

پایگاه داده شرکت خدمات کامپیوتری

در این شرکت کامپیوتری چهار بخش امنیت، سخت افزار، نرم افزار و خدمات مشتری وجود دارد.

هر کارمند جزو یکی از این بخش‌ها می‌باشد (یک کارمند به عنوان انبار دار هم داریم).

هر مشتری با یکی یا چند بخش از شرکت مرتبط می‌شود.

یک بخش انبار داریم که هر سرویسی ممکن است نیازمند چند قطعه از انبار باشد.

هر مشتری با یک یا چند سرویس که نیاز دارد مرتبط می‌شود.

در این جدول ID همان کد ملی می‌باشد.

هر کالا در انبار توسط بارکد روی آن تمایز می‌شود.

داده‌ها به صورت فرم جدول:

phone_numbers(ID, phone_number)

addresses(ID, street, ally, Plaque)

Karamandan(ID, first_name, last_name, gender, date_of_birth, age, hired_date)

Modiriat(ID, first_name, last_name, salary, role)

Department(dept_name, dept_salary)

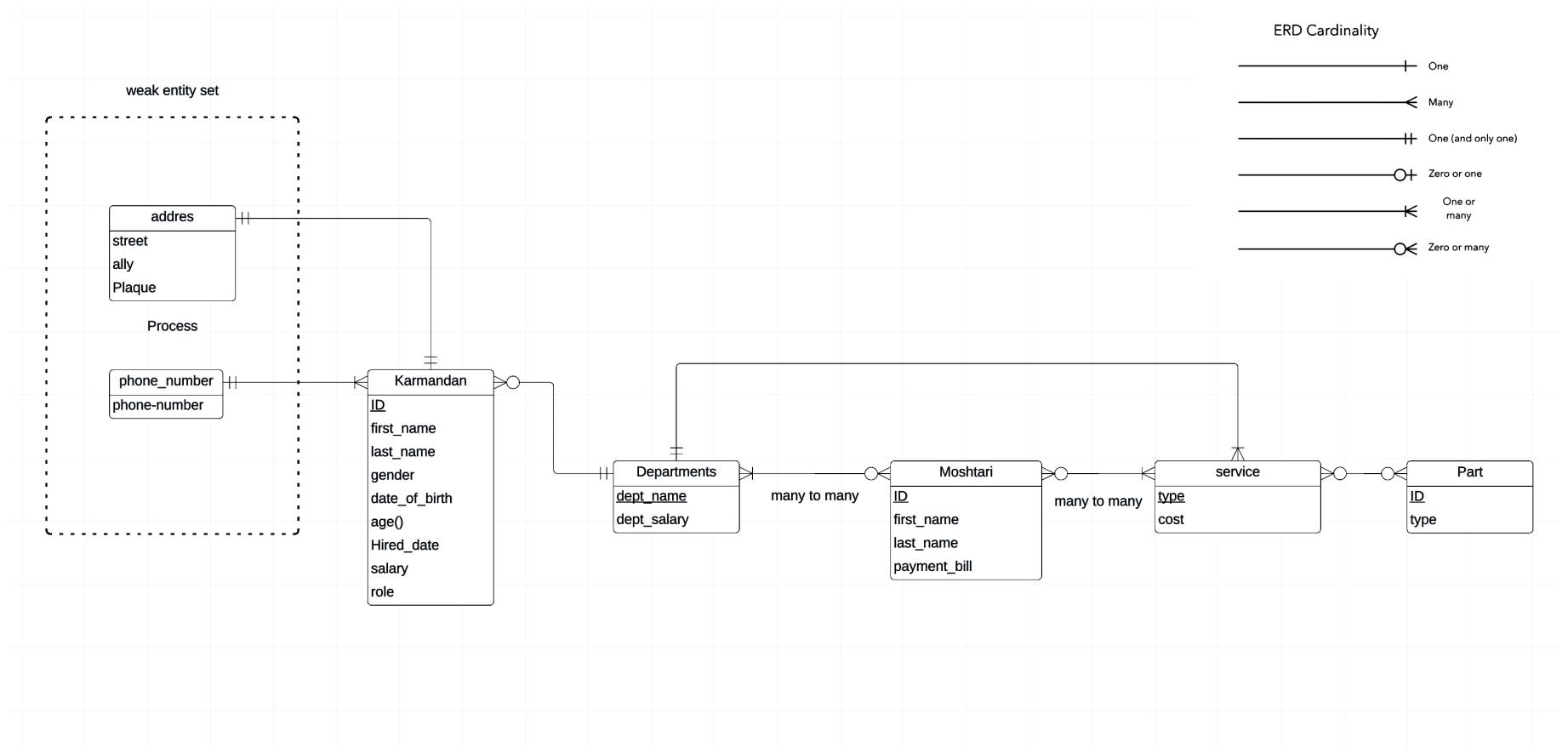
Moshtari(ID, first_name, last_name)

