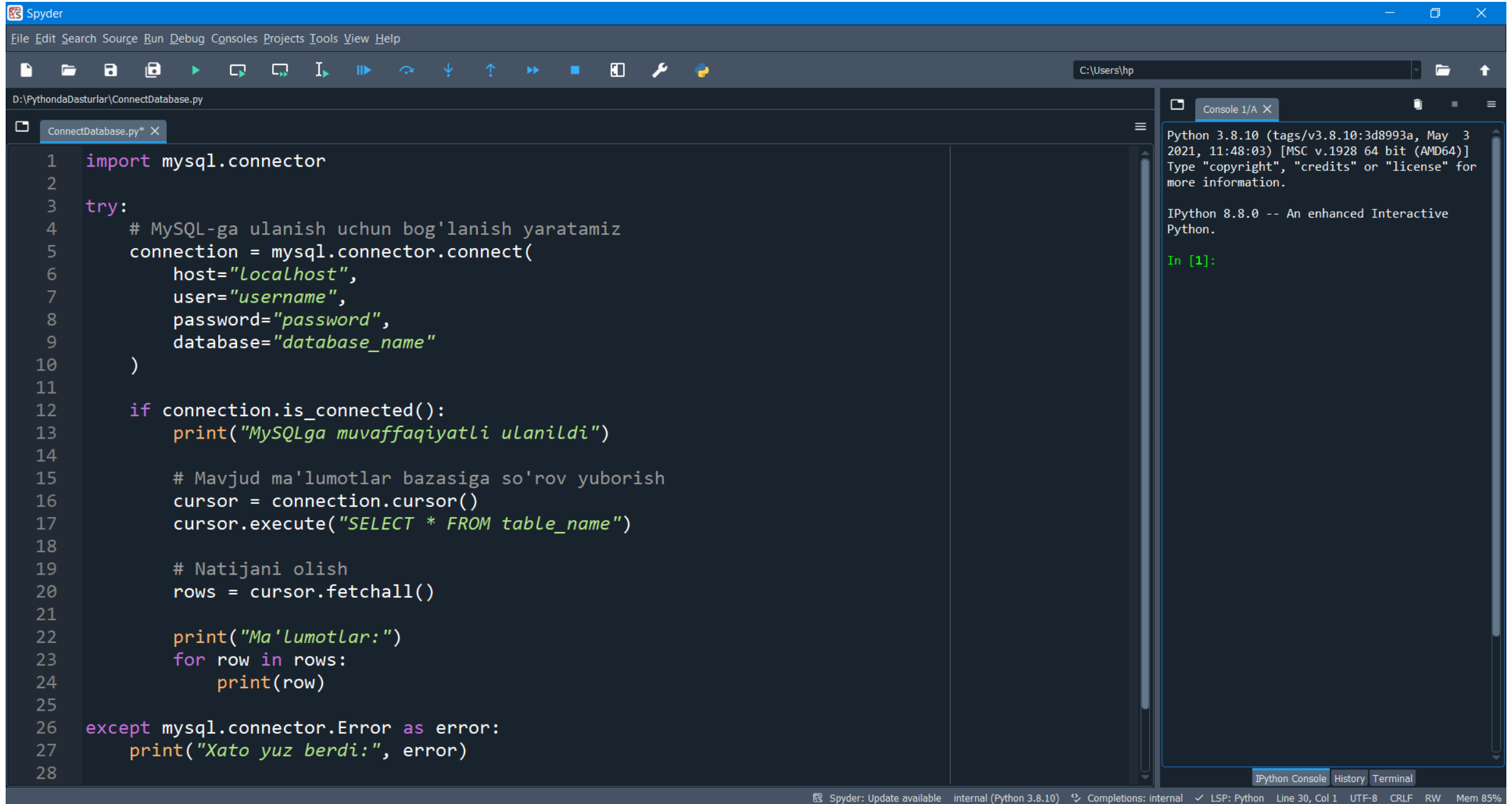
C++ dasturlash tili yordamida MySQL ma'lumotlar bazasiga ulanish kodi quyidagicha:

```cpp
#include <iostream>
#include <mysql/mysql.h>
int main() {
    MYSQL *conn;
    MYSQL_RES *res;
    MYSQL_ROW row;
    conn = mysql_init(NULL);
    if (conn == NULL) {
        std::cerr << "MySQLga ulanishda xatolik yuz berdi!" << std::endl;
        return 1;
    }
    conn = mysql_real_connect(conn, "localhost", "username", "password", "database_name", 0, NULL, 0);
    if (conn) {
        std::cout << "MySQLga muvaffaqiyatli ulanildi" << std::endl;
        if (mysql_query(conn, "SELECT * FROM table_name")) {
            std::cerr << "So'rovni bajaramizda xatolik yuz berdi!" << std::endl;
            mysql_close(conn);
            return 1;
        }
        res = mysql_use_result(conn);
        if (res) {
            std::cout << "Ma'lumotlar:" << std::endl;
            while ((row = mysql_fetch_row(res)) != NULL) {
                std::cout << row[0] << "\t" << row[1] << /* ... */ << std::endl; // Ma'lumotlarini o'qish
            }
        }
        mysql_free_result(res);
        mysql_close(conn);
    } else {
        std::cerr << "MySQLga ulanishda xatolik yuz berdi!" << std::endl;
        return 1;
    } return 0; }
```

