



IZMIR INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER ENGINEERING

CENG315
TERM PROJECT

“PHARMACY”

Group 3

Çağdaş Berkay VURKAN - 220201025

Said ALIR - 240201067

Mert Çalış - 220103004+

Doğukan GÖK - 270201086

[Fall, 2019]

TABLE OF CONTENTS	2
ABSTRACT	5
INTRODUCTION	6
What Pharmacy Does?	6
User Requirements Specification	6
Entity Relationship Diagram	7
Schema Design	8
Reduced Relational Diagram	8
Entities	8
Relations	9
Drug Schema	11
Pharmacy Schema	12
Inventory Schema	12
Employee Schema	13
Supplier Schema	14
Drug Company Schema	14
Drug Supplier Schema	15
Stock Schema	16
Income Schema	16
Outcome Schema	17
TABLES	18
Table 1. Drug Table	18
Table 2. Pharmacy Table	18
Table 3. Inventory Table	19
Table 4. Employee Table	19
Table 5. Supplier Table	19
Table 6. Drug Company Table	20
Table 7. Drug Supplier Table	20
Table 8. Stock Table	20
Table 9. Income Table	21
Table 10. Outcome Table	21

TERM PROJECT REPORT

Pharmacy



Image Source: "<https://images.app.goo.gl/Uc6n8PW0TNEN7mxQ6>"

ABSTRACT

People may sometimes become weak due to external or internal influences, and have the potential to be ill in all seasons due to malnutrition. At this point, it is important to be able to diagnose and treat people correctly. People need medicines to overcome these diseases. The organizations responsible for the sale of these drugs also unite under the roof of the pharmacy. A pharmacy must have some basic features that can respond to patients' wishes, and at the same time, they need some programs that contain records of all relevant information to respond quickly and systematically.

INTRODUCTION

We live in the information age, so we need to keep every job we do in a virtual environment in detail. As we all know, pharmacies also sell hundreds of drugs. In addition, the channels responsible for the supply of these drugs perform thousands of operations. When we go one step further, there are companies operating the factories responsible for the production of these drugs. As you have seen, the information contained in this structure must be stored and accessible on a regular basis. We have established a structure in which we can control all this flow in the Pharmacy system.

What Pharmacy Does?

We have employees in our pharmacies, who are responsible for the supplement. In the inventory, there are drugs that are stored for delivery to pharmacies, and there are two different types, medical and non-medical. Each drug has its own unique barcode number, which we keep in our table through this barcode number. Other features of the drugs are the name and type. Since the drugs will be taken by the patients, we have a patient table that stores the patients. One or more prescriptions for each patient in this table are written. We also created a recipe table to access these prescriptions. When we consider the conditions in Turkey, our country is available by prescription type, expressed as color names, these types of statements we've added to the bill as a separate feature. In addition, the day of prescriptions is an important attribute; therefore, we also have access to the days on which the prescriptions are written under the day column.

User Requirements Specification

- Daily & monthly income
- Daily & monthly outcome
- The drug which is the bestseller based on its type
- The drugs which are fully-supported by government
- Bestseller non-medical drugs
- Daily inventory information
- All expired drugs

-
- Salaries of the employee
 - Whole drugs in the inventory
 - Drug count in the inventory with respect to their name
 - All drug supplier
 - All patient
 - All prescriptions that is written in a specific day
 - Bestseller drug in a specific month/year
 - The date of the last receipt of the specific drug by a patient

The owner of the system will be able to do the things in the below:

1. Drug Management
2. Inventory of the Drug Management
3. Employee Management
4. Drug Supplier Management

Entity Relationship Diagram

The diagram illustrated contains all inter-relations and connections. The bold & underlined ellipses is corresponding to their primary keys, also the nodes that have multi-connections are specified as the foreign keys which are the same values its corresponding data.

Some relation sets have more than one interconnection associated with their foreign keys, it means that some of them is many-to-one and the others one-to-one. As we see in the first draft of the E-R Diagram that there is no one-to-many cardinalities. Perhaps, it would be after we redesign the tables in other revisions, feedbacks.

The rectangles defines entity sets and the ellipses are connected to are their attributes (*entity*).

