

11. PRIMARY KEY (PK), FOREIGN KEY (FK), UNIQUE (UK)

**Jadvallarni to'g'ri dizayn qilish,
asosiy kalit, tashqi kalit va yagonalik**

ass. Baltayev Rustambek

Nimalar o'rgandik?

CREATE – Database yaratish, Jadval yaratish

INSERT – Ma'lumotlarni kiritish

DELETE – Ma'lumotlarni o'chirish

UPDATE – Ma'lumotlarni yangilash

SELECT – Ma'lumotlarni tanlash

Advanced SELECT: Group By, SUM, MIN, COUNT, Order By and etc.

Biz jadvallar dizayniga e'tibor bermadik



Muammolar

Duplikatlar -> Ishonch kamayadi

So'rovlar ishlashi sekinlashadi

Ko'proq joy olinadi -> Ko'p pul ketadi

Biz foydalanayotgan talabalar jadvali to'g'ri dizayn qilinmagan

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
34	Kamolova Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash, Kompyuter grafikasi
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
26	Abdullayeva Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball, Pythonda dasturlash, MySQL DB
41	Tajiyeva Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis, MySQL Ma'lumotlar bazasi
39	Raximberganov Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili, Pythonda dasturlash
43	O'rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Ro'zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili, Kompyuter grafikasi
8	Sotliqov Dastonbek	2004-08-22	971-22	2	Grand	Ingliz tili, Kibersport
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL
29	Abdullayeva Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili
37	Nurullayev Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis, Futboll, Valleyboll
12	Samandarov Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL
10	Artikov Doniyor	2001-05-28	921-21	3	Kontraqt	English, Javada dasturlash
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili

```
SELECT *
FROM talabalar
WHERE guruh = “911-21”
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma_ turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
34	Kamolova Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash, Kompyuter grafikasi
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
26	Abdullayeva Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball, Pythonda dasturlash, MySQL DB
41	Tajiyeva Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis, MySQL Ma'lumotlar bazasi
39	Raximberganov Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili, Pythonda dasturlash
43	O'rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Ro'zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili, Kompyuter grafikasi
8	Sotliqov Dostonbek	2004-08-22	971-22	2	Grand	Ingliz tili, Kibersport
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL
29	Abdullayeva Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili
37	Nurullayev Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis, Futboll, Valleyboll
12	Samandarov Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL
10	Artikov Doniyor	2001-05-28	921-21	3	Kontraqt	English, Javada dasturlash
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili

```
SELECT *
FROM talabalar
WHERE guruh = “911-21”
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	Kurslari
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL

```
SELECT *
FROM talabalar
WHERE shartnoma_turi = "Grant"
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
34	Kamolova Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash, Kompyuter grafikasi
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
26	Abdullayeva Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball, Pythonda dasturlash, MySQL DB
41	Tajiyeva Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis, MySQL Ma'lumotlar bazasi
39	Raximberganov Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili, Pythonda dasturlash
43	O'rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Ro'zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili, Kompyuter grafikasi
8	Sotliqov Dostonbek	2004-08-22	971-22	2	Grand	Ingliz tili, Kibersport
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL
29	Abdullayeva Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili
37	Nurullayev Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis, Futboll, Valleyboll
12	Samandarov Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL
10	Artikov Doniyor	2001-05-28	921-21	3	Kontraqt	English, Javada dasturlash
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili


```
SELECT *
FROM talabalar
WHERE shartnoma_turi = “Grant”
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
43	O‘rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili

```
SELECT *
FROM talabalar
WHERE kurslari = “Football”
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma_ turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
34	Kamolova Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash, Kompyuter grafikasi
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
26	Abdullayeva Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball, Pythonda dasturlash, MySQL DB
41	Tajiyeva Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis, MySQL Ma'lumotlar bazasi
39	Raximberganov Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili, Pythonda dasturlash
43	O'rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Ro'zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili, Kompyuter grafikasi
8	Sotliqov Dostonbek	2004-08-22	971-22	2	Grand	Ingliz tili, Kibersport
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL
29	Abdullayeva Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili
37	Nurullayev Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis, Futboll, Valleyboll
12	Samandarov Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL
10	Artikov Doniyor	2001-05-28	921-21	3	Kontraqt	English, Javada dasturlash
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili

```
SELECT *
FROM talabalar
WHERE kurslari = "Football"
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma_ _turi	kurslari
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```
SELECT *
FROM talabalar
WHERE kurslari LIKE “%Football%”
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
34	Kamolova Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash, Kompyuter grafikasi
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
26	Abdullayeva Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball, Pythonda dasturlash, MySQL DB
41	Tajiyeva Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis, MySQL Ma’lumotlar bazasi
39	Raximberganov Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili, Pythonda dasturlash
43	O’rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Ro’zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili, Kompyuter grafikasi
8	Sotliqov Dastonbek	2004-08-22	971-22	2	Grand	Ingliz tili, Kibersport
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL
29	Abdullayeva Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili
37	Nurullayev Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis, Futboll, Valleyboll
12	Samandarov Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL
10	Artikov Doniyor	2001-05-28	921-21	3	Kontraqt	English, Javada dasturlash
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili

```
SELECT *
FROM talabalar
WHERE kurslari LIKE “%Football%”
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis

```
SELECT *
FROM talabalar
WHERE kurslari LIKE “%Football%” OR kurslari LIKE “%Footboll%”
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
34	Kamolova Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash, Kompyuter grafikasi
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Footboll, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
26	Abdullayeva Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball, Pythonda dasturlash, MySQL DB
41	Tajiyeva Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis, MySQL Ma'lumotlar bazasi
39	Raximberganov Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili, Pythonda dasturlash
43	O'rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Ro'zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili, Kompyuter grafikasi
8	Sotliqov Dastonbek	2004-08-22	971-22	2	Grand	Ingliz tili, Kibersport
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL
29	Abdullayeva Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili
37	Nurullayev Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis, Futboll, Valleyboll
12	Samandarov Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL
10	Artikov Doniyor	2001-05-28	921-21	3	Kontraqt	English, Javada dasturlash
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili

```
SELECT *
FROM talabalar
WHERE kurslari LIKE “%Football%” OR kurslari LIKE “%Footboll%”
```

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Footboll, Kompyuter grafikasi

Muammolarga yechimlar

- 1. Har bir jadvalda takrorlanmas ustun (id - identification) bo'lishi kerak**
- 2. Har bir katakda ma'lumot bitta bo'lishi kerak**
- 3. Ustundagi ma'lumotlar takrorlanmasligi kerak
chunki takrorlangan ma'lumotlarning yozilishi har xil bo'lib qolishi mumkin**
- 4. Takrorlangan ma'lumotlarni alohida jadvallarga o'tkazish kerak**
- 5. Alohida olingan jadvalni ustun qiymatlari UNIQUE (yagona) bo'lishi kerak**
- 6. Bir biriga tegishli jadvallarni o'zaro bog'lash kerak
PRIMARY KEY, FOREIGN KEY lar bilan**

MUAMMOLARNI YECHAMIZ

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
34	Kamolova Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash, Kompyuter grafikasi
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
26	Abdullayeva Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball, Pythonda dasturlash, MySQL DB
41	Tajiyeva Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis, MySQL Ma'lumotlar bazasi
39	Raximberganov Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili, Pythonda dasturlash
43	O'rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Ro'zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili, Kompyuter grafikasi
8	Sotliqov Dastonbek	2004-08-22	971-22	2	Grand	Ingliz tili, Kibersport
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL
29	Abdullayeva Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili
37	Nurullayev Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis, Futboll, Valleyboll
12	Samandarov Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL
10	Artikov Doniyor	2001-05-28	921-21	3	Kontraqt	English, Javada dasturlash
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili

Har bir jadvalda takrorlanmas ustun (id - identification) bo'lishi kerak

tartib_ raqami	fio	t_sanasi	guruh	bosqich	shartnoma _turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
34	Kamolova Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash, Kompyuter grafikasi
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
26	Abdullayeva Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball, Pythonda dasturlash, MySQL DB
41	Tajiyeva Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis, MySQL Ma'lumotlar bazasi
39	Raximberganov Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili, Pythonda dasturlash
43	O'rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Ro'zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili, Kompyuter grafikasi
8	Sotliqov Dastonbek	2004-08-22	971-22	2	Grand	Ingliz tili, Kibersport
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL
29	Abdullayeva Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili
37	Nurullayev Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis, Futboll, Valleyboll
12	Samandarov Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL
10	Artikov Doniyor	2001-05-28	921-21	3	Kontraqt	English, Javada dasturlash
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili

PK

Har bir jadvalda takrorlanmas ustun (id - identification) bo'lishi kerak

id	fio	t_sanasi	guruh	bosqich	shartnoma_turi	kurslari
5	Bekchanov Asadbek	1997-03-29	961-20	4	Grant	Football, Pythonda dasturlash, Stol tennis
34	Kamolova Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash, Kompyuter grafikasi
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Football, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
26	Abdullayeva Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball, Pythonda dasturlash, MySQL DB
41	Tajiyeva Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis, MySQL Ma'lumotlar bazasi
39	Raximberganov Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili, Pythonda dasturlash
43	O'rinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Ro'zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili, Kompyuter grafikasi
8	Sotliqov Dastonbek	2004-08-22	971-22	2	Grand	Ingliz tili, Kibersport
9	Kuchkarov Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL
29	Abdullayeva Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili
37	Nurullayev Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis, Futboll, Valleyboll
12	Samandarov Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL
10	Artikov Doniyor	2001-05-28	921-21	3	Kontraqt	English, Javada dasturlash
25	Qurbaniyazov Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi, Python dasturlash tili