Python dasturlash tili yordamida MySQL ma'lumotlar bazasiga ulanish kodi quyidagicha:

```python
import mysql.connector

try:
    # MySQL-ga ulanish uchun bog'lanish yaratamiz
    connection = mysql.connector.connect(
        host="localhost",
        user="username",
        password="password",
        database="database_name"
    )

    if connection.is_connected():
        print("MySQLga muvaffaqiyatli ulanildi")

        # Mavjud ma'lumotlar bazasiga so'rov yuborish
        cursor = connection.cursor()
        cursor.execute("SELECT * FROM table_name")

        # Natijani olish
        rows = cursor.fetchall()

        print("Ma'lumotlar:")
        for row in rows:
            print(row)

except mysql.connector.Error as error:
    print("Xato yuz berdi:", error)

```

Spyder

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C:\Users\hp

D:\PythondaDasturlar\ConnectDatabase.py

ConnectDatabase.py*

Console 1/A

```python
import mysql.connector    #cmd - "pip install mysql-connector-python"

ulanish = mysql.connector.connect(
    host="localhost",
    user="root",
    password="root",       #Ma'lumotlar bazasiga ulanish amalga oshadi
    database="institut"    #ulanish o'zgaruvchisi endi bizning institut bazamiz
)
# bazani cursor yordamida boshqaramiz
cursor = ulanish.cursor()               #cursorni yaratish
cursor.execute("SELECT * FROM talabalar")     #so'rov bajarish

talabalar = cursor.fetchall()   #talabalar jadvalidagi barcha ma'lumotlarni yuklash

# Barcha talabalarni ro'yxatini consolga chiqarish

for qator in talabalar:
    print(qator)
```

IPython Console   History   Terminal

Spyder: Update available   internal (Python 3.8.10)   Completions: internal   LSP: Python   Line 18, Col 16   UTF-8   CRLF   RW   Mem 89%

```
C:\Users\hp>python D:\PythondaDasturlar\ConnectDatabase.py
(1, 'Ismoilov', 'Abdulloh', datetime.date(1998, 2, 24), 7, 2, 2)
(2, 'Habibullayev', 'Abror', datetime.date(2000, 8, 4), 1, 2, None)
(5, 'Bekchanov', 'Asadbek', datetime.date(1997, 3, 29), 3, 1, 4)
(8, 'Sotliqov', 'Dastonbek', datetime.date(2004, 8, 22), 1, 2, 2)
(9, 'Kuchkarov', 'Dilshodbek', datetime.date(1999, 6, 11), 11, 2, None)
(10, 'Artikov', 'Doniyor', datetime.date(2001, 5, 28), 12, 2, 3)
(12, 'Samandarov', 'Egamberdi', datetime.date(2000, 12, 3), 1, 2, 3)
(26, 'Abdullayeva', 'Nilufar', datetime.date(1999, 6, 3), 11, 1, 4)
(29, 'Abdullayeva', 'Orzigul', datetime.date(2002, 9, 7), 12, 1, 1)
(31, 'Norimbetov', "Ro'zimboy", datetime.date(2002, 7, 10), 7, 1, 4)
(34, 'Kamolova', 'Shohista', datetime.date(1999, 2, 13), 1, 2, 3)
(37, 'Nurullayev', 'Temur', datetime.date(2002, 9, 25), 7, 2, 4)
(39, 'Raximberganov', 'Temurbek', datetime.date(2001, 10, 5), 5, 2, 3)
(41, 'Tajiyeva', 'Umida', datetime.date(1999, 10, 25), 13, 2, 3)
(43, "O'rinov", 'Xalilla', datetime.date(2000, 1, 10), 1, 1, 3)
(44, 'Rahimboyev', 'Sanjar', datetime.date(2001, 6, 7), 4, None, None)

C:\Users\hp>
```

