



DATABASE SYSTEMS

CSE355

PROJECT REPORT



Microsoft®
SQL Server®

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PROCEDURES

1) PROJECT EXPLANATION

Project Name

“ Robotics Products Trading (E-Commerce Area) ”

Scope of The Project

The project is about robotics activities and products. We decided to work in e-commerce area and we chose robotics area for working. We will make a e-commerce website about robotics products.

Description

We will work onto e-commerce area about robotics products. We live in technology age. The world is developing with artificial intelligence, industrial activities and robotics breakthroughs. As a result of these, the new generation cares these areas. So, we thought about these subjects and decided to build a website about robotics products. The project will contain detailed table structures, multiple relationships and built-in tasks for database part(“Ms Sql”). We will make website interface part using “Php”, “Html”, “Css”, “JavaScript”, “JQuery”, “Bootstrap”, “Photoshop” Technologies (and many assistant tools).

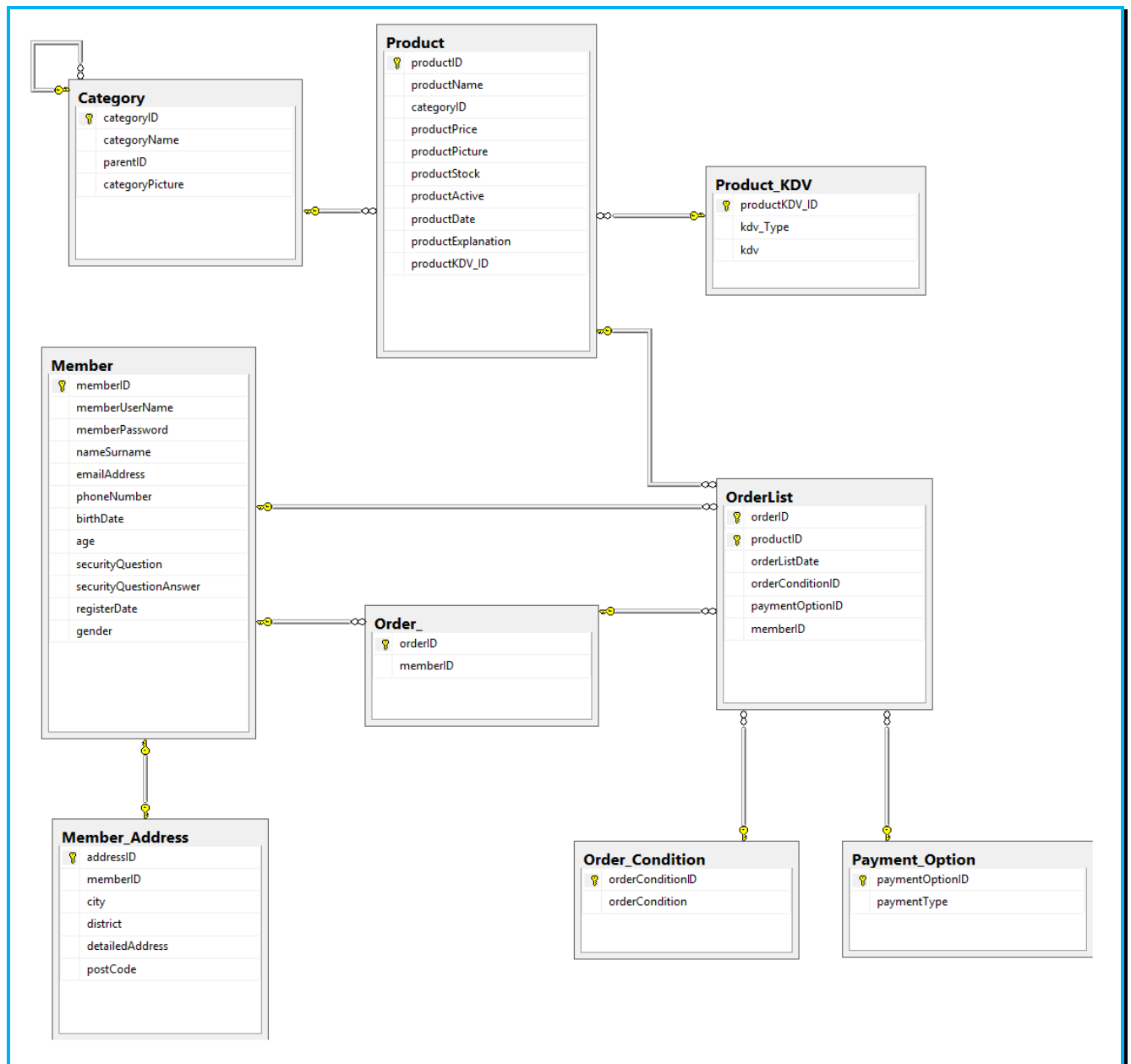
Project Steps

- 1) We arranged a meeting with a “e-commerce company”. We will meet with them for obtaining information about “database (table structures, multiple relationships and built-in tasks)” and “website(Php,Html,Css,Js,JQuery,Bootstrap)” parts. So, we can make a more beautiful website.
- 2) We will create the data tables according to king of products. Then, we will define between tables. After all, we will create many built-in tasks (predefined queries) for doing easier than table operations.
- 3) We finished database part. So, we can start website part. Firstly, we will decide design of website. Then, we will design front-end part of website using “Html”, “Css”, “Js”, “JQuery”, “Bootstrap”. Finally, we will connect website to database using “Php”. So, we can take product information from database and we can show these information onto website.

