
CET 321 FINAL PROJECT



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Business Need:

Telecommunications is an industry that serves a wide range of people around the world.

Communication is an essential need for human beings. People mostly communicate via internet, sms and call lately. Even a single break in communication can affect the lives of millions of people and deprive them of the agenda. Therefore, there is a need for a database that will understand people's needs correctly, keep their data securely, and at the same time process this data regularly and make it easier to use.

Business Requirements:

- Subscribers will be able to file a complaint about the product and package.
- subscribers will be able to be informed about the relevant product and package via sms.
- In order for the subscriber to benefit from the services in the fastest way, the subscription registration will be made in the database closest to his/her own location.
- There will be databases that branches across the country can connect to.
- Complaint records will be made on the line purchased by the subscriber, not on the subscriber.

- the subscriber can receive a phone call from the relevant operator through his own number, etc.
products can be purchased.

Business Value:

Of course, a system needs workforce to ensure continuity. We can establish a system that will facilitate people's communication. however, labor and technical programs are needed for the sustainability of this system. In order to provide these, of course, we have to generate income from the people who use the system that we describe as subscribers. Communication is also built to make money, people do it every day, and so do companies. However, our system will not only save money but also cost the company more, so people who use our services will be charged less. In this way, they will be able to buy quality service for cheap and continue to communicate without interruption.

Business Rules

branch-employee:

- 1) A branch can have 0 or more employees.
- 2) an employee can work in at least 1 and at most 1 branch.

line-subscriptionType:

- 1) a line can have at least 1 and at most 1 subscription type.

2) a subscription type can have at least 0 1 or more than 1 error.

line-tariff:

1) a subscriber can have at least 1 and at most 1 tariff.

2) a tariff can have at least 0, 1 or more than 1 line.

subscribe-line:

1) A subscriber can have at least 1 and more than 1 line.

2) a line can have at least 1 and at most 1 subscriber.

line-product:

1) a line can buy at least 0 and more than 1 product.

2) a product can be purchased by at least 0 or more than 1 line.

line-campaign:

1) a line can have at least 0 or more than 1 campaign.

2) a campaign can have at least one or more than 1 line.

line - database:

1) a minimum 1 maximum 1 database can exist.

2) a database can hold more than one line.

line-complaint:

- 1) a line can request at least 0, at most 1 or more than 1 complaint.
- 2) a complaint request can be opened by at least 0, maximum 1 or more than 1 person.

subscriber-address:

- 1) a subscriber can have at least 1 and at most 1 address.
- 2) an address can have 1 or more than 1 subscriber.

employee-department:

- 1) An employee can work in at least 1 and at most 1 department.
- 2) a department can have 0 or more than 1 employee.