D:\PythondaDasturlar\ConnectDatabase.py

ConnectDatabase.py*

```python
1  import mysql.connector    #cmd - "pip install mysql-connector-python"
2
3  ulanish = mysql.connector.connect(
4      host="localhost",
5      user="root",
6      password="root",         #Ma'lumotlar bazasiga ulanish amalga oshadi
7      database="institut"      #ulanish o'zgaruvchisi endi bizning institut bazamiz
8  )
9  # bazani cursor yordamida boshqaramiz
10 cursor = ulanish.cursor()                  #cursorni yaratish
11 cursor.execute("SELECT * FROM talabalar")     #so'rov bajarish
12
13 talabalar = cursor.fetchone()    #talabalar jadvalidagi birinchi talabani yuklash
14
15 # Barcha talabalarni ro'yxatini consolga chiqarish
16
17 for qator in talabalar:
18     print(qator)
19
```

IPython Console History Terminal

Spyder: Update available   internal (Python 3.8.10)   Completions: internal   LSP: Python   Line 13, Col 73   UTF-8   CRLF   RW   Mem 80%

```
C:\Users\hp>python D:\PythondaDasturlar\ConnectDatabase.py
1
Ismoilov
Abdulloh
1998-02-24
7
2
2

C:\Users\hp>
```

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D:\PythondaDasturlar

D:\PythondaDasturlar\ConnectDatabase.py

ConnectDatabase.py*

Console 1/A

In [2]:

```python
1   import mysql.connector    #cmd - "pip install mysql-connector-python"
2
3   ulanish = mysql.connector.connect(
4       host="localhost",
5       user="root",
6       password="root",         #Ma'lumotlar bazasiga ulanish amalga oshadi
7       database="institut"      #ulanish o'zgaruvchisi endi bizning institut bazamiz
8   )
9   # bazani cursor yordamida boshqaramiz
10  cursor = ulanish.cursor()                        #cursorni yaratish
11  cursor.execute("UPDATE talabalar SET ism='Abrorbek' WHERE id=2")  #so'rov bajarish
12
13  #UPDATE, INSERT, DELETE, CREATE holatlari uchun commit bajariladi
14  ulanish.commit()
```

IPython Console History Terminal

Spyder: Update available   internal (Python 3.8.10)   Completions: internal   LSP: Python   Line 13, Col 66   UTF-8   CRLF   RW   Mem 80%

Файл   Редактировать   Поиск   Инструменты   Переход   Помощь

Фильтр баз данн   Фильтр таблиц | Хост: 127.0.0.1   База данных: institut   Таблица: talabalar   Данные   Запрос

MyDatabases
> information_schema
> institut   192,0 KiB
    bosqichlar   32,0 KiB
    deleted_students   16,0 KiB
    guruhlar   32,0 KiB
    shartnomalar   32,0 KiB
    talabalar   48,0 KiB
    uqituvchilar   16,0 KiB
    yangilanishlar   16,0 KiB
> itcenter
> mydb
> mysql
> performance_schema
> proba
> supermarket
> tatu_tests
> ubtuittest
> universitet

institut.talabalar: 16 строк (приблизительно)

Далее   Показать все   Сортировка   Столбцы (7/7)   Фильтр

id	familiya	ism	T_sanasi	guruh_id	shartnoma_id	bosqich_id
1	Ismoilov	Abdulloh	1998-02-24	7	2	2
2	Habibullayev	Abrorbek	2000-08-04	1	2	(NULL)
5	Bekchanov	Asadbek	1997-03-29	3	1	4
8	Sotliqov	Dastonbek	2004-08-22	1	2	2
9	Kuchkarov	Dilshodbek	1999-06-11	11	2	(NULL)
10	Artikov	Doniyor	2001-05-28	12	2	3
12	Samandarov	Egamberdi	2000-12-03	1	2	3
26	Abdullayeva	Nilufar	1999-06-03	11	1	4
29	Abdullayeva	Orzigul	2002-09-07	12	1	1
31	Norimbetov	Ro'zimboy	2002-07-10	7	1	4
34	Kamolova	Shohista	1999-02-13	1	2	3
37	Nurullayev	Temur	2002-09-25	7	2	4
39	Raximberganov	Temurbek	2001-10-05	5	2	3
41	Tajiyeva	Umida	1999-10-25	13	2	3
43	O'rinov	Xalilla	2000-01-10	1	1	3
44	Rahimboyev	Sanjar	2001-06-07	4	(NULL)	(NULL)

r2 : c1   Подключено: 06:51 h   MariaDB 10.3.22   Время работы: 09:19 h   Серверное время: 4:3   Ожидание.