2) UPDATED E/R DIAGRAMS

MAIN E/R DIAGRAM

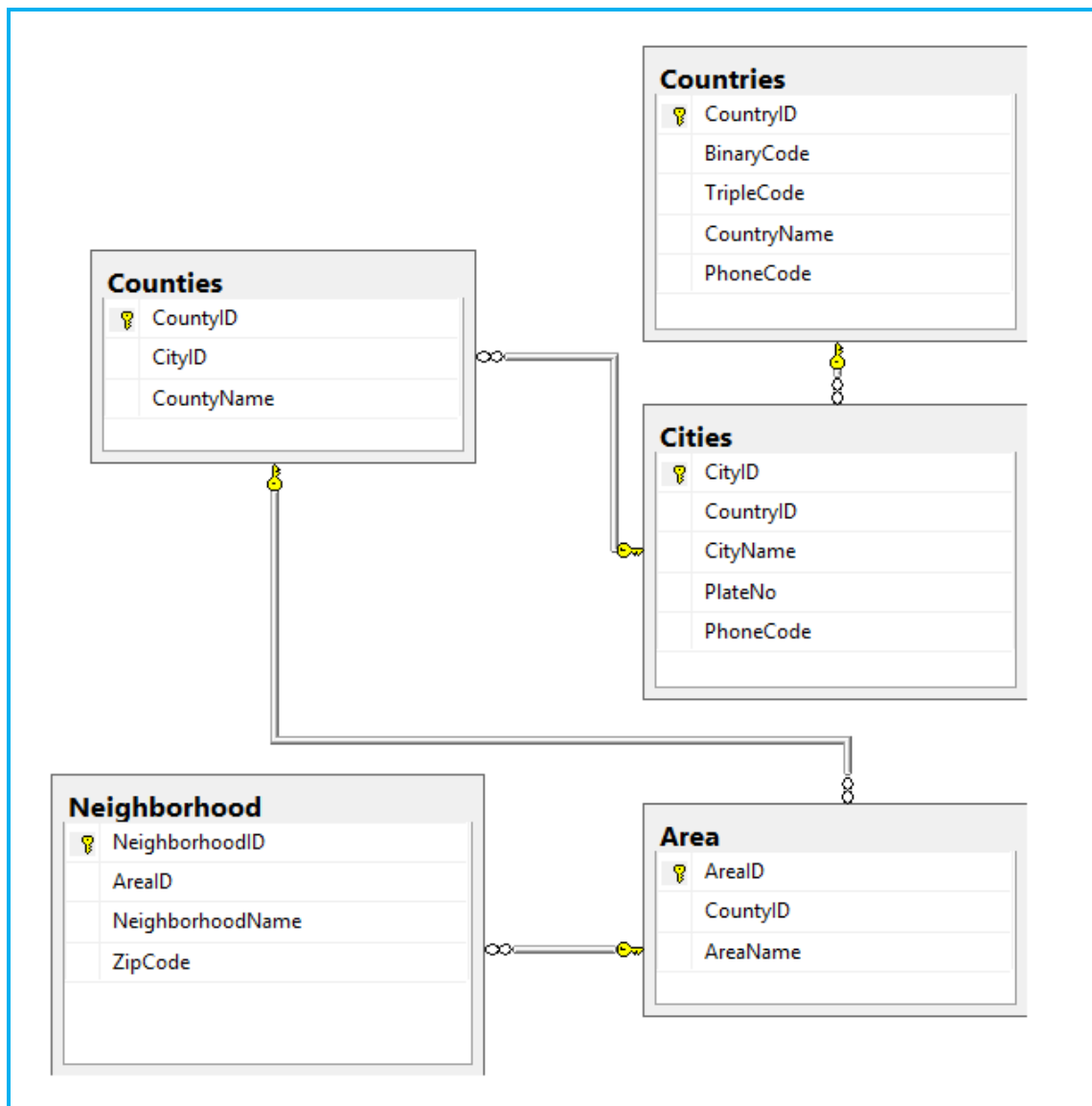
We updated our E/R diagram of e-commerce database. This diagram is main diagram which it contains all main tables.



NOTE: You can find high resolution picture in 'zip' file of project.

ADDRESS E/R DIAGRAM

We added a second E/R diagram into e-commerce database for keeping all address(city, county, area, neighborhood) in Turkey. This diagram is main diagram which it contains all main tables.



NOTE: You can find high resolution picture in 'zip' file of project.

3) THE TABLE DESCRIPTIONS AND REQUIREMENTS ANALYSIS

Member

It contains members that register the website. Every member can trade from this web site. If you give a order, you must register the site. Columns, data types and keys:

COLUMN NAME	DATA TYPE	DESCRIPTION
MemberID (PK)	bigint	It defines unique user ID.
memberUserName	nvarchar(15)	It defines username.
memberPassword	nvarchar(15)	It defines user password.
nameSurname	nvarchar(60)	It defines user name and surname
emailAddress	nvarchar(50)	It defines user e-mail address.
phoneNumber	float	It defines user's phone number.
birthDate	date	It define user's birthdate.
age		It defines user age and this is a calculated value.
securityQuestion	nvarchar(40)	It defines security question for user that keeps security.
securityQuestionAnswer	nvarchar(40)	It defines security answer for user that keeps security.
registerDate	date	It defines register date of the user to the website.
gender	varchar(7)	It defines user's gender.