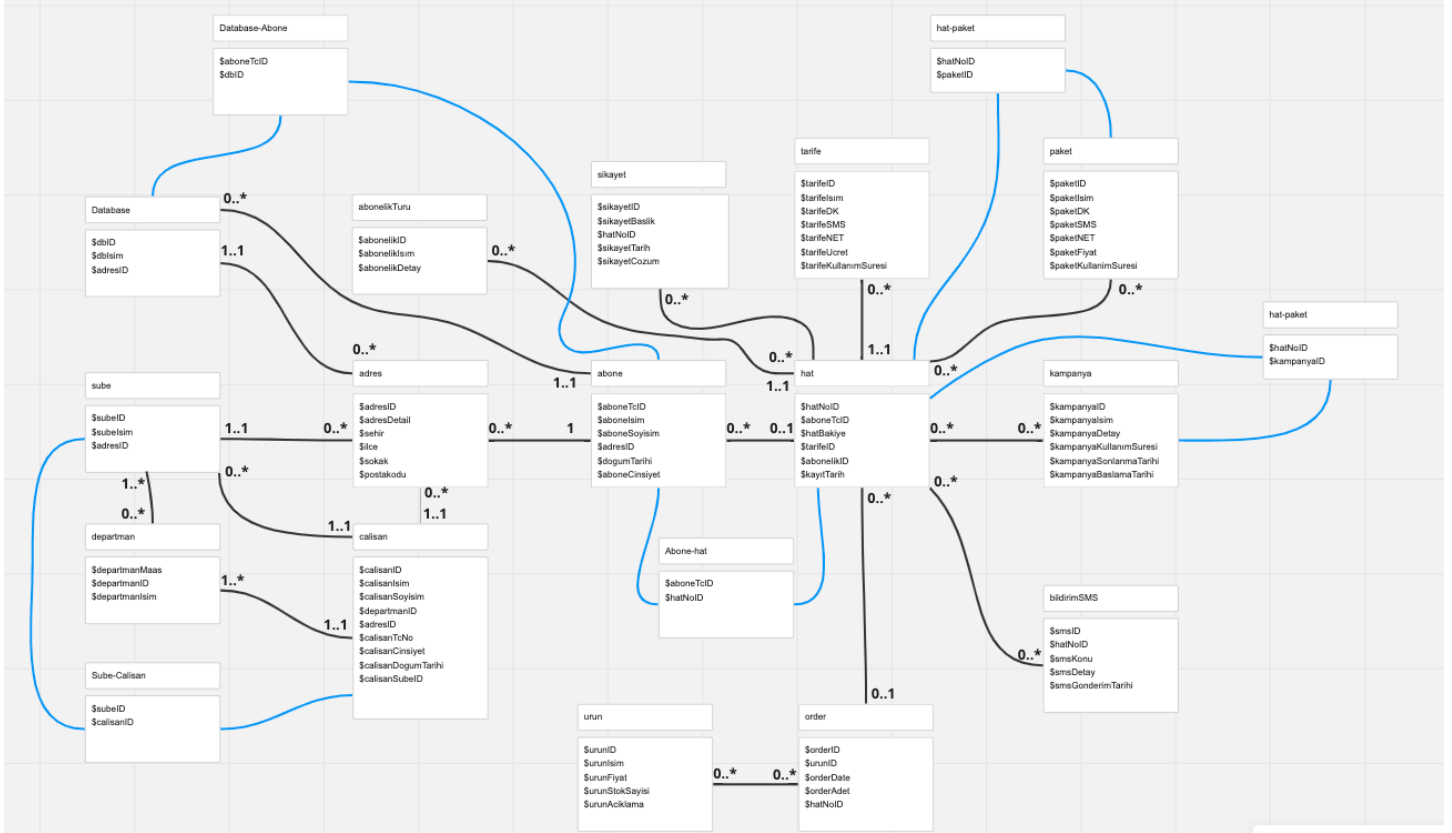
line-notificationsms:

- 1) a line can receive at least 0 and more than 1 sms
- 2) at least 0 , 1 or more than 1 error can be sent in one sms.

line-package:

- 1) a line can have at least 0 or more than 1 packets.
- 2) a package can have at least one or more than 1 line.

Class Diagram:



TELECOMMUNICATION SECTOR DATABASE SYSTEM

Example Data:

tblCalisan

calisanID	calisanIsim	calisanSoyisim	departmanID	adresID	calisanTcNo	calisanCinsiyet	calisanDogumTarihi	calisanSubelD
1	Akan	Yoldi	1	1	1801010101	Erkek	01/12/2000	1
2	Fatma	Alpi	3	2	243656867	Kadin	01/11/1999	2
3	Mustafa	Gül	2	3	2436766867	Erkek	01/09/1999	3

tblPaket

paketID	paketIsim	paketDK	paketSMS	paketNET	paketFiyat	paketKullanimSureisi
1	netfixate 5GB	0	0	5000	40	30 gün
2	Super 3Lü	750	250	5000	80	30 gün
3	Hafifak 1000DK	1000	0	0	25	? gün

tblAboneTuru

abonekkID	abonekkIsim
1	Prepaid
2	Postpaid
3	Kurumsal

tblDepartman

departmanID	departmanIsim	departmanMaas
1	CEO	90000
2	IT OPs	20000
3	DB OPs	20000

tblAbone

aboneTcdID	aboneIsim	aboneSoyisim	adresID	dogumTarihi	aboneCinsiyet
18123478423	Ali	Ali	1	01/12/2000	Erkek
18125358423	Mehmet	Yoku	2	01/12/2002	Erkek
22123478423	Ayşe	Yoku	3	01/12/1998	Kadin