Har bir katakdagi ma'lumotni bitta qilib chiqsak

id	familiya	ism	t_sanasi	guruh	bosqich	shartnoma_turi	kurs_1	kurs_2	kurs_3
5	Bekchanov	Asadbek	1997-03-29	961-20	4	Grant	Football	Pythonda dasturlash	Stol tennis
34	Kamolova	Shohista	1999-02-13	951-21	3	Kontrakt	C++ da dasturlash	Kompyuter grafikasi	NULL
2	Xabibullayev	Abrorbek	2000-08-04	911-21	3	Grant	Football	Kompyuter grafikasi	NULL
1	Ismoilov	Abdulla	1998-02-24	971-22	2	Grant	C++	Stol tennis	Kiber sport
26	Abdullayeva	Nilufar	1999-06-03	971-20	4	Kontrakt	Valleyball	Pythonda dasturlash	MySQL DB
41	Tajiyeva	Umida	1999-10-25	951.21	3	Kontrakt	Stol tennis	MySQL Ma'lumotlar bazasi	NULL
39	Raximberganov	Temurbek	2001-10-05	912-21	3	Kontrakt	Ingliz tili	Pythonda dasturlash	NULL
43	O'rinov	Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash	MySQL DB	NULL
31	Norimbetov	Ro'zimboy	2002-07-10	932-20	4	Kontrakt	Ingliz tili	Kompyuter grafikasi	NULL
8	Sotliqov	Dastonbek	2004-08-22	971-22	2	Grand	Ingliz tili	Kibersport	NULL
9	Kuchkarov	Dilshodbek	1999-06-11	911-21	3	Kontrakt	NULL	NULL	NULL
29	Abdullayeva	Orzigul	2002-09-07	931-23	1	Kontrokt	Ingliz tili	NULL	NULL
37	Nurullayev	Temur	2002-09-25	961-20	4	Kontrakt	Stol tennis	Futboll	Valleyboll
12	Samandarov	Egamberdi	2000-12-03	911_21	3	Kontrakt	NULL	NULL	NULL
10	Artikov	Doniyor	2001-05-28	921-21	3	Kontraqt	English	Javada dasturlash	NULL
25	Qurbaniyazov	Nazarbek	2003-03-30	911-23	1	Grant	Kompyuter grafikasi	Python dasturlash tili	NULL

Takrorlangan ma'lumotlarni alohida jadvallarga o'tkazish kerak

id	familiya	ism	t_sanasi	bosqich
5	Bekchanov	Asadbek	1997-03-29	4
34	Kamolova	Shohista	1999-02-13	3
2	Xabibullayev	Abrorbek	2000-08-04	3
1	Ismoilov	Abdulla	1998-02-24	2
26	Abdullayeva	Nilufar	1999-06-03	4
41	Tajiyeva	Umida	1999-10-25	3
39	Raximberganov	Temurbek	2001-10-05	3
43	O'rinov	Xalilla	2000-01-10	3
31	Norimbetov	Ro'zimboy	2002-07-10	4
8	Sotliqov	Dastonbek	2004-08-22	2
9	Kuchkarov	Dilshodbek	1999-06-11	3
29	Abdullayeva	Orzigul	2002-09-07	1
37	Nurullayev	Temur	2002-09-25	4
12	Samandarov	Egamberdi	2000-12-03	3
10	Artikov	Doniyor	2001-05-28	3
25	Qurbaniyazov	Nazarbek	2003-03-30	1

id	guruh
1	961-20
2	951-21
3	911-21
4	971-22
5	971-20
6	951.21
7	912-21
8	912-21
9	932-20
10	971-22
11	911-21
12	931-23
13	961-20
14	911_21
15	921-21
16	911-23

id	shartnoma_turi
1	Grant
2	Kontrakt
3	Grant
4	Grant
5	Kontrakt
6	Kontrakt
7	Kontrakt
8	Grant
9	Kontrakt
10	Grand
11	Kontrakt
12	Kontrokt
13	Kontrakt
14	Kontrakt
15	Kontraqt
16	Grant

id	kurslar
1	Pythonda dasturlash
2	Kompyuter grafikasi
3	C++ da dasturlash
4	Stol tennis
5	Ingliz tili
6	MySQL Ma'lumotlar bazasi
7	MySQL DB
8	Valleyball
9	C++
10	Kibersport
11	English
12	Futboll
13	Football
14	Kiber sport
15	Javada dasturlash
16	Football

PK

Alohida olingan jadvallarni ustun qiymatlarini UNIQUE (yagona) qilamiz



talabalar

id	familiya	ism	t_sanasi	bosqich
5	Bekchanov	Asadbek	1997-03-29	4
34	Kamolova	Shohista	1999-02-13	3
2	Xabibullayev	Abrorbek	2000-08-04	3
1	Ismoilov	Abdulla	1998-02-24	2
26	Abdullayeva	Nilufar	1999-06-03	4
41	Tajiyeva	Umida	1999-10-25	3
39	Raximberganov	Temurbek	2001-10-05	3
43	O'rinov	Xalilla	2000-01-10	3
31	Norimbetov	Ro'zimboy	2002-07-10	4
8	Sotliqov	Dostonbek	2004-08-22	2
9	Kuchkarov	Dilshodbek	1999-06-11	3
29	Abdullayeva	Orzigul	2002-09-07	1
37	Nurullayev	Temur	2002-09-25	4
12	Samandarov	Egamberdi	2000-12-03	3
10	Artikov	Doniyor	2001-05-28	3
25	Qurbaniyazov	Nazarbek	2003-03-30	1

guruhlar

id	guruh
1	961-20
2	951-21
3	911-21
4	971-22
5	971-20
6	912-21
7	932-20
8	971-22
9	931-23
10	921-21
11	911-23



PK



UK

shartnomalar

id	shartnoma_turi
1	Grant
2	Kontrakt



PK



UK

kurslar

id	kurs_nomi
1	Pythonda dasturlash
2	Kompyuter grafikasi
3	C++ da dasturlash
4	Stol tennis
5	Ingliz tili
6	MySQL Ma'lumotlar bazasi
7	Valleyball
8	Kibersport
9	Football
10	Javada dasturlash