Constraint:

- “memberID” column constrained by ‘PRIMARY KEY’.
- “memberUserName” and “emailAddress” columns constrained by ‘UNIQUE’.
- “registerDate” column constrained by ‘DEFAULT(GetDate())’.
- “gender” column constrained by ‘CHECK(gender IN ('M','F'))’.

Indice:

- “memberID”

Member Address

This table keeps users' address information.

COLUMN NAME	DATA TYPE	DESCRIPTION
addressID (PK)	int	It defines unique address ID.
memberID (FK)	bigint	It defines unique member ID.
city	nvarchar(30)	It defines member city.
district	nvarchar(30)	It defines member district.
detailedAddress	nvarchar(100)	It defines member detailed address information.
postCode	nvarchar(20)	It defines post code of the district.

Constraint:

- “addressID” column constrained by ‘PRIMARY KEY’.
- “memberID” column constrained by ‘FOREIGN KEY’.
- “city” column constrained by ‘DEFAULT('İstanbul')’.
- “postCode” column constrained by ‘DEFAULT('34000')’.

Indice:

- “addressID” - “memberID”

Order

It bounds “Member” and “OrderList” tables.

COLUMN NAME	DATA TYPE	DESCRIPTION
orderID (PK)	İnt	It defines unique order ID.
memberID (FK)	bigint	It defines unique member ID.

Constraint:

- “orderID” column constrained by ‘PRIMARY KEY’.
- “memberID” column constrained by ‘FOREIGN KEY’.

Indice:

- “orderID” - “memberID”

OrderList

It keeps detailed order infos.

COLUMN NAME	DATA TYPE	DESCRIPTION
OrderID (PK)	int	It defines unique order ID
ProductID (PK)	int	It defines product.
orderListDate	date	It defines order date.
OrderConditionID (FK)	int	It defines order condition.
PaymentOptionID (FK)	int	It defines payment option.
MemberID (FK)	bigint	It defines related member.

Constraint:

- “orderID”, “productID” columns constrained by ‘PRIMARY KEY’.
- “productID”, “orderConditionID”, “paymentOptionID”, “memberID” columns constrained by ‘FOREIGN KEY’.

Indice:

- “orderID”, - “productID”, - “orderConditionID”, - “paymentOptionID”, - “memberID”

Order Condition

It keeps order condition options.

COLUMN NAME	DATA TYPE	DESCRIPTION
orderConditionID (PK)	int	It defines unique identifier.
orderCondition	nvarchar(30)	It defines which order condition

Constraint:

- “orderConditionID” column constrained by ‘PRIMARY KEY’.
- “orderCondition” column constrained by ‘UNIQUE’.

Indice:

- “orderConditionID”

Payment Option

It keeps payment options.

COLUMN NAME	DATA TYPE	DESCRIPTION
paymentOptionID (PK)	int	It defines unique identifier.
paymentType	nvarchar(20)	It defines which payment type.

Constraint:

- “paymentOptionID” column constrained by ‘PRIMARY KEY’.
- “paymentOption” column constrained by ‘UNIQUE’.

Indice:

- “paymentOptionID”

Product

It keeps detailed product informations. Products are heart of the e-commerce web site.

COLUMN NAME	DATA TYPE	DESCRIPTION
productID (PK)	int	It defines unique identifier.
productName	nvarchar(50)	It defines name of the product.
categoryID (FK)	int	It defines category of the product which belongs.
productPrice	nvarchar(10)	It defines price of the product.
productPicture	nvarchar(60)	It defines picture name of the product.
productStock	int	It defines number of stock of the product.
productActive	bit	It defines whether product is active or not.
productDate	date	It defines product addition date.
productExplanation	ntext	It defines product description.
productKDV_ID (FK)	int	It defines product KDV option.

Constraint:

- “productID” column constrained by ‘PRIMARY KEY’.
- “categoryID”, “productKDV_ID” columns constrained by ‘FOREIGN KEY’.
- “productStock” column constrained by ‘CHECK(productStock>=0)’.
- “productActive” column constrained by ‘CHECK(productActive IN (0,1))’.
- “productDate” column constrained by ‘DEFAULT(GetDate())’.

Indice:

- “productID”, - “categoryID”, - “productKDV_ID”

Product KDV

It keeps KDV options.

COLUMN NAME	DATA TYPE	DESCRIPTION
productKDV_ID (PK)	int	It defines unique identifier.
kdv_Type	nvarchar(15)	It defines which KDV type.
kdv	int	It defines KDV value of the type.

Constraint:

- “productKDV_ID” column constrained by ‘PRIMARY KEY’.
- “kdv_Type” column constrained by ‘UNIQUE’.

Indice:

- “productKDV_ID”

Category

It keeps category types. Categories help user to find products easily.

COLUMN NAME	DATA TYPE	DESCRIPTION
categoryID (PK)	int	It defines unique identifier.
categoryName	nvarchar(40)	It defines category name.
parentID (FK)	int	It defines parent ID which specify to category ID.
categoryPicture	nvarchar(60)	It defines category picture name.

Constraint:

- “categoryID” column constrained by ‘PRIMARY KEY’.
- “parentID” column constrained by ‘FOREIGN KEY’, DEFAULT(0), CHECK(parentID>=0).