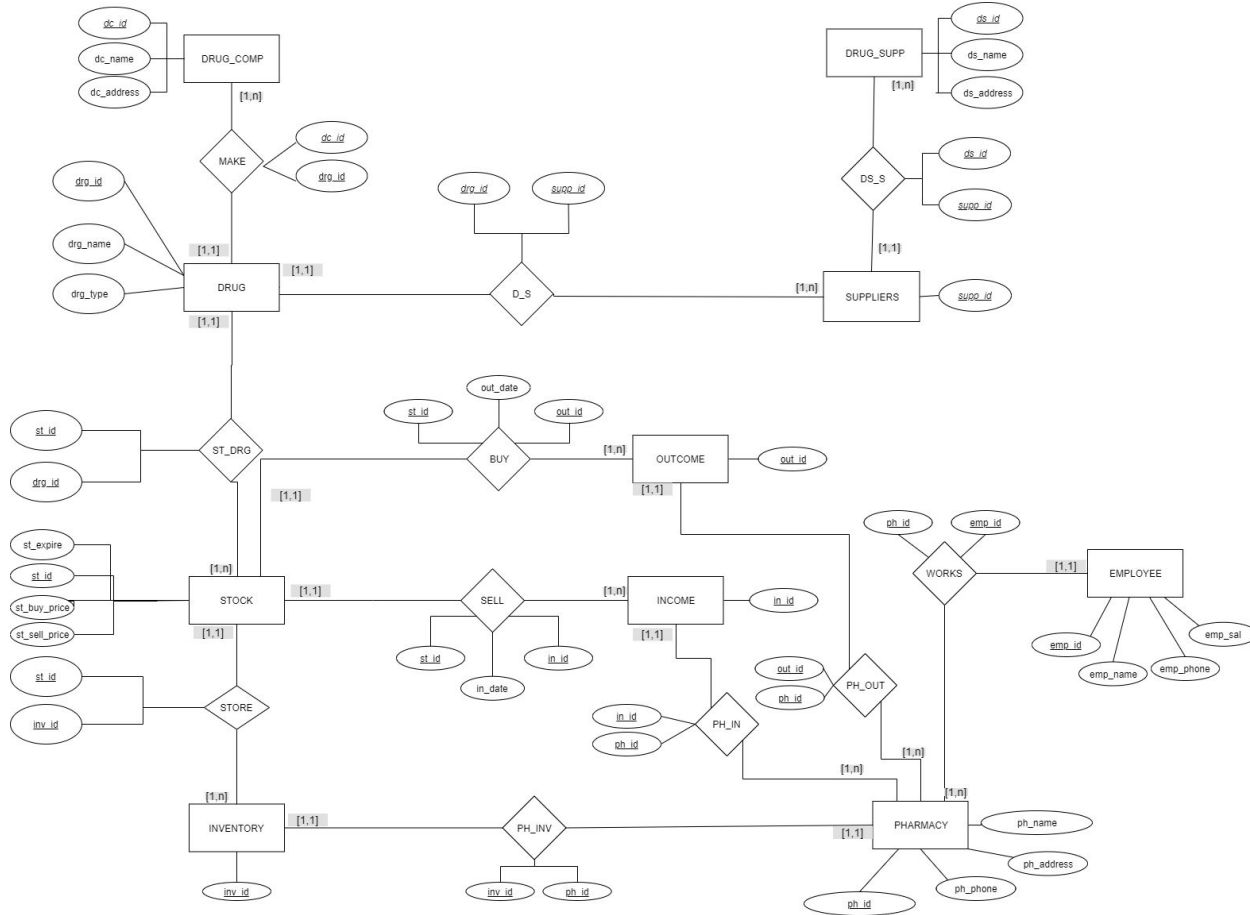


Figure 1. Entity-Relationship Diagrams with all Connections

Schema Design

The management system was built by using the Oracle with version 12c. It provides the illustration and running the code easily.

Reduced Relational Diagram

This diagram does not include relations (which has [0/1] or [1/1] etc.) remove them and distribute the primary keys as foreign keys.

Entities

- **DRUG_COMP**(dc_id, dc_name, dc_address)
- **DRUG**(drg_id, drg_name, drg_type, drg_expire)
- **DRUG_SUPPLIERS**(ds_id, ds_name, ds_address)

-
- SUPPLIERS(supp_id)
 - STOCK(st_id, st_buy_price, st_sell_price),
 - INVENTORY(inv_id)
 - PHARMACY(ph_id, ph_address, ph_name, ph_phone)
 - INCOME(in_id, in_date)
 - OUTCOME(out_id, out_date)

Relations

- MAKE(dc_id, drg_id)
- ST_DRG(st_id, drg_id)
- STORE(st_id, inv_id)
- BUY(st_id, out_id, out_id)
- SELL(st_id, in_date, in_id)
- PH_INV(inv_id, ph_id)
- D_S(drg_id, supp_id)
- DS_S(ds_id, supp_id)
- ~~WORK(ph_id, emp_id)~~
- ~~PH_OUT(out_id, ph_id)~~
- ~~PH_IN(in_id, ph_id)~~

Reduced relations are eliminated and according to elimination law which is 'if there is an association like $[1,1]$ or $[0,1]$ remove the relation between these two tables and distribute attributes of relation to tables as foreign keys'

dc_id, *st_id* are inserted into **DRUG** table as foreign keys

ds_id, *drg_id* is inserted into **SUPPLIERS** table as foreign key.

inv_id, *in_id*, *out_id* are inserted as foreign keys and *in_date*, *out_date* are inserted as attributes to **STOCK** table.

ph_id is inserted into **INVENTORY** table as foreign key.

ph_id is inserted into **INCOME** and **OUTCOME** tables as foreign keys.