PK



UK

Jadvallarni bir biriga bog'lash usullari

1. Birga bir bog'lanish -> 1:1

Bir jadvaldagi bitta qator ikkinchi jadvaldagi bitta qatorga mos kelishi

2. Birga ko'p bog'lanish -> 1:n

Bir jadvaldagi bitta qator ikkinchi jadvaldagi ko'p qatorlarga mos kelishi

3. Ko'pga ko'p bog'lanish -> n:n

**Bir jadvaldagi ko'p qatorlar ikkinchi jadvaldagi ko'p qatorlarga mos kelishi,
Bu bog'lanishdan foydalanish uchun qo'shimcha jadval yaratib ikkala
jadvalni ham u bilan 1:n qilish lozim.**

Yani 2 ta 1:n bog'lanishdan n:n bog'lanish kelib chiqadi

Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak

PK

talabalar

id	familiya	ism	t_sanasi	bosqich
5	Bekchanov	Asadbek	1997-03-29	4
34	Kamolova	Shohista	1999-02-13	3
2	Xabibullayev	Abrorbek	2000-08-04	3
1	Ismoilov	Abdulla	1998-02-24	2
26	Abdullayeva	Nilufar	1999-06-03	4
41	Tajiyeva	Umida	1999-10-25	3
39	Raximberganov	Temurbek	2001-10-05	3
43	O‘rinov	Xalilla	2000-01-10	3
31	Norimbetov	Ro‘zimboy	2002-07-10	4
8	Sotliqov	Dastonbek	2004-08-22	2
9	Kuchkarov	Dilshodbek	1999-06-11	3
29	Abdullayeva	Orzigul	2002-09-07	1
37	Nurullayev	Temur	2002-09-25	4
12	Samandarov	Egamberdi	2000-12-03	3
10	Artikov	Doniyor	2001-05-28	3
25	Qurbaniyazov	Nazarbek	2003-03-30	1

PK

UK

id	guruh
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6	932-20
7	951-21
8	961-20
9	971-20
10	971-22

guruhlar

Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak

PK

talabalar

id	familiya	ism	t_sanasi	bosqich	guruh_id
5	Bekchanov	Asadbek	1997-03-29	4	
34	Kamolova	Shohista	1999-02-13	3	
2	Xabibullayev	Abrorbek	2000-08-04	3	
1	Ismoilov	Abdulla	1998-02-24	2	
26	Abdullayeva	Nilufar	1999-06-03	4	
41	Tajiyeva	Umida	1999-10-25	3	
39	Raximberganov	Temurbek	2001-10-05	3	
43	O‘rinov	Xalilla	2000-01-10	3	
31	Norimbetov	Ro‘zimboy	2002-07-10	4	
8	Sotliqov	Dostonbek	2004-08-22	2	
9	Kuchkarov	Dilshodbek	1999-06-11	3	
29	Abdullayeva	Orzigul	2002-09-07	1	
37	Nurullayev	Temur	2002-09-25	4	
12	Samandarov	Egamberdi	2000-12-03	3	
10	Artikov	Doniyor	2001-05-28	3	
25	Qurbaniyazov	Nazarbek	2003-03-30	1	

PK

UK

id	guruh
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7	951-21
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9	971-20
10	971-22

guruhlar

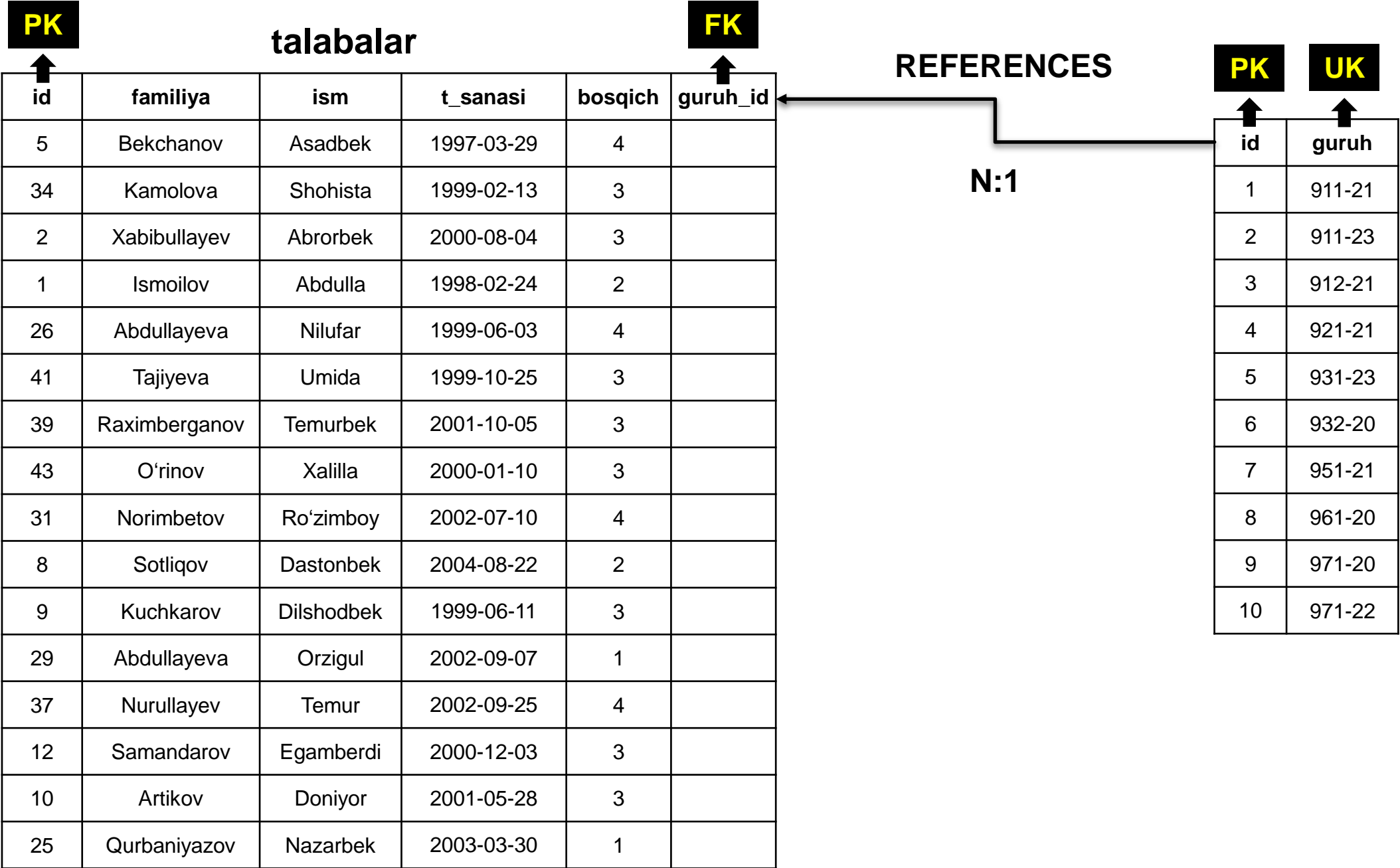
Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak

PK		talabalar				FK		
↑		id	familiya	ism	t_sanasi	bosqich	↑	guruh_id
		5	Bekchanov	Asadbek	1997-03-29	4		
		34	Kamolova	Shohista	1999-02-13	3		
		2	Xabibullayev	Abrorbek	2000-08-04	3		
		1	Ismoilov	Abdulla	1998-02-24	2		
		26	Abdullayeva	Nilufar	1999-06-03	4		
		41	Tajiyeva	Umida	1999-10-25	3		
		39	Raximberganov	Temurbek	2001-10-05	3		
		43	O‘rinov	Xalilla	2000-01-10	3		
		31	Norimbetov	Ro‘zimboy	2002-07-10	4		
		8	Sotliqov	Dostonbek	2004-08-22	2		
		9	Kuchkarov	Dilshodbek	1999-06-11	3		
		29	Abdullayeva	Orzigul	2002-09-07	1		
		37	Nurullayev	Temur	2002-09-25	4		
		12	Samandarov	Egamberdi	2000-12-03	3		
		10	Artikov	Doniyor	2001-05-28	3		
		25	Qurbaniyazov	Nazarbek	2003-03-30	1		

PK UK		↑	
		id	guruh
		1	911-21
		2	911-23
		3	912-21
		4	921-21
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		6	932-20
		7	951-21
		8	961-20
		9	971-20
		10	971-22