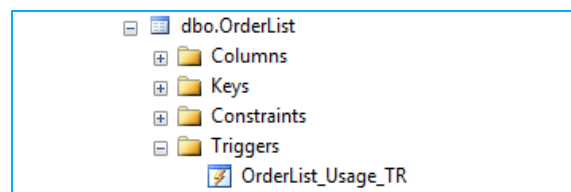
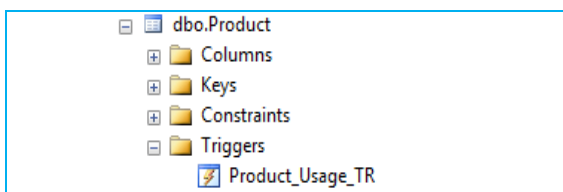
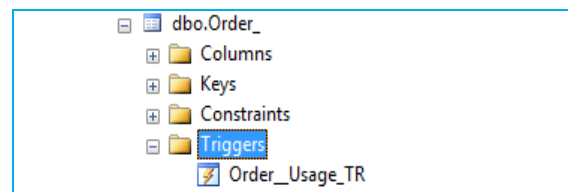
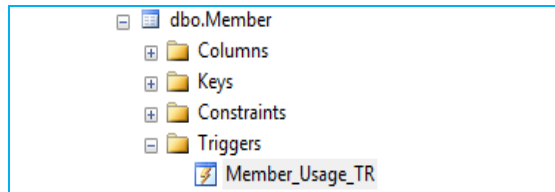
Indice:

- “categoryID”, - “categoryName”, - “parentID”

4) TRIGGER DESCRIPTIONS

We created a “_DatabaseLog” table for keeping all transactions like ‘INSERT’, ‘DELETE’, ‘UPDATE’. For this, **we created triggers for each tables**. When you did any ‘insert’, ‘delete’, ‘update’ operations, the triggers saves all operations into “_DatabaseLog” table.

Sample Triggers:

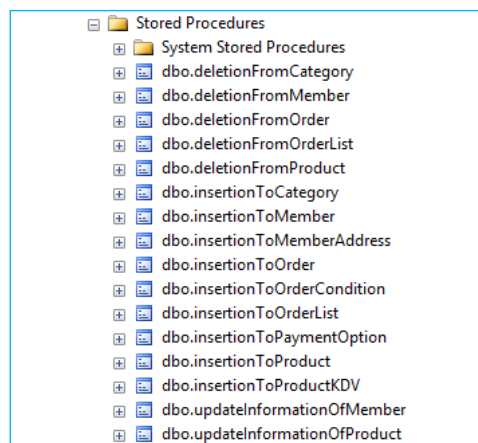


_DatabaseLog Table Logs:

	Log Date	Log Time	Affected Table Name	Activity
▶	2016-12-22	04:12:22	Area	DELETE
	2016-12-22	04:12:39	Area	INSERT
	2016-12-22	04:12:57	Area	UPDATE
	2016-12-22	04:12:57	Area	UPDATE
	2016-12-22	04:12:57	Area	UPDATE
	2016-12-22	04:12:57	Area	UPDATE
*	NULL	NULL	NULL	NULL

5) STORED PROCEDURE DESCRIPTIONS

- We created ‘16 stored procedures’. These procedures makes “insertion, deletion and update” operations for main important tables. So, we can did these operations easily. You can examine “.sql queries in zip file” as more detailed

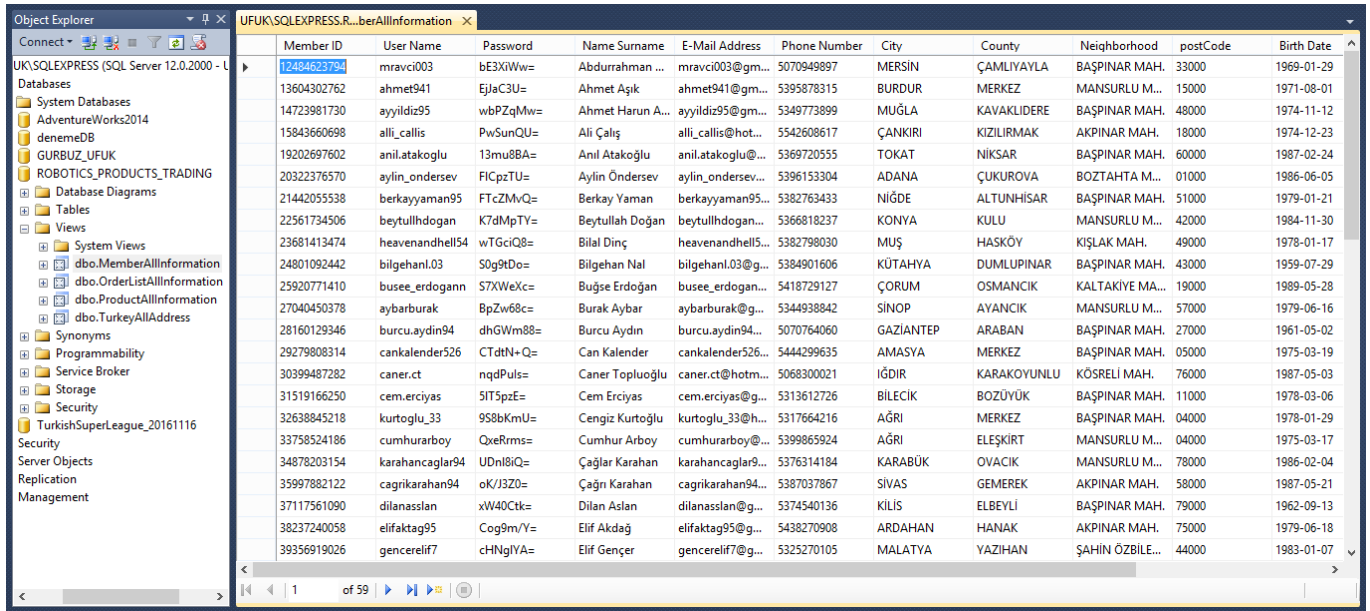


6) VIEW DESCRIPTIONS

- We created '4 views'. We combined some important tables using inner joins. So, we can take datas from website side. You can examine ".sql queries in zip file" as more detailed.