service(type, related_department)

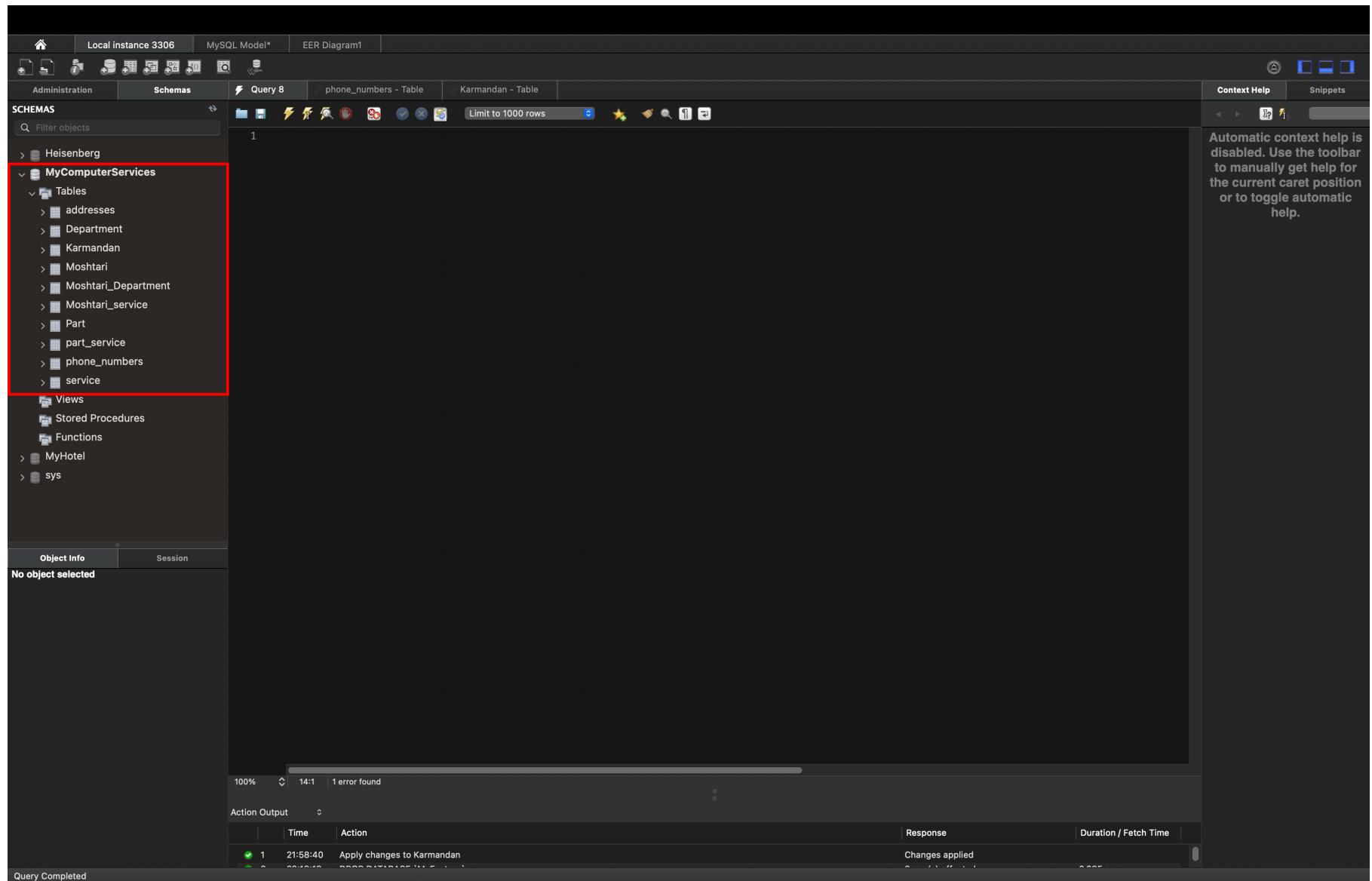
Anbar(barcode, how_many)