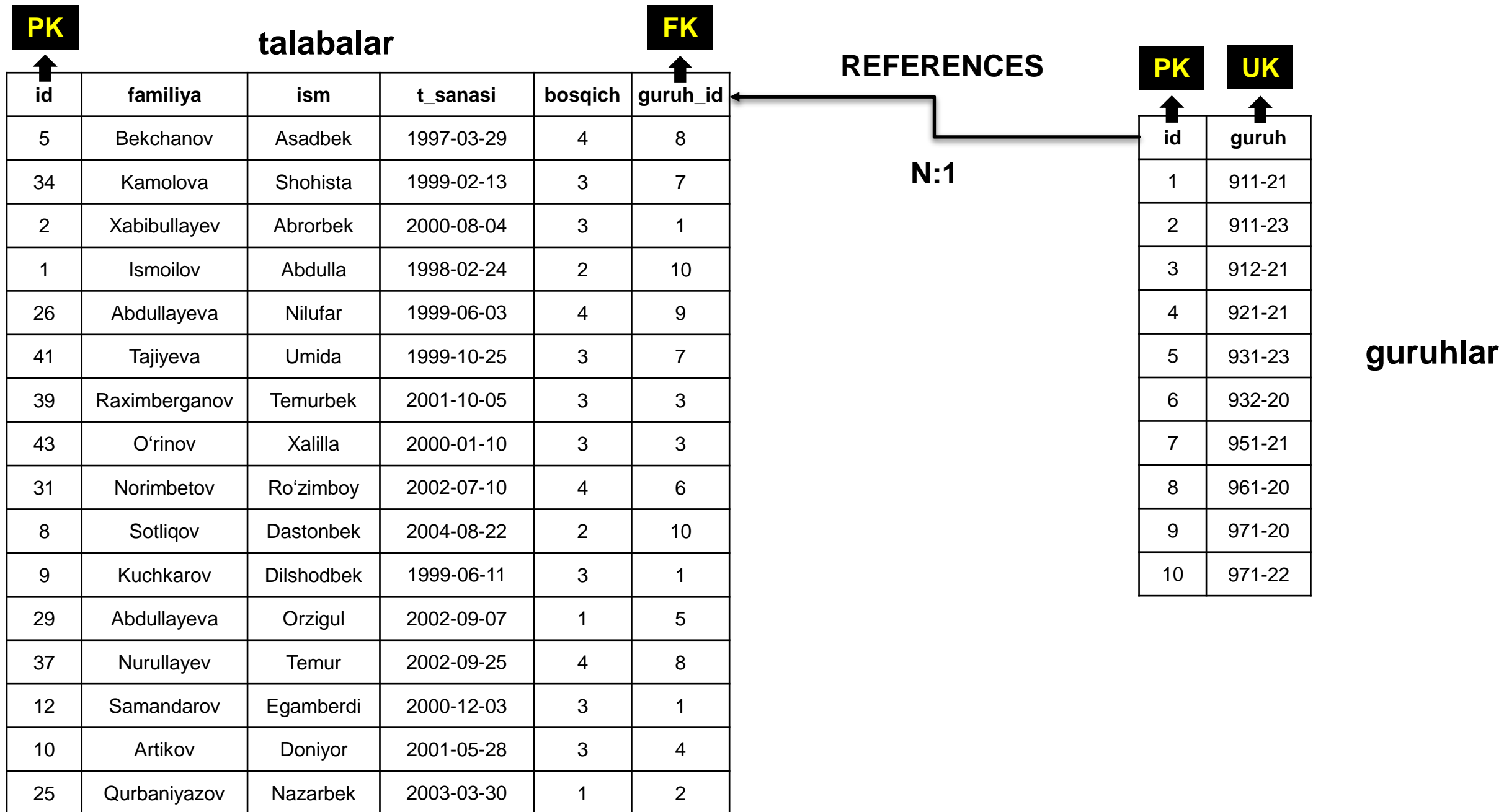
guruhlar

Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak



guruhlar

Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak



Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak

<div><div>PK</div><div>talabalar</div><div>FK</div></div>					
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5	Bekchanov	Asadbek	1997-03-29	4	8
34	Kamolova	Shohista	1999-02-13	3	7
2	Xabibullayev	Abrorbek	2000-08-04	3	1
1	Ismoilov	Abdulla	1998-02-24	2	10
26	Abdullayeva	Nilufar	1999-06-03	4	9