MemberAllInformation View

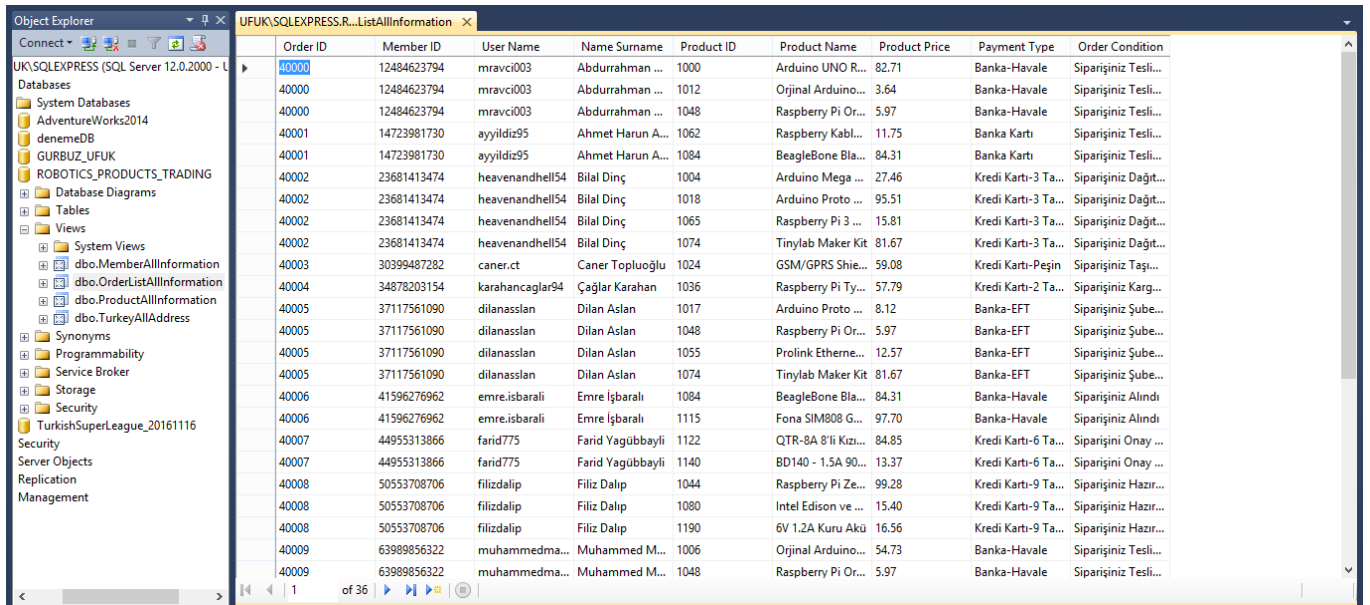
We combined "Member" and "Member_Address" tables for this view. So, we can see information of a Member as a single table.