tblUrun

urunID	urunIsim	urunFiyat	urunStokSayisi	urunAciklama
1	Iphone 11	12000	100	Iphone
2	Samsung S22	11000	30	Samsung
3	Macbook Pro	30000	10	Yenilenen

tblHizir

hizirNoID	aboneTcdID	hizirBakiye	tarifeID	abonekkID	kayitTarih
905456118381	18123478423	0	1	1	01/09/2022
905454118381	18125358423	16	3	1	01/09/2022
905456238381	22123478423	12	3	2	01/09/2022

tblAdres

adresID	adresDetay	sehir	ilce	sokak	postakodu
1	evin Karşı	İzmir	Karşıyaka	6.sokak	35000
2	ana sokak	İstanbul	Beylikay	meydan	34000
2	üniversite	Ankara	Pursaklar	Null	06000

tblSikayet

sikayetID	sikayetBaslik	hizirNoID	sikayetTarih	sikayetCezam
1	paket yukselmedi	905456238381	01/09/2022	Tamamlandı
2	paket yukselmedi	905456238381	01/09/2022	Bekliyor
3	paket yukselmedi	905456238381	01/09/2022	Bekliyor

tblSube-calisan

subelD	calisanID
1	1
2	2
3	3

tblHizir-Paket

hizirNoID	paketID
905456118381	1
905454118381	2
905456238381	3

tblDatabase

dbID	dbIsim	adresID
1	AN	10
2	UZ	11
3	IS	12

tblAbone-Database

aboneTcdID	dbID
18123478423	1
18125358423	2
22123478423	3

tblAbone-Hizir

aboneTcdID	hizirNoID
18123478423	905456118381
18125358423	905454118381
22123478423	905456238381

tblHizir-Kampanya

hizirNoID	kampanyaID
905456118381	1
905454118381	2
905456238381	3

tblMesajSms

smsID	hizirNoID	smsKonu	smsDetay	smsGonderimTarihi
1	905456118381	paket aşım	paket aşım	01/09/2022
2	905454118381	paket yüklem	paket yüklem	01/09/2022
3	905456238381	paket yüklem	paket yüklem	01/09/2022

tblOrder

orderID	productID	orderDate	orderAdet	hizirNoID
1	1	01/09/2022	1	905456118381
2	2	01/09/2022	3	905454118381
3	2	01/09/2022	3	905456238381