41	Tajiyeva	Umida	1999-10-25	3	7
39	Raximberganov	Temurbek	2001-10-05	3	3
43	O‘rinov	Xalilla	2000-01-10	3	3
31	Norimbetov	Ro‘zimboy	2002-07-10	4	6
8	Sotliqov	Dostonbek	2004-08-22	2	10
9	Kuchkarov	Dilshodbek	1999-06-11	3	1
29	Abdullayeva	Orzigul	2002-09-07	1	5
37	Nurullayev	Temur	2002-09-25	4	8
12	Samandarov	Egamberdi	2000-12-03	3	1
10	Artikov	Doniyor	2001-05-28	3	4
25	Qurbaniyazov	Nazarbek	2003-03-30	1	2

id	shartnoma_turi
1	Grant
2	Kontrakt

shartnomalar

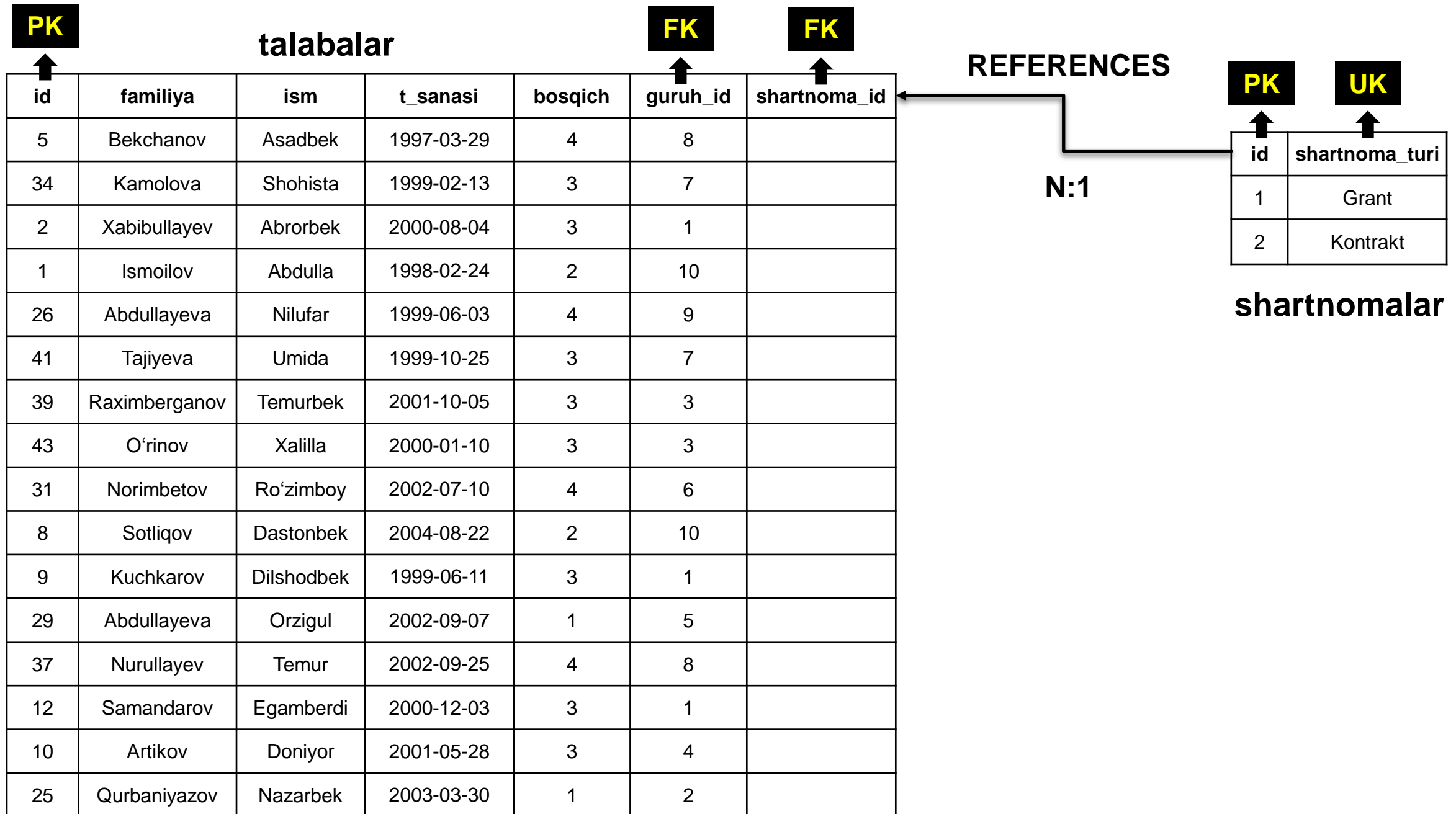
Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak

<div><div>PK</div><div>talabalar</div><div>FK</div></div>						
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34	Kamolova	Shohista	1999-02-13	3	7	
2	Xabibullayev	Abrorbek	2000-08-04	3	1	
1	Ismoilov	Abdulla	1998-02-24	2	10	
26	Abdullayeva	Nilufar	1999-06-03	4	9	
41	Tajiyeva	Umida	1999-10-25	3	7	
39	Raximberganov	Temurbek	2001-10-05	3	3	
43	O‘rinov	Xalilla	2000-01-10	3	3	
31	Norimbetov	Ro‘zimboy	2002-07-10	4	6	
8	Sotliqov	Dastonbek	2004-08-22	2	10	
9	Kuchkarov	Dilshodbek	1999-06-11	3	1	
29	Abdullayeva	Orzigul	2002-09-07	1	5	
37	Nurullayev	Temur	2002-09-25	4	8	
12	Samandarov	Egamberdi	2000-12-03	3	1	
10	Artikov	Doniyor	2001-05-28	3	4	
25	Qurbaniyazov	Nazarbek	2003-03-30	1	2	

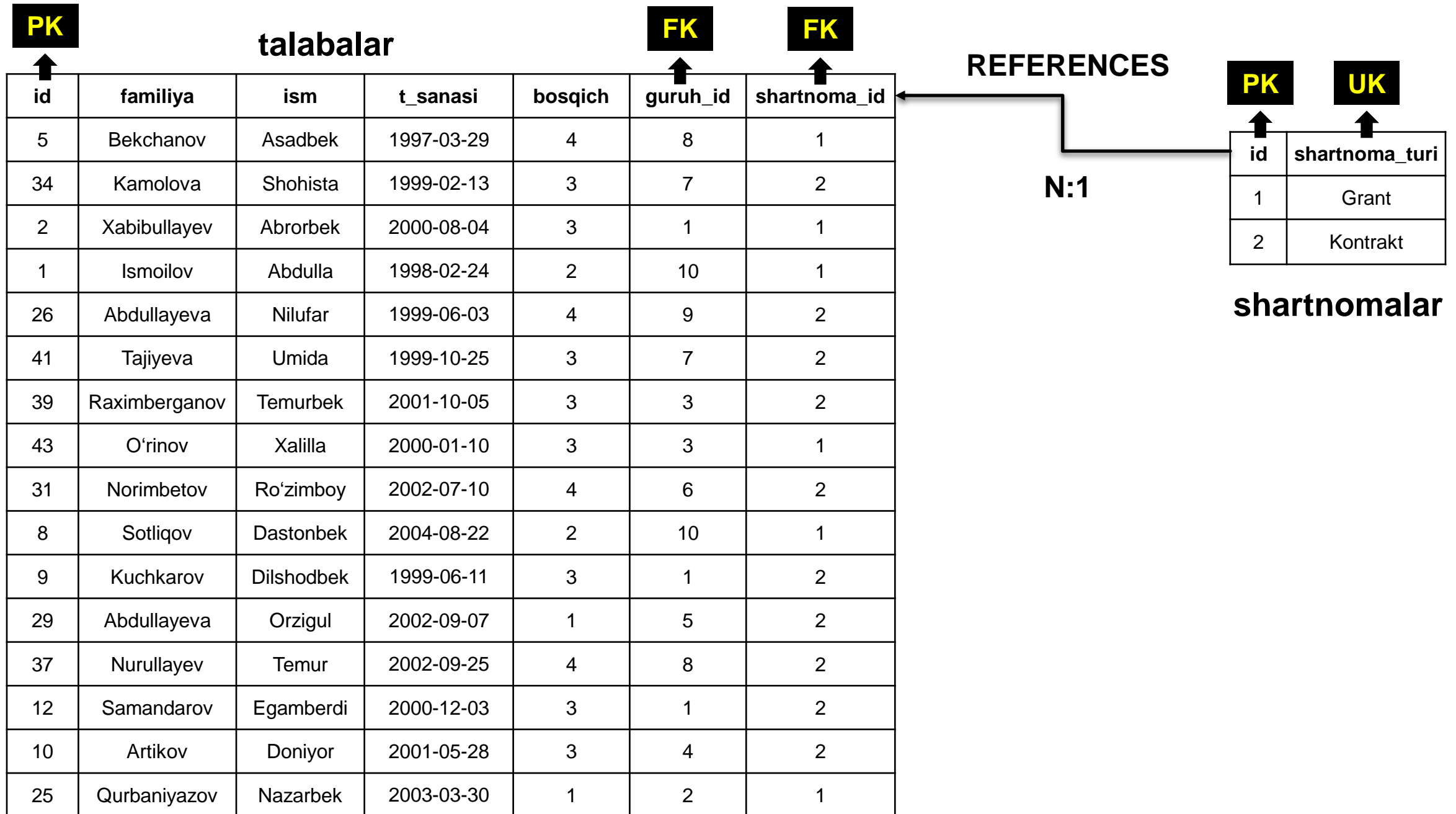
id	shartnoma_turi
1	Grant
2	Kontrakt

shartnomalar

Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak



Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak



Bir biriga tegishli jadvallarni o‘zaro bog‘lash kerak

talabalar						
<div><div>PK</div><div>↑</div></div>						
id	familiya	ism	t_sanasi	bosqich	<div><div>FK</div><div>↑</div></div> <div><div>FK</div><div>↑</div></div>	
5	Bekchanov	Asadbek	1997-03-29	4	8	1
34	Kamolova	Shohista	1999-02-13	3	7	2
2	Xabibullayev	Abrorbek	2000-08-04	3	1	1
1	Ismoilov	Abdulla	1998-02-24	2	10	1
26	Abdullayeva	Nilufar	1999-06-03	4	9	2
41	Tajiyeva	Umida	1999-10-25	3	7	2
39	Raximberganov	Temurbek	2001-10-05	3	3	2
43	O‘rinov	Xalilla	2000-01-10	3	3	1
31	Norimbetov	Ro‘zimboy	2002-07-10	4	6	2
8	Sotliqov	Dastonbek	2004-08-22	2	10	1
9	Kuchkarov	Dilshodbek	1999-06-11	3	1	2
29	Abdullayeva	Orzigul	2002-09-07	1	5	2
37	Nurullayev	Temur	2002-09-25	4	8	2
12	Samandarov	Egamberdi	2000-12-03	3	1	2
10	Artikov	Doniyor	2001-05-28	3	4	2
25	Qurbaniyazov	Nazarbek	2003-03-30	1	2	1

<div><div>PK</div><div>↑</div></div> <div><div>UK</div><div>↑</div></div>	
id	kurs_nomi
1	Pythonda dasturlash
2	Kompyuter grafikasi
3	C++ da dasturlash
4	Stol tennis
5	Ingliz tili
6	MySQL Ma’lumotlar bazasi
7	Valleyball
8	Kibersport
9	Football
10	Javada dasturlash

kurslar

PK

FKFK

N:1

PK

UK

kurslar

talabalar_kurslari

FK

FK

Bir biriga tegishli jadvallarni o'zaro bog'lash kerak

PK

FK

FK

talabalar

1:N

N:1

PK

UK

id	familiya	ism	t_sanasi	bosqich	guruh_id	shartnoma_id
5	Bekchanov	Asadbek	1997-03-29	4	8	1
34	Kamolova	Shohista	1999-02-13	3	7	2
2	Xabibullayev	Abrorbek	2000-08-04	3	1	1
1	Ismoilov	Abdulla	1998-02-24	2	10	1
26	Abdullayeva	Nilufar	1999-06-03	4	9	2
41	Tajiyeva	Umida	1999-10-25	3	7	2
39	Raximberganov	Temurbek	2001-10-05	3	3	2
43	O'rinov	Xalilla	2000-01-10	3	3	1
31	Norimbetov	Ro'zimboy	2002-07-10	4	6	2
8	Sotliqov	Dostonbek	2004-08-22	2	10	1
9	Kuchkarov	Dilshodbek	1999-06-11	3	1	2
29	Abdullayeva	Orzigul	2002-09-07	1	5	2
37	Nurullayev	Temur	2002-09-25	4	8	2
12	Samandarov	Egamberdi	2000-12-03	3	1	2
10	Artikov	Doniyor	2001-05-28	3	4	2
25	Qurbaniyazov	Nazarbek	2003-03-30	1	2	1

talaba_id	kurs_id
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5	4
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26	7
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26	6
41	4
41	6
39	5
39	1
43	1
43	6
31	5

FK

FK

talabalar_kurslari

id	kurs_nomi
1	Pythonda dasturlash
2	Kompyuter grafikasi
3	C++ da dasturlash
4	Stol tennis
5	Ingliz tili
6	MySQL Ma'lumotlar bazasi
7	Valleyball
8	Kibersport
9	Football
10	Javada dasturlash

kurslar



SAVOLLAR?