Member ID	User Name	Password	Name Surname	E-Mail Address	Phone Number	City	County	Neighborhood	postCode	Birth Date
12484623794	mravci003	bE3XWw=	Abdurrahman ...	mravci003@gm...	5070949897	MERSİN	ÇAMLIYAYLA	BAŞPINAR MAH.	33000	1969-01-29
13604302762	ahmet941	EjJaC3U=	Ahmet Aşik	ahmet941@gm...	5395878315	BURDUR	MERKEZ	MANSURLU M...	15000	1971-08-01
14723981730	ayyildiz95	wbPZqMw=	Ahmet Harun A...	ayyildiz95@gm...	5349773899	MUĞLA	KAVAKLIDERE	BAŞPINAR MAH.	48000	1974-11-12
15843660698	alli_callis	PwSunQU=	Ali Çalış	alli_callis@hot...	5542608617	ÇANKIRI	KIZILIRMAK	AKPINAR MAH.	18000	1974-12-23
19202697602	anil.atakoglu	13mu8BA=	Anil Atakoğlu	anil.atakoglu@...	5369720555	TOKAT	NIKSAR	BAŞPINAR MAH.	60000	1987-02-24
20322376570	aylin_ondersev	FlCpzTU=	Aylin Ondersev	aylin_ondersev...	5396153304	ADANA	ÇUKUROVA	BOZTAHTA M...	01000	1986-06-05
21442055538	berkayyaman95	FTcZMvQ=	Berkay Yaman	berkayyaman95...	5382763433	NIĞDE	ALTUNHİSAR	BAŞPINAR MAH.	51000	1979-01-21
22561734506	beytullhdogan	K7dMpTY=	Beytullah Doğan	beytullhdogan...	5366818237	KONYA	KULU	MANSURLU M...	42000	1984-11-30
23681413474	heavenandhell54	wTGciQ8=	Bilal Dinç	heavenandhell5...	5382798030	MUŞ	HASKÖY	KIŞLAK MAH.	49000	1978-01-17
24801092442	bilgehanl.03	S0g9HDo=	Bilgehan Nal	bilgehanl.03@g...	5384901606	KÜTAHYA	DUMLUPINAR	BAŞPINAR MAH.	43000	1959-07-29
25920771410	busee_erdogan	S7XWeKc=	Büşşe Erdoğan	busee_erdogan...	5418729127	ÇORUM	OSMANCIK	KALTAKIYE MA...	19000	1989-05-28
27040450378	aybarburak	BpZw68c=	Burak Aybar	aybarburak@g...	5344938842	SINOP	AYANCIK	MANSURLU M...	57000	1979-06-16
28160129346	burcu.aydin94	dhGWm88=	Burcu Aydın	burcu.aydin94...	5070764060	GAZİANTEP	ARABAN	BAŞPINAR MAH.	27000	1961-05-02
29279808314	cankalender526	CTdtN+Q=	Can Kalender	cankalender526...	5444299635	AMASYA	MERKEZ	BAŞPINAR MAH.	05000	1975-03-19
30399487282	caner.ct	nqdPul=	Caner Topluoğlu	caner.ct@hotmail...	5068300021	İĞDIR	KARAKOVUNLU	KÖŞRELİ MAH.	76000	1987-03-03
31519166250	cem.erciyas	5IT5pzE=	Cem Erciyas	cem.erciyas@g...	5313612726	BİLECİK	BOZÜYÜK	BAŞPINAR MAH.	11000	1978-03-06
32638845218	kurtoglu_33	9S8bKmU=	Cengiz Kurtoglu	kurtoglu_33@h...	5317664216	AĞRI	MERKEZ	BAŞPINAR MAH.	04000	1978-01-29
33758524186	cumhurarboy	QxeRms=	Cumhur Arboy	cumhurarboy@...	5399865924	AĞRI	ELEŞKİRT	MANSURLU M...	04000	1975-03-17
34878203154	karahancaglar94	UDnI8IQ=	Çağlar Karahan	karahancaglar9...	5376314184	KARABÜK	OVACIK	MANSURLU M...	78000	1986-02-04
35997882122	cagrikarahan94	oK/J3Z0=	Çağrı Karahan	cagrikarahan94...	5387037867	SIVAS	GEMEREK	AKPINAR MAH.	58000	1987-05-21
37117561090	dilanasslan	xW40Ctk=	Dilan Aslan	dilanasslan@g...	5374540136	KİLİS	ELBEYLİ	BAŞPINAR MAH.	79000	1962-09-13
38237240058	elifaktag95	Cog9mVY=	Elif Akdağ	elifaktag95@g...	5438270908	ARDAHAN	HANAK	AKPINAR MAH.	75000	1979-06-18
39356919026	gencerelif7	cHNgIYA=	Elif Gençler	gencerelif7@g...	5325270105	MALATYA	YAZIHAN	ŞAHİN ÖZBILE...	44000	1983-01-07

OrderListAllInformation View

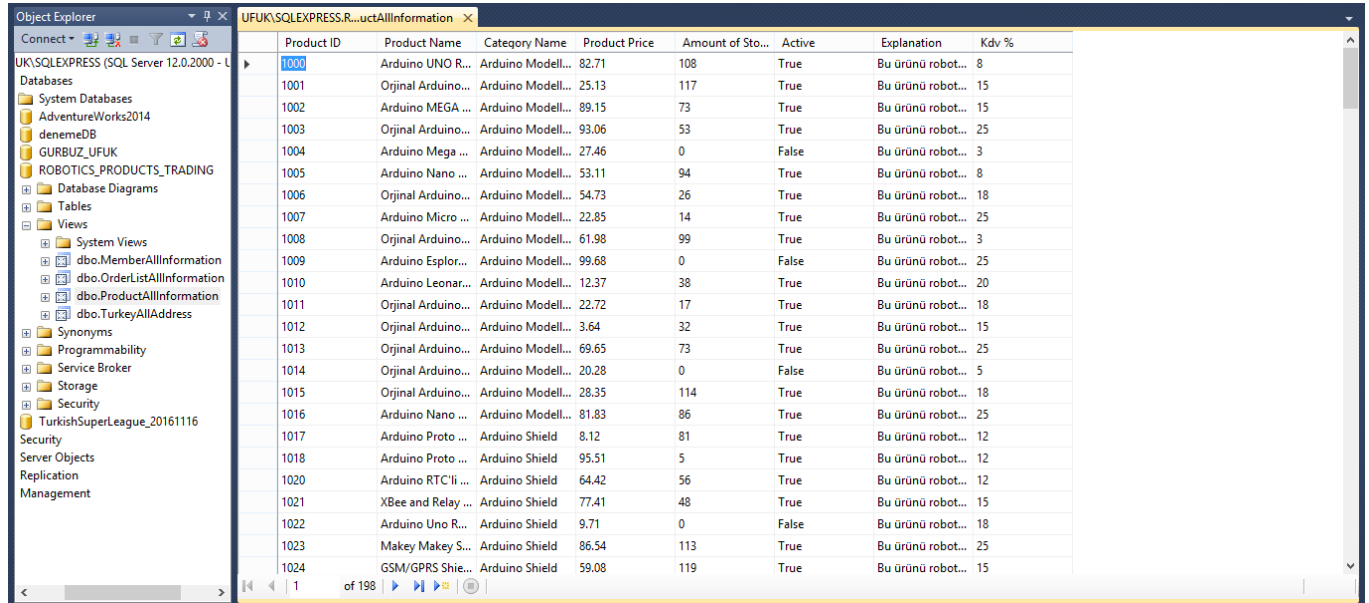
We combined "OrderList", "OrderCondition", "Payment_Option", "Product" and "Member" tables for this view. So, we can see all orders as a single table.