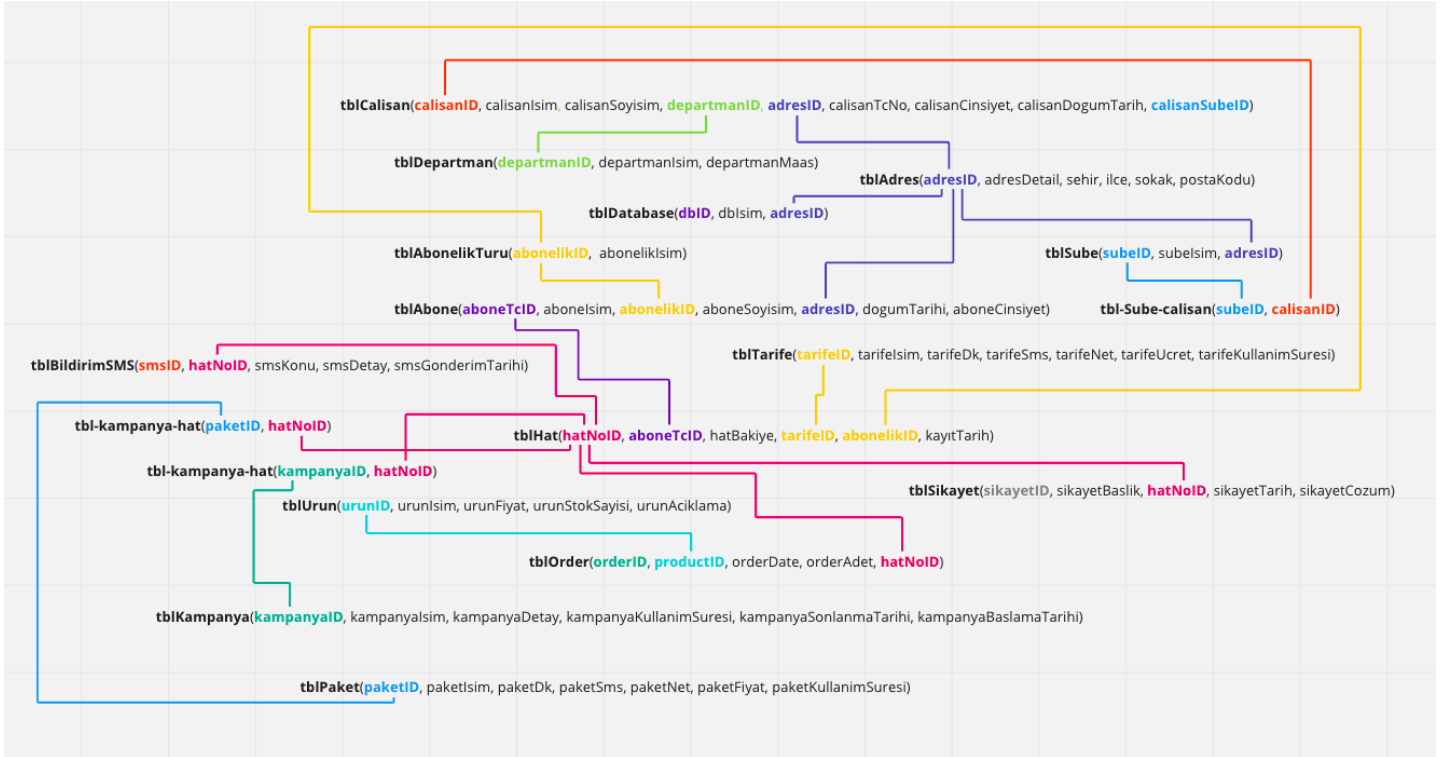
tblKampanya

kampanyaID	kampanyaIsim	kampanyaDetay	kampanyaKullanimSureisi	kampanyaSonlanmaTarihi	kampanyaBaslamaTarihi
1	Sınırsız Konuş	Sınırsız Konuş	90 gün	01/09/2022	01/06/2022
2	1 günlük 1GB	1 günlük 1GB	1 gün	01/09/2022	01/06/2022
3	Çihazda %10	Çihazda %10	90 gün	01/09/2022	01/06/2022

tblTarife

tarifeID	tarifeIsim	tarifeDK	tarifeSMS	tarifeNET	tarifeUcret	tarifeKullanimSureisi
1	Faturalı A	1000	1000	5000	100	30 gün
2	Faturalı B	500	250	10000	140	30 gün
3	Faturalı C	1000	1000	10000	160	30 gün

Logical Diagram:



10 SQL Operations:

```

-- create a table of hat
CREATE TABLE tbl_hat (
  hatNoID bigint PRIMARY KEY,
  hatBakiye int,
  kayitTarihi date,
  tarifeID int,
  aboneTcID bigint,
  abonelikID int,
  FOREIGN KEY (tarifeID) REFERENCES tbl_tarife(tarifeID),
  FOREIGN KEY (aboneTcID) REFERENCES tbl_abone(aboneTcID),
  FOREIGN KEY (abonelikID) REFERENCES tbl_abonelik(abonelikID)
);

-- insert some values into tbl_abonelik table
INSERT INTO tbl_abonelik values (1,"prepaid","anlık ucretlendirilen");
INSERT INTO tbl_abonelik values (2,"postpaid","aylık ucretlendirilen");

-- alter tbl_hat table to add abonelikID column
ALTER TABLE tbl_smsBildirim
ADD smsDetay longtext;

-- alter drop
ALTER TABLE tbl_smsBildirim
DROP column smsBaslik;

-- update a value
UPDATE tbl_abone set aboneCinsiyet="K" where aboneTcID=55001323406;

-- insert some values to tbl_hat table
INSERT INTO tbl_hat values (5456118381,0,"2015-11-20",0,18001363406,1);
INSERT INTO tbl_hat values (5425613775,0,"2022-11-20",0,55001323406,1);
INSERT INTO tbl_hat values (5523831863,0,"2022-11-20",1,55001323406,2);

/*
-- trigger
CREATE TRIGGER print_tbl_abone
AFTER INSERT ON tbl_abone