مراحل ساخت:

۱. ابتدا بر اساس داده‌های بالا مدل ER خود را رسم می‌کنیم



۲. حالا در برنامه mysql workbench دیتابیس خود را میسازیم و جداول را بر اساس شمای بالا طراحی میکنیم



۲. حال اطلاعات و داده هارا وارد میکنیم.

The screenshot shows the MySQL Workbench interface with the following details:

- Top Bar:** Local instance 3306, MySQL Model*, EER Diagram1, EER Diagram2.
- Schemas Panel:** Shows the current schema is "MyComputerServices". It lists tables such as addresses, Department, Karmandan, Moshtari, Moshtari_Department, Moshtari_service, Part, part_service, phone_numbers, service, Views, Stored Procedures, Functions, MyHotel, and sys.
- Query Editor:** Query 8 is selected. The query is:

```
1  INSERT INTO Karmandan (ID, first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values(1, "Hassan", "Kalantari", "male", "3.2.2001", "27.6.2023",null, "CEO");
2
3  select * from Karmandan;
```
- Result Grid:** Displays the result of the SELECT query. The table has columns: ID, first_name, last_name, gender, date_of_birth, hired_date, dept_name, and role. One row is shown with ID 1, first_name "Hassan", last_name "Kalantari", gender "male", date_of_birth "2003-02-20", hired_date "2027-06-20", dept_name "NULL", and role "CEO".
- Help Panel:** A tooltip on the right says: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."
- Action Output:** Shows the history of actions taken during the session. It includes rows for various errors (e.g., column count mismatch, unknown column, incorrect date value), successful insertions, and the final SELECT statement.
- Status Bar:** Query Completed.

Local instance 3306 MySQL Model* EER Diagram1 EER Diagram2

Administration Schemas Query 8 phone_numbers - Table Karmandan - Table Karmandan - Table Karmandan - Table Karmandan - Table Context... Snippets

SCHEMAS

Filter objects

- Heisenberg
- MyComputerServices
 - Tables
 - addresses
 - Department
 - Columns
 - dept_name
 - dept_salary
 - Indexes
 - Foreign Keys
 - Triggers
 - Karmandan
 - Moshtari
 - Moshtari_Departme...
 - Moshtari_service
 - Part
 - part_service
 - phone_numbers
 - service
 - Views
 - Stored Procedures

Object Info Session

Table: Karmandan

Columns:

ID	first_name	last_name	gender	date_of_birth	hired_date	dept_name	role
int AI PK	varchar(45)	varchar(45)	varchar(10)	date	date	varchar(45)	varchar(45)
	Hassan	Kalantari	male	2001-01-03	2023-06-27	HULL	CEO
	Jafar	Parahl	male	2005-06-19	2023-06-27	Hardware	employee
	Zahra	Bolbol	female	2019-09-06	2023-06-27	Software	employee
	Hamed	Behdad	male	1987-05-23	2023-06-27	Software	employee
	Mohammad	Jebeli	male	1989-06-19	2023-06-27	Software	employee
	Fereshte	Sedighi	female	1995-11-13	2023-06-27	Hardware	employee
	Sanaz	Navidi	female	2000-11-13	2023-06-27	Customer services	employee
	HULL	HULL	HULL	HULL	HULL	HULL	HULL