Order ID	Member ID	User Name	Name Surname	Product ID	Product Name	Product Price	Payment Type	Order Condition
40000	12484623794	mravci003	Abdurrahman ...	1000	Arduino UNO R...	82.71	Banka-Havale	Siparişiniz Tesli...
40000	12484623794	mravci003	Abdurrahman ...	1012	Orjinal Arduino...	3.64	Banka-Havale	Siparişiniz Tesli...
40000	12484623794	mravci003	Abdurrahman ...	1048	Raspberry Pi Or...	5.97	Banka-Havale	Siparişiniz Tesli...
40001	14723981730	ayyildiz95	Ahmet Harun A...	1062	Raspberry Kabl...	11.75	Banka Kartı	Siparişiniz Tesli...
40001	14723981730	ayyildiz95	Ahmet Harun A...	1084	BeagleBone Bla...	84.31	Banka Kartı	Siparişiniz Tesli...
40002	23681413474	heavenandhell54	Bilal Dinç	1004	Arduino Mega ...	27.46	Kredi Kartı-3 Ta...	Siparişiniz Dağıt...
40002	23681413474	heavenandhell54	Bilal Dinç	1018	Arduino Proto ...	95.51	Kredi Kartı-3 Ta...	Siparişiniz Dağıt...
40002	23681413474	heavenandhell54	Bilal Dinç	1065	Raspberry Pi 3 ...	15.81	Kredi Kartı-3 Ta...	Siparişiniz Dağıt...
40002	23681413474	heavenandhell54	Bilal Dinç	1074	TinyLab Maker Kit	81.67	Kredi Kartı-3 Ta...	Siparişiniz Dağıt...
40003	30399487282	caner.ct	Caner Topluoğlu	1024	GSM/GPRS Shie...	59.08	Kredi Kartı-Peşin	Siparişiniz Taşı...
40004	34878203154	karahancaglar94	Çağlar Karahan	1036	Raspberry Pi Ty...	57.79	Kredi Kartı-2 Ta...	Siparişiniz Karg...
40005	37117561090	dilanasslan	Dilan Aslan	1017	Arduino Proto ...	8.12	Banka-EFT	Siparişiniz Şube...
40005	37117561090	dilanasslan	Dilan Aslan	1048	Raspberry Pi Or...	5.97	Banka-EFT	Siparişiniz Şube...
40005	37117561090	dilanasslan	Dilan Aslan	1055	Prolink Etherne...	12.57	Banka-EFT	Siparişiniz Şube...
40005	37117561090	dilanasslan	Dilan Aslan	1074	TinyLab Maker Kit	81.67	Banka-EFT	Siparişiniz Şube...
40006	41596276962	emre.isbarali	Emre İşbaralı	1084	BeagleBone Bla...	84.31	Banka-Havale	Siparişiniz Alındı
40006	41596276962	emre.isbarali	Emre İşbaralı	1115	Fona SIM808 G...	97.70	Banka-Havale	Siparişiniz Alındı
40007	44955313866	farid775	Farid Yağubbaylı	1122	QTR-8A 8'li Kızı...	84.85	Kredi Kartı-6 Ta...	Siparişini Onay ...
40007	44955313866	farid775	Farid Yağubbaylı	1140	BD140 - 1.5A 90...	13.37	Kredi Kartı-6 Ta...	Siparişini Onay ...
40008	50553708706	filizdalip	Filiz Dalip	1044	Raspberry Pi Ze...	99.28	Kredi Kartı-9 Ta...	Siparişiniz Hazır...
40008	50553708706	filizdalip	Filiz Dalip	1080	Intel Edison ve ...	15.40	Kredi Kartı-9 Ta...	Siparişiniz Hazır...
40008	50553708706	filizdalip	Filiz Dalip	1190	6V 1.2A Kuru Akü	16.56	Kredi Kartı-9 Ta...	Siparişiniz Hazır...
40009	63989856322	muhammedma...	Muhammed M...	1006	Orjinal Arduino...	54.73	Banka-Havale	Siparişiniz Tesli...
40009	63989856322	muhammedma...	Muhammed M...	1048	Raspberry Pi Or...	5.97	Banka-Havale	Siparişiniz Tesli...

ProductAllInformation View

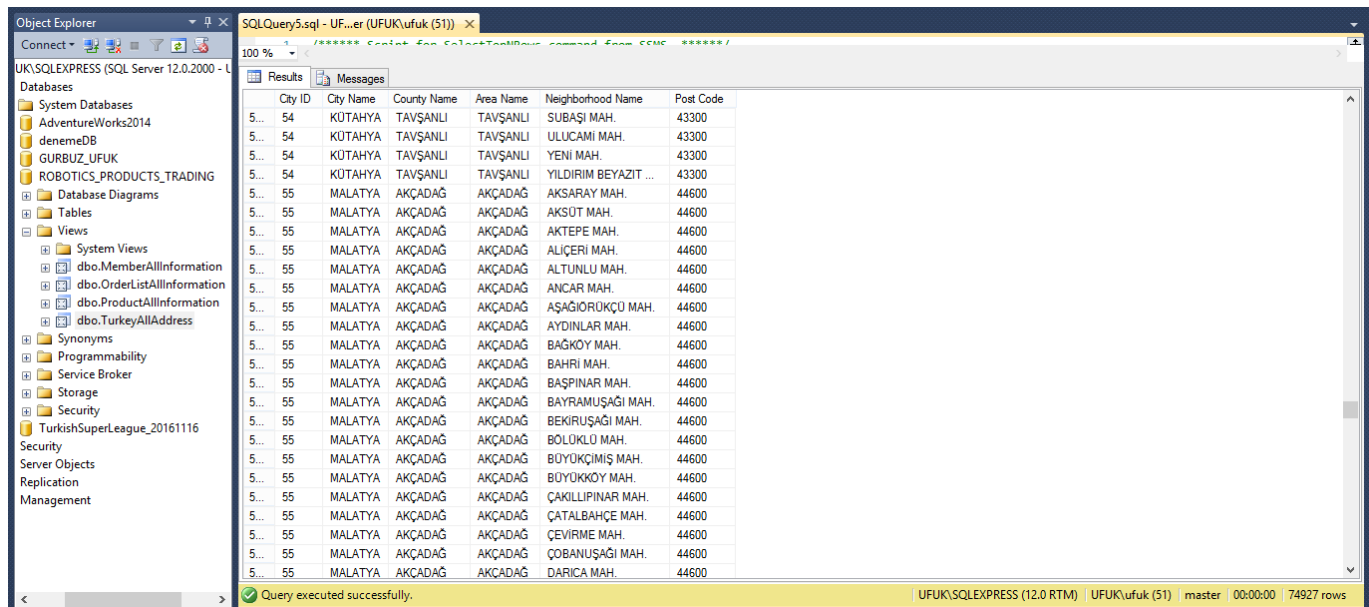
We combined “Product”, “Product_KDV” and “Category” tables for this view. So, we can see all information of products as a single table.



