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

Jadvallarni toʻgʻri 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

Koʻproq joy olinadi -> Koʻp 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	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	Oʻrinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Roʻzimboy	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	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	Oʻrinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Roʻzimboy	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
2	Xabibullayev Abrorbek	2000-08-04	911-21	3	Grant	Footboll, 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	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	Oʻrinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Roʻzimboy	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 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	Footboll, Kompyuter grafikasi
1	Ismoilov Abdulla	1998-02-24	971-22	2	Grant	C++, Stol tennis, Kiber sport
43	Oʻrinov 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	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	Oʻrinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Roʻzimboy	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 = "Football"

tartib_ ragami	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	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	Oʻrinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Roʻzimboy	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	Oʻrinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Roʻzimboy	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) boʻlishi 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 oʻzaro bogʻlash 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	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	Oʻrinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Roʻzimboy	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) boʻlishi 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	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	Oʻrinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Roʻzimboy	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) boʻlishi 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	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	Oʻrinov Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash, MySQL DB
31	Norimbetov Roʻzimboy	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	Footboll	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	Oʻrinov	Xalilla	2000-01-10	912-21	3	Grant	Pythonda dasturlash	MySQL DB	NULL
31	Norimbetov	Roʻzimboy	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	Oʻrinov	Xalilla	2000-01-10	3
31	Norimbetov	Roʻzimboy	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
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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	Footboll



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	Oʻrinov	Xalilla	2000-01-10	3
31	Norimbetov	Roʻzimboy	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

guruhlar

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

shartnomalar

	id	shartnoma_turi
	1	Grant
	2	Kontrakt
•	1	1
	PK	UK

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			





Jadvallarni bir biriga bogʻlash usullari

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

Bir jadvaldagi bitta qator ikkinchi jadvaldagi bitta qatorga mos kelishi

2. Birga koʻp bogʻlanish -> 1:n

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

3. Koʻpga koʻp bogʻlanish -> n:n

Bir jadvaldagi koʻp qatorlar ikkinchi jadvaldagi koʻp qatorlarga mos kelishi, Bu bogʻlanishdan foydalanish uchun qoʻshimcha jadval yaratib ikkala jadvalni ham u bilan 1:n qilish lozim.

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

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			
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26	Abdullayeva	Nilufar	1999-06-03	4			
41	Tajiyeva	Umida	1999-10-25	3			
39	Raximberganov	Temurbek	2001-10-05	3			
43	Oʻrinov	Xalilla	2000-01-10	3			
31	Norimbetov	Roʻzimboy	2002-07-10	4			
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9	Kuchkarov	Dilshodbek	1999-06-11	3			
29	Abdullayeva	Orzigul	2002-09-07	1			
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12	Samandarov	Egamberdi	2000-12-03	3			
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talabalar

		taiabaia	.		
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	
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26	Abdullayeva	Nilufar	1999-06-03	4	
41	Tajiyeva	Umida	1999-10-25	3	
39	Raximberganov	Temurbek	2001-10-05	3	
43	Oʻrinov	Xalilla	2000-01-10	3	
31	Norimbetov	Roʻzimboy	2002-07-10	4	
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29	Abdullayeva	Orzigul	2002-09-07	1	
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25	Qurbaniyazov	Nazarbek	2003-03-30	1	

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PK

talabalar



			· -		•
id	familiya	ism	t_sanasi	bosqich	guruh_id
5	Bekchanov	Asadbek	1997-03-29	4	
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41	Tajiyeva	Umida	1999-10-25	3	
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31	Norimbetov	Roʻzimboy	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
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4	921-21
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8	961-20
9	971-20
10	971-22

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29	Abdullayeva	Orzigul	2002-09-07	1	
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12	Samandarov	Egamberdi	2000-12-03	3	
10	Artikov	Doniyor	2001-05-28	3	
25	Qurbaniyazov	Nazarbek	2003-03-30	1	

guruhlar

guruh

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911-23

912-21

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931-23

932-20

951-21

961-20

971-20

971-22

	PK					FK	
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2	26 AI	bdullayeva	Nilufar	1999-06-03	4	9	
4	41	Tajiyeva	Umida	1999-10-25	3	7	
(39 Rax	kimberganov	Temurbek	2001-10-05	3	3	
4	43	Oʻrinov	Xalilla	2000-01-10	3	3	
(31 N	lorimbetov	Roʻzimboy	2002-07-10	4	6	
	8	Sotliqov	Dastonbek	2004-08-22	2	10	
	9 k	Kuchkarov	Dilshodbek	1999-06-11	3	1	
2	29 AI	bdullayeva	Orzigul	2002-09-07	1	5	
(37 N	Nurullayev	Temur	2002-09-25	4	8	
,	12 Sa	amandarov	Egamberdi	2000-12-03	3	1	
,	10	Artikov	Doniyor	2001-05-28	3	4	
2	25 Qu	ırbaniyazov	Nazarbek	2003-03-30	1	2	

guruh 911-21 911-23 3 912-21 921-21 4 931-23 5 932-20 6 951-21 961-20 8 971-20 971-22

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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
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43	Oʻrinov	Xalilla	2000-01-10	3	3
31	Norimbetov	Roʻzimboy	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

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1	Grant
2	Kontrakt

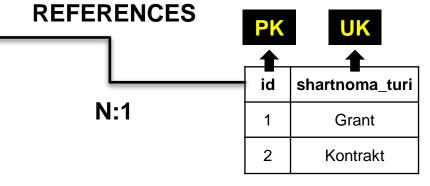
talabalar

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id	familiya	ism	t_sanasi	bosqich	guruh_id	shartnoma_id
5	Bekchanov	Asadbek	1997-03-29	4	8	
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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	Oʻrinov	Xalilla	2000-01-10	3	3	
31	Norimbetov	Roʻzimboy	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

PK		talabal	ar		FK	FK
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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	Oʻrinov	Xalilla	2000-01-10	3	3	
31	Norimbetov	Roʻzimboy	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	



PK	l	talabal	ar		FK	FK
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	Oʻrinov	Xalilla	2000-01-10	3	3	1
31	Norimbetov	Roʻzimboy	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

REFERENCES

Id	Shartnoma_turi	
N:1	1	Grant
2	Kontrakt	

talabalar





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	Oʻrinov	Xalilla	2000-01-10	3	3	1
31	Norimbetov	Roʻzimboy	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

PK	UK
	•
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

Bir biriga tegishli jadvallarni oʻzaro bogʻlash kerak

Τ 🕳		4			FK	FK
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id	familiya	ism	t_sanasi	bosqich	guruh_id	shartnoma_id
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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
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41	Tajiyeva	Umida	1999-10-25	3	7	2
39	Raximberganov	Temurbek	2001-10-05	3	3	2
43	Oʻrinov	Xalilla	2000-01-10	3	3	1
31	Norimbetov	Roʻzimboy	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

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→	talaba_id	kurs_id	
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PK UK				
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			

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Bir biriga tegishli jadvallarni oʻzaro bogʻlash kerak

1:N

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familiya	ism	t_sanasi	bosqich	guruh_id	shartnoma_id
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Xabibullayev	Abrorbek	2000-08-04	3	1	1
Ismoilov	Abdulla	1998-02-24	2	10	1
Abdullayeva	Nilufar	1999-06-03	4	9	2
Tajiyeva	Umida	1999-10-25	3	7	2
Raximberganov	Temurbek	2001-10-05	3	3	2
Oʻrinov	Xalilla	2000-01-10	3	3	1
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Artikov	Doniyor	2001-05-28	3	4	2
Qurbaniyazov	Nazarbek	2003-03-30	1	2	1
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