Result Grid Filter Rows: Search Edit: Export/Import: Result Grid Form Editor Field Types

ID	first_name	last_name	gender	date_of_birth	hired_date	dept_name	role
1	Hassan	Kalantari	male	2001-01-03	2023-06-27	HULL	CEO
2	Jafar	Parahl	male	2005-06-19	2023-06-27	Hardware	employee
3	Zahra	Bolbol	female	2019-09-06	2023-06-27	Software	employee
4	Hamed	Behdad	male	1987-05-23	2023-06-27	Software	employee
5	Mohammad	Jebeli	male	1989-06-19	2023-06-27	Software	employee
6	Fereshte	Sedighi	female	1995-11-13	2023-06-27	Hardware	employee
7	Sanaz	Navidi	female	2000-11-13	2023-06-27	Customer services	employee
HULL	HULL	HULL	HULL	HULL	HULL	HULL	HULL

Karmandan 2 Karmandan 23 Apply

Action Output

Time	Action	Response	Duration / Fetch Time
23:13:27	INSERT INTO ... 1 row(s) affected		0.00020 sec
51	select * fr... 4 row(s) returned		0.00098 sec / 0.000...
52	INSERT IN... 1 row(s) affected		0.0025 sec
53	select * fr... 5 row(s) returned		0.00099 sec / 0.000...
54	Update Ka... 1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0		0.0026 sec
55	select * fr... 5 row(s) returned		0.00098 sec / 0.000...
56	INSERT IN... 1 row(s) affected		0.0031 sec
57	select * fr... 6 row(s) returned		0.0016 sec / 0.0001...
58	Update Ka... 1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0		0.0023 sec
59	select * fr... 6 row(s) returned		0.00093 sec / 0.000...
60	select * fr... 3 row(s) returned		0.0026 sec / 0.0001...
61	INSERT IN... 1 row(s) affected		0.0050 sec
62	select * fr... 7 row(s) returned		0.00076 sec / 0.000...

Query Completed

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Local instance 3306 MySQL Model* EER Diagram1 EER Diagram2

Administration Schemas Query 8 phone_numbers - Table Karmandan - Table Karmandan - Table Karmandan - Table Context... Snippets

SCHEMAS

Filter objects

- Heisenberg
- MyComputerServices
 - Tables
 - addresses
 - Department
 - Columns
 - dept_name
 - dept_salary
 - Indexes
 - Foreign Keys
 - Triggers
 - Karmandan
 - Moshtari
 - Moshtari_Departme...
 - Moshtari_service
 - Part
 - part_service
 - phone_numbers
 - service
 - Views
 - Stored Procedures

Object Info Session

Table: Karmandan

Columns:

ID	int AI PK
first_name	varchar(45)
last_name	varchar(45)
gender	varchar(10)
date_of_birth	date
hired_date	date
dept_name	varchar(45)
role	varchar(45)

Query 8 Limit to 1000 rows

```

1 INSERT INTO Karmandan (ID, first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values(1, "Hassan", "Kalantri", "male", "3.2.2001", "27.6.2023",null, "CEO");
2
3 select * from Karmandan;
4 select * from Department;
5
6 INSERT INTO Karmandan (first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values("Jafar", "panahi", "male", "5.6.199", "27.6.2023","Hardware", "employee");
7
8 INSERT INTO Department value("Hardware", 250000, ("Software", 200000, ("Customer services", 100000));
9
10 Update Karmandan set ID=3 where ID=4;
11 Update Karmandan set date_of_birth="2001-1-3" where ID=1;
12 Update Karmandan set hired_date="2023-6-27" where ID=2;
13 Update Karmandan set gender="male" where ID=5;
14 Update Karmandan set first_name="Fereshte" where ID=6;
15
16 INSERT INTO Karmandan (first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values("Zahra", "Babol", "female", "1990-6-19", "2023-6-27", "Software", "employee");
17 INSERT INTO Karmandan (first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values("Mohammad", "Jebeli", "female", "1989-6-19", "2023-6-27", "Software", "employee");
18 INSERT INTO Karmandan (ID, first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values(4, "Hamed", "Behdad", "male", "1987-5-23", "2023-6-27", "Software", "employee");
19 INSERT INTO Karmandan (first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values("Fereshte", "Sedigh", "female", "1995-11-13", "2023-6-27", "Hardware", "employee");
20 INSERT INTO Karmandan (first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values("Sanaz", "Navid", "female", "2008-11-13", "2023-6-27", "Customer services", "employee");
21
22

```

Result Grid

dept_name	dept_salary
Customer services	100000
Hardware	250000
Software	200000
HULL	HULL

Form Editor

Field Types

21:4

Action Output

Time	Action	Response	Duration / Fetch Time
23:15:29	Select * fr...	4 row(s) returned	0.00090 sec / 0.000...
23:15:06	INSERT IN...	1 row(s) affected	0.0025 sec
23:15:08	select * fr...	5 row(s) returned	0.00099 sec / 0.000...
23:15:57	Update Kar...	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0	0.0026 sec
23:15:59	select * fr...	5 row(s) returned	0.00098 sec / 0.000...
23:16:58	INSERT IN...	1 row(s) affected	0.0031 sec
23:17:08	select * fr...	6 row(s) returned	0.0016 sec / 0.00001...
23:17:37	Update Kar...	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0	0.0023 sec
23:17:38	select * fr...	6 row(s) returned	0.00093 sec / 0.000...
23:24:52	select * fr...	3 row(s) returned	0.0026 sec / 0.00001...
23:25:11	INSERT IN...	1 row(s) affected	0.0050 sec
23:25:14	select * fr...	7 row(s) returned	0.00076 sec / 0.0000...
23:26:30	select * fr...	3 row(s) returned	0.0018 sec / 0.00001...

Query Completed

Local instance 3306 MySQL Model* EER Diagram1 EER Diagram2

Administration Schemas Query 8 phone_numbers - Table Karmandan - Table Karmandan - Table Karmandan - Table Karmandan - Table service - Table Context... Snippets

SCHEMAS

- > addresses
- Department
 - Columns
 - dept_name
 - dept_salary
 - Indexes
 - Foreign Keys
 - Triggers
- Karmandan
- Moshtari
- Moshtari_Departme...
- Moshtari_service
- Part
- part_service
- phone_numbers
- service
 - Columns
 - ID
 - type
 - cost
 - dept_name
 - Indexes

Object Info Session

Table: service

Columns:

ID	int PK
type	varchar(45)
cost	decimal(12,2)
dept_name	varchar(45)

Query 8

```

11 • Update Karmandan set date_of_birth="2001-1-3" where ID=1;
12 • Update Karmandan set hired_date="2023-6-27" where ID=2;
13 • Update Karmandan set gender="male" where ID=5;
14 • Update Karmandan set first_name="Fereshte" where ID=6;
15
16 • INSERT INTO Karmandan (first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values("Zahra", "Bolboli", "female", "1999-6-19", "2023-6-27", "Software", "employee");
17 • INSERT INTO Karmandan (first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values("Mohammad", "Jebeli", "female", "1989-6-19", "2023-6-27", "Software", "employee");
18 • INSERT INTO Karmandan (ID, first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values(4, "Hamed", "Behdad", "male", "1987-5-23", "2023-6-27", "Software", "employee");
19 • INSERT INTO Karmandan (first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values("Fereshte", "Sedighi", "female", "1995-11-13", "2023-6-27", "Hardware", "employee");
20 • INSERT INTO Karmandan (first_name, last_name, gender, date_of_birth, hired_date, dept_name, role) values("Sanaz", "Navidi", "female", "2000-11-13", "2023-6-27", "Customer services");
21
22 • select * from service;
23
24 • INSERT INTO service values(101, "Nasb Windows", 200000, "Software");
25 • INSERT INTO service values(105, "Khadamat pas az foroosh", 0, "Customer services");
26
27
  
```

Result Grid

ID	type	cost	dept_name
101	Nasb Windows	200000.00	Software
102	virus koshi	200000.00	Software
103	Assemble system	900000.00	Hardware
104	servis system	500000.00	Hardware
105	khadamat pas az foroosh	0.00	Customer services
HULL	HULL	HULL	HULL

Action Output

Time	Action	Response	Duration / Fetch Time
59	20-20-10	Apply chd...	error 1055: Cannot change column 'ID': used in a foreign key constraint 'service_ID' of table 'MyComputerServices.Moshtari_Service' SQL Statement: ALTER TABLE `MyComputerServices`...
66	23:28:33	Apply cha...	error 1833: Cannot change column 'ID': used in a foreign key constraint 'service_ID' of table 'MyComputerServices.Moshtari_Service' SQL Statement: ALTER TABLE `MyComputerServices`...
67	23:30:15	INSERT IN...	1 row(s) affected
68	23:30:45	SELECT *...	Error Code: 1146. Table 'mycomputerservices.services' doesn't exist
69	23:30:46	SELECT *...	Error Code: 1146. Table 'mycomputerservices.services' doesn't exist
70	23:31:07	select * fr...	1 row(s) returned
71	23:31:36	INSERT IN...	1 row(s) affected
72	23:31:38	select * fr...	2 row(s) returned
73	23:32:04	INSERT IN...	1 row(s) affected
74	23:32:07	select * fr...	3 row(s) returned
75	23:32:43	INSERT IN...	1 row(s) affected
76	23:33:12	INSERT IN...	1 row(s) affected
77	23:33:15	select * fr...	5 row(s) returned

Query Completed

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

۴. حال چند query برای چک کردن اطلاعات میگیریم

The screenshot shows the MySQL Workbench interface with the following details:

- Query Editor:** Contains the following SQL code:

```
23
24 • INSERT INTO service values(101, "Nasb Windows", 200000, "Software");
25 • INSERT INTO service values(105, "khadamat pas az foroosh", 0, "Customer services");
26
27 • select * from Moshtari;
28
29 • INSERT INTO Moshtari values(1, "Jahan", "Hemati", 23000);
30 • INSERT INTO Moshtari values(2, "Mohammad", "Esfahani", 54000);
31 • INSERT INTO Moshtari values(3, "Ghasem", "Ali Nezhad", 145000);
32 • INSERT INTO Moshtari values(4, "Elham", "Piri", 273000);
33 • INSERT INTO Moshtari values(5, "Hatam", "Kabiri", 76000);
34
35
36 • select * from Moshtari where payment_bill>100000;
```
- Result Grid:** Displays the results of the last query:

ID	first_name	last_name	payment_bill
3	Ghasem	Ali Nezhad	145000.00
4	Elham	Piri	273000.00
HULL	HULL	HULL	HULL
- Action Output:** Shows the history of actions taken during the session:

Time	Action	Response	Duration / Fetch Time
70	INSERT IN...	1 row(s) affected	0.0024 sec
77	select * fr...	5 row(s) returned	0.0012 sec / 0.00001...
78	Apply cha...	Error 1833: Cannot change column 'ID': used in a foreign key constraint 'Moshtari_id' of table 'MyComputerServices.Moshtari_Department' SQL Statement: ALTER TABLE `MyComputerServ...	0.0042 sec
79	23:36:38	INSERT IN... 1 row(s) affected	0.0013 sec / 0.00001...
80	23:36:54	select * fr... 1 row(s) returned	0.0027 sec
81	23:37:17	INSERT IN... 1 row(s) affected	0.0019 sec
82	23:37:42	INSERT IN... 1 row(s) affected	0.0026 sec
83	23:38:10	INSERT IN... 1 row(s) affected	0.0024 sec
84	23:38:37	INSERT IN... 1 row(s) affected	0.00080 sec / 0.000...
85	23:38:39	select * fr... 5 row(s) returned	0.0017 sec
86	23:39:52	select * fr... Error Code: 1054. Unknown column 'cost' in 'where clause'	0.0019 sec / 0.00001...
87	23:40:01	select * fr... 5 row(s) returned	0.0023 sec / 0.00000...
88	23:40:15	select * fr... 2 row(s) returned	
- Object Explorer:** Shows the schema structure of the database, including tables like Heisenberg, MyComputerServices, and Moshtari.
- Session Information:** Shows the current session details.