Product ID	Product Name	Category Name	Product Price	Amount of Sto...	Active	Explanation	Kdv %
1000	Arduino UNO R...	Arduino Modell...	82.71	108	True	Bu ürünün robot...	8
1001	Orjinal Arduino...	Arduino Modell...	25.13	117	True	Bu ürünün robot...	15
1002	Arduino MEGA ...	Arduino Modell...	89.15	73	True	Bu ürünün robot...	15
1003	Orjinal Arduino...	Arduino Modell...	93.06	53	True	Bu ürünün robot...	25
1004	Arduino Mega ...	Arduino Modell...	27.46	0	False	Bu ürünün robot...	3
1005	Arduino Nano ...	Arduino Modell...	53.11	94	True	Bu ürünün robot...	8
1006	Orjinal Arduino...	Arduino Modell...	54.73	26	True	Bu ürünün robot...	18
1007	Arduino Micro ...	Arduino Modell...	22.85	14	True	Bu ürünün robot...	25
1008	Orjinal Arduino...	Arduino Modell...	61.98	99	True	Bu ürünün robot...	3
1009	Arduino Esplor...	Arduino Modell...	99.68	0	False	Bu ürünün robot...	25
1010	Arduino Leonar...	Arduino Modell...	12.37	38	True	Bu ürünün robot...	20
1011	Orjinal Arduino...	Arduino Modell...	22.72	17	True	Bu ürünün robot...	18
1012	Orjinal Arduino...	Arduino Modell...	3.64	32	True	Bu ürünün robot...	15
1013	Orjinal Arduino...	Arduino Modell...	69.65	73	True	Bu ürünün robot...	25
1014	Orjinal Arduino...	Arduino Modell...	20.28	0	False	Bu ürünün robot...	5
1015	Orjinal Arduino...	Arduino Modell...	28.35	114	True	Bu ürünün robot...	18
1016	Arduino Nano ...	Arduino Modell...	81.83	86	True	Bu ürünün robot...	25
1017	Arduino Proto ...	Arduino Shield	8.12	81	True	Bu ürünün robot...	12
1018	Arduino Proto ...	Arduino Shield	95.51	5	True	Bu ürünün robot...	12
1020	Arduino RTC'li ...	Arduino Shield	64.42	56	True	Bu ürünün robot...	12
1021	XBee and Relay ...	Arduino Shield	77.41	48	True	Bu ürünün robot...	15
1022	Arduino Uno R...	Arduino Shield	9.71	0	False	Bu ürünün robot...	18
1023	Makey Makey S...	Arduino Shield	86.54	113	True	Bu ürünün robot...	25
1024	GSM/GPRS Shie...	Arduino Shield	59.08	119	True	Bu ürünün robot...	15

TurkeyAllAddress View

We combined “Cities”, “Counties”, “Area” and “Neighborhood” tables for this view. So, we can see all addresses in Turkey as a single table.



City ID	City Name	County Name	Area Name	Neighborhood Name	Post Code
5...	KUTAHYA	TAVŞANLI	TAVŞANLI	SUBAŞI MAH.	43300
5...	KUTAHYA	TAVŞANLI	TAVŞANLI	ULUCAMI MAH.	43300
5...	KUTAHYA	TAVŞANLI	TAVŞANLI	YENİ MAH.	43300
5...	KUTAHYA	TAVŞANLI	TAVŞANLI	YILDIRIM BEYAZIT ...	43300
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	AKSARAY MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	AKSÜT MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	AKTEPE MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	ALİÇERİ MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	ALTUNLU MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	ANCAR MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	AŞAĞIORUKÇU MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	AYDINLAR MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	BAGKÖY MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	BAHİRİ MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	BAŞPINAR MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	BAYRAMUŞAĞI MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	BEKİRÜŞAĞI MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	BÖLÜKLÜ MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	BÜYÜKÇİMİŞ MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	BÜYÜKÖY MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	ÇAKILLIPINAR MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	ÇATALBAHÇE MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	ÇEVİRME MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	ÇOBANUŞAĞI MAH.	44600
5...	MALATYA	AKÇADAĞ	AKÇADAĞ	DARICA MAH.	44600