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D:\PythondaDasturlar\ConnectDatabase.py

ConnectDatabase.py*

In [2]:

```python
import mysql.connector

ulanish = mysql.connector.connect(
    host="localhost",
    user="root",
    password="root",
    database="institut"
)
cursor = ulanish.cursor()
vazifa = input("vazifa nima: ")

if vazifa.upper() == "UPDATE":
    ism = input("ism yozing: ")
    n = int(input("id bering: "))
    cursor.execute(f"UPDATE talabalar SET ism='{ism}' WHERE id={n}")
    ulanish.commit()
elif vazifa.upper() == "SELECT":
    cursor.execute("SELECT * FROM talabalar")
    talabalar = cursor.fetchall()
    for qator in talabalar:
        print(qator)
```

Spyder: Update available   internal (Python 3.8.10)   Completions: internal   LSP: Python   Line 21, Col 7   UTF-8   CRLF   RW   Mem 84%

IPython Console   History   Terminal

```
C:\Users\hp>python D:\PythondaDasturlar\ConnectDatabase.py
vazifa nima: select
(1, 'Ismoilov', 'Saidmurod', datetime.date(1998, 2, 24), 7, 2, 2)
(2, 'Habibullayev', 'Abror', datetime.date(2000, 8, 4), 1, 2, None)
(5, 'Bekchanov', 'Asadbek', datetime.date(1997, 3, 29), 3, 1, 4)
(8, 'Sotliqov', 'Dastonbek', datetime.date(2004, 8, 22), 1, 2, 2)
(9, 'Kuchkarov', 'Dilshodbek', datetime.date(1999, 6, 11), 11, 2, None)
(10, 'Artikov', 'Doniyor', datetime.date(2001, 5, 28), 12, 2, 3)
(12, 'Samandarov', 'Egamberdi', datetime.date(2000, 12, 3), 1, 2, 3)
(26, 'Abdullayeva', 'Nilufar', datetime.date(1999, 6, 3), 11, 1, 4)
(29, 'Abdullayeva', 'Orzigul', datetime.date(2002, 9, 7), 12, 1, 1)
(31, 'Norimbetov', "Ro'zimboy", datetime.date(2002, 7, 10), 7, 1, 4)
(34, 'Kamolova', 'Shohista', datetime.date(1999, 2, 13), 1, 2, 3)
(37, 'Nurullayev', 'Temur', datetime.date(2002, 9, 25), 7, 2, 4)
(39, 'Raximberganov', 'Temurbek', datetime.date(2001, 10, 5), 5, 2, 3)
(41, 'Tajiyeva', 'Umida', datetime.date(1999, 10, 25), 13, 2, 3)
(43, "O'rinov", 'Xalilla', datetime.date(2000, 1, 10), 1, 1, 3)
(44, 'Rahimboyev', 'Sanjar', datetime.date(2001, 6, 7), 4, None, None)


C:\Users\hp>
```
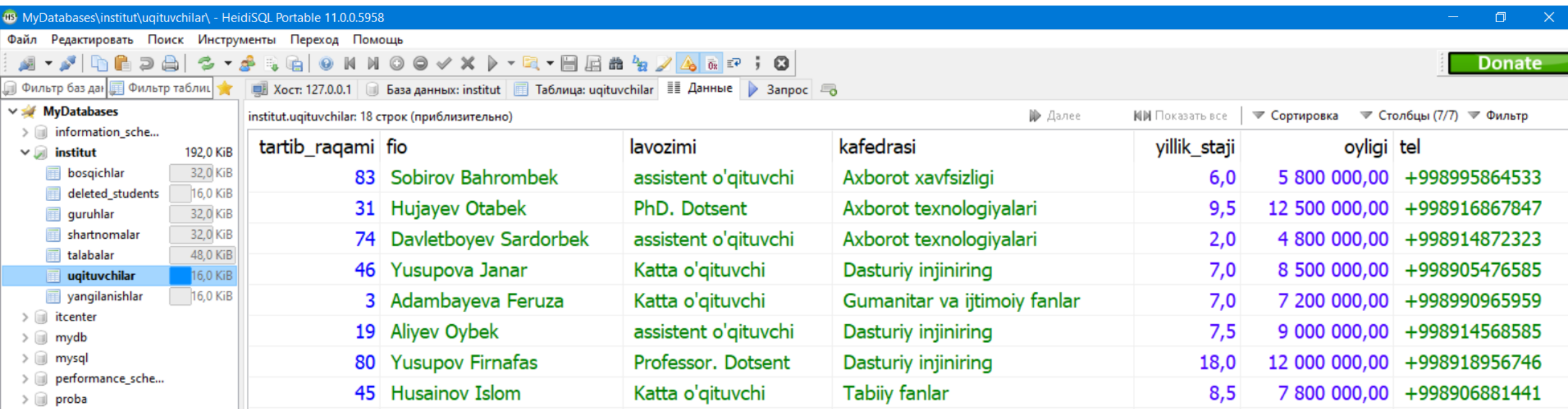
Topshiriq: Institut ma'lumotlar bazasidagi uqituvchilar jadvali uchun python dasturlash tilidan foydalanib ushbu dasturni tuzing:

Jadvaldan tartib raqami x va y oraliqda bo'lgan uqituvchilarni z buyruq raqami bo'yicha so'rovni amalga oshiruvchi dastur tuzing. Bunda: z ning qiymati 1 yoki 2, Select-1, Delete-2 raqamlariga tegishli deb oling.

Kiruvchi ma'lumotlar: Bitta qatorda x,y,z butun sonlar

Chiquvchi ma'lumotlar: Barcha holat uchun Uqituvchilar jadvalidan, uqituvchilarning familiya, ism, sharifi, oyligi va telefon raqami ma'lumotlari, noto'g'ri son qiymatlar kiritilganda "noto'g'ri qiymatlar kiritildi" yozuvini chiqaring

tartib_raqami	fio	lavozimi	kafedrasi	yillik_staji	oyligi	tel
83	Sobirov Bahrombek	assistent o'qituvchi	Axborot xavfsizligi	6,0	5 800 000,00	+998995864533
31	Hujayev Otabek	PhD. Dotsent	Axborot texnologiyalari	9,5	12 500 000,00	+998916867847
74	Davletboyev Sardorbek	assistent o'qituvchi	Axborot texnologiyalari	2,0	4 800 000,00	+998914872323
46	Yusupova Janar	Katta o'qituvchi	Dasturiy injiniring	7,0	8 500 000,00	+998905476585
3	Adambayeva Feruza	Katta o'qituvchi	Gumanitar va ijtimoiy fanlar	7,0	7 200 000,00	+998990965959
19	Aliyev Oybek	assistent o'qituvchi	Dasturiy injiniring	7,5	9 000 000,00	+998914568585
80	Yusupov Firnafas	Professor. Dotsent	Dasturiy injiniring	18,0	12 000 000,00	+998918956746
45	Husainov Islom	Katta o'qituvchi	Tabiiy fanlar	8,5	7 800 000,00	+998906881441

```python
import mysql.connector
ulanish = mysql.connector.connect(
    host="localhost",
    user="root",
    password="root",
    database="institut"
)
cursor = ulanish.cursor()
x,y,z = map(int, input().split())

if z == 1 and x<=y:
    cursor.execute(f"""SELECT fio, oyligi, kafedrasi
                    FROM uqituvchilar
                    WHERE tartib_raqami
                    BETWEEN {x} AND {y}""")
    talabalar = cursor.fetchall()
    for qator in talabalar:
        print(qator)
elif z == 2 and x<=y:
    cursor.execute(f"DELETE FROM uqituvchilar WHERE tartib_raqami BETWEEN {x} AND {y}")
    ulanish.commit()
    cursor.execute(f"SELECT fio, oyligi, kafedrasi FROM uqituvchilar")
    talabalar = cursor.fetchall()
    for qator in talabalar:
        print(qator)
else:
    print("noto'g'ri qiymatlar kiritildi")

```

In [2]:

IPython Console History Terminal

Spyder: Update available   internal (Python 3.8.10)   Completions: internal   LSP: Python   Line 28, Col 5   UTF-8   CRLF   RW   Mem 83%

SAVOLLAR?