Local instance 3306 | MySQL Model* | EER Diagram1 | EER Diagram2

Administration | Schemas | Query 8 | phone_numbers - Table | Karmandan - Table | Karmandan - Table | Karmandan - Table | service - Table | Moshtari - Table | Context... | Snippets

SCHEMAS

Filter objects

- > Heisenberg
- > MyComputerServices
 - Tables
 - > addresses
 - > Department
 - > Karmandan
 - > Moshtari
 - > Moshtari_Departme...
 - > Moshtari_service
 - Columns
 - service_ID
 - Moshtari_ID
 - > Indexes
 - > Foreign Keys
 - > Triggers
 - > Part
 - > part_service
 - > phone_numbers
 - > service
 - Views
 - Stored Procedures

Object Info | Session

Column: service_ID

Definition: service_ID int PK

Karmandan 2 | Karmandan 35 | Apply

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

```

24 • INSERT INTO service values(101, "Nash Windows", 200000, "Software");
25 • INSERT INTO service values(105, "Khadamat pas az foroosh", 0, "Customer services");
26
27 • select * from Moshtari;
28
29 • INSERT INTO Moshtari values(1, "Jahan", "Hemati", 23000);
30 • INSERT INTO Moshtari values(2, "Mohammad", "Esfahani", 54000);
31 • INSERT INTO Moshtari values(3, "Ghasem", "Ali Nezhad", 145000);
32 • INSERT INTO Moshtari values(4, "Elham", "Piri", 273000);
33 • INSERT INTO Moshtari values(5, "Hatam", "Kabiri", 76000);
34
35
36 • select * from Moshtari where payment_bill>100000;
37 • select * from Karmandan where dept_name="Software";
38
39
40
41
  
```

Result Grid | Filter Rows: Search | Edit: | Export/Import: | Result Grid | Form Editor | Field Types

ID	first_name	last_name	gender	date_of_birth	hired_date	dept_name	role
3	Zahra	Bolbol	female	2019-09-06	2023-06-27	Software	employee
4	Hamed	Behdad	male	1987-05-23	2023-06-27	Software	employee
5	Mohammad	Jebeli	male	1989-06-19	2023-06-27	Software	employee
HULL	HULL	HULL	HULL	HULL	HULL	HULL	HULL

Action Output

Time	Action	Response	Duration / Fetch Time
23:37:04	Select * ...	1 row(s) returned	0.0003 sec / 0.00001...
✓ 81	23:37:17	INSERT IN... 1 row(s) affected	0.0027 sec
✓ 82	23:37:42	INSERT IN... 1 row(s) affected	0.0019 sec
✓ 83	23:38:10	INSERT IN... 1 row(s) affected	0.0026 sec
✓ 84	23:38:37	INSERT IN... 1 row(s) affected	0.0024 sec
✓ 85	23:38:39	select * fr... 5 row(s) returned	0.00080 sec / 0.000...
✗ 86	23:39:52	select * fr... Error Code: 1054. Unknown column 'cost' in 'where clause'	0.0017 sec
✓ 87	23:40:01	select * fr... 5 row(s) returned	0.0019 sec / 0.00001...
✓ 88	23:40:15	select * fr... 2 row(s) returned	0.0023 sec / 0.0000...
✓ 89	23:41:59	select * fr... 0 row(s) returned	0.0015 sec / 0.0000...
✗ 90	23:43:11	select * fr... Error Code: 1146. Table 'mycomputerservices.karakonan' doesn't exist	0.0024 sec
✗ 91	23:43:25	select * fr... Error Code: 1146. Table 'mycomputerservices.karakonan' doesn't exist	0.0016 sec
✓ 92	23:43:48	select * fr... 3 row(s) returned	0.0016 sec / 0.00001...