```

FOR EACH ROW

BEGIN

 SELECT * FROM tbl_abone;

END;

-- procedure

CREATE PROCEDURE insert_paket_hat(IN hatNo INT, IN paketId INT)

BEGIN

 INSERT INTO tbl_paket_hat (hatNoID, paketID) VALUES (hatNo, paketId);

 SELECT * FROM tbl_paket_hat WHERE hatNoID = hatNo;

END;

*/

/*

-- tbl_paket_hat tablosundaki ilişkileri kullanarak, tbl_paket tablosundaki paket

-- isim bilgisini ve tbl_hat tablosundaki hat numarası bilgisini getirmek için:

SELECT tbl_paket.paketIsim, tbl_hat.hatNoID FROM tbl_paket

inner JOIN tbl_paket_hat ON tbl_paket.paketID = tbl_paket_hat.paketID

inner JOIN tbl_hat ON tbl_paket_hat.hatNoID = tbl_hat.hatNoID;

*/

/*

-- tbl_hat tablosundaki hat bilgileri ile birlikte, ilişkili olduğu tbl_abone tablosundaki abone isim

-- bilgisini ve tbl_tarife tablosundaki tarife bilgilerini getirmek için:

SELECT tbl_hat.hatNoID, tbl_hat.hatBakiye, tbl_abone.abonelsim, tbl_tarife.tarifelsim FROM tbl_hat

inner JOIN tbl_abone ON tbl_hat.aboneTcID = tbl_abone.aboneTcID

inner JOIN tbl_tarife ON tbl_hat.tarifeID = tbl_tarife.tarifeID;

*/

/*

-- tbl_abone tablosundaki abone adı ve soyadı gibi bilgileri ile birlikte, ilişkili

-- olduğu tbl_adres tablosundaki şehir bilgisini getirmek için:

SELECT tbl_abone.abonelsim, tbl_abone.aboneSoylsim, tbl_adres.sehir FROM tbl_abone

inner JOIN tbl_adres ON tbl_abone.adresID = tbl_adres.adresID;

*/

/*

```

-- tbl_abone, tbl_tarife, tbl_abonelik ve tbl_hat tablolarını kullanarak,
-- abonelerin isim, soyisim, doğum tarihi,
-- cinsiyet, tarife ismi, abonelik ismi, hat numarası ve hat bakiyesini getirir:
SELECT tbl_abone.abonelsim, tbl_abone.aboneSoylsim, tbl_abone.aboneDogumTarihi,
tbl_abone.aboneCinsiyet,
tbl_tarife.tarifelsim, tbl_abonelik.abonelikIsim, tbl_hat.hatNoID, tbl_hat.hatBakiye
FROM tbl_abone
inner JOIN tbl_hat ON tbl_abone.aboneTcID = tbl_hat.aboneTcID
inner JOIN tbl_tarife ON tbl_hat.tarifeID = tbl_tarife.tarifeID
inner JOIN tbl_abonelik ON tbl_hat.abonelikID = tbl_abonelik.abonelikID;
*/

-- Bu sorgu, abone bilgilerini, hat bilgilerini, tarife bilgilerini ve abonelik bilgilerini
-- birleştirerek oluşan bilgileri vw_abone_bilgi adında bir VIEW oluşturur. Bu VIEW'ı kullanarak,
-- sadece tek bir sorgu ile bu bilgilere ulaşabilirsiniz.
CREATE VIEW vw_abone_bilgi AS
SELECT tbl_abone.abonelsim, tbl_abone.aboneSoylsim, tbl_abone.aboneDogumTarihi,
tbl_abone.aboneCinsiyet,
tbl_tarife.tarifelsim, tbl_abonelik.abonelikIsim, tbl_hat.hatNoID, tbl_hat.hatBakiye
FROM tbl_abone
inner JOIN tbl_hat ON tbl_abone.aboneTcID = tbl_hat.aboneTcID
inner JOIN tbl_tarife ON tbl_hat.tarifeID = tbl_tarife.tarifeID
inner JOIN tbl_abonelik ON tbl_hat.abonelikID = tbl_abonelik.abonelikID;

/*
SELECT * FROM vw_abone_bilgi;
*/

```