Query Completed

The screenshot shows the MySQL Workbench interface with the following details:

- Top Bar:** Local instance 3306, MySQL Model*, EER Diagram1, EER Diagram2.
- Schemas:** Heisenberg, MyComputerServices (selected). The MyComputerServices schema contains tables: addresses, Department, Karmandan, Moshtari, Moshtari_Departme..., Moshtari_service, and Columns (with service_ID and Moshtari_ID selected).
- Query Editor:** Contains 38 SQL statements for inserting data into service, Moshtari, and Karmandan tables. The last statement is highlighted: "select * from Karmandan where role!=\"employee\";".
- Result Grid:** Shows the results of the last query, which is empty.
- Action Output:** Displays the history of actions taken during the session, including insertions and a failed select query due to an unknown column 'cost'.

Local instance 3306 MySQL Model* EER Diagram1 EER Diagram2

Administration Schemas Query 8 phone_numbers - Table Karmandan - Table Karmandan - Table Karmandan - Table service - Table Moshtari - Table Context... Snippets

SCHEMAS

Filter objects

> Heisenberg
 < MyComputerServices
 < Tables
 < addresses
 < Department
 < Karmandan
 < Moshtari
 < Moshtari_Departme...
 < Moshtari_service
 < Columns
 < service_ID
 < Moshtari_ID
 < Indexes
 < Foreign Keys
 < Triggers
 < Part
 < part_service
 < phone_numbers
 < service
 < Views
 < Stored Procedures

Object Info Session

Column: service_ID

Definition: service_ID int PK

Result Grid Filter Rows: Search Export/Import:

ID	type	cost	dept_name
103	Assemble system	900000.00	Hardware
104	servis system	500000.00	Hardware
HULL	HULL	HULL	HULL

Form Editor Field Types

Action Output

Time	Action	Response	Duration / Fetch Time
23:37:42	INSERT INTO...	1 row(s) affected	0.0001 sec
23:38:10	INSERT INTO...	1 row(s) affected	0.0026 sec
23:38:37	INSERT INTO...	1 row(s) affected	0.0024 sec
23:38:39	select * fr...	5 row(s) returned	0.00080 sec / 0.000...
23:39:52	select * fr...	Error Code: 1054. Unknown column 'cost' in 'where clause'	0.0017 sec
23:40:01	select * fr...	5 row(s) returned	0.0019 sec / 0.00001...
23:40:15	select * fr...	2 row(s) returned	0.0023 sec / 0.00000...
23:41:59	select * fr...	0 row(s) returned	0.0015 sec / 0.00000...
23:43:11	select * fr...	Error Code: 1146. Table 'mycomputerservices.karakonan' doesn't exist	0.0024 sec
23:43:25	select * fr...	Error Code: 1146. Table 'mycomputerservices.karakonan' doesn't exist	0.0016 sec
23:43:48	select * fr...	3 row(s) returned	0.0016 sec / 0.00001...
23:45:04	select * fr...	1 row(s) returned	0.0011 sec / 0.00001...
23:46:01	select * fr...	2 row(s) returned	0.00072 sec / 0.0000...

Query Completed

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

دیتابیس ما آماده است :

اگر بخواهیم میتوانیم از خود mysql workbench هم نمودار بگیریم تا متوجه بشویم آیا درست کارمان را انجام دادیم یا خیر
پس این کار را میکنیم

نکته: همان طور که مشخص است جداول addresses و phone_numbers weak entity set از نوع میباشند و در این شما متصل نشان داده نمی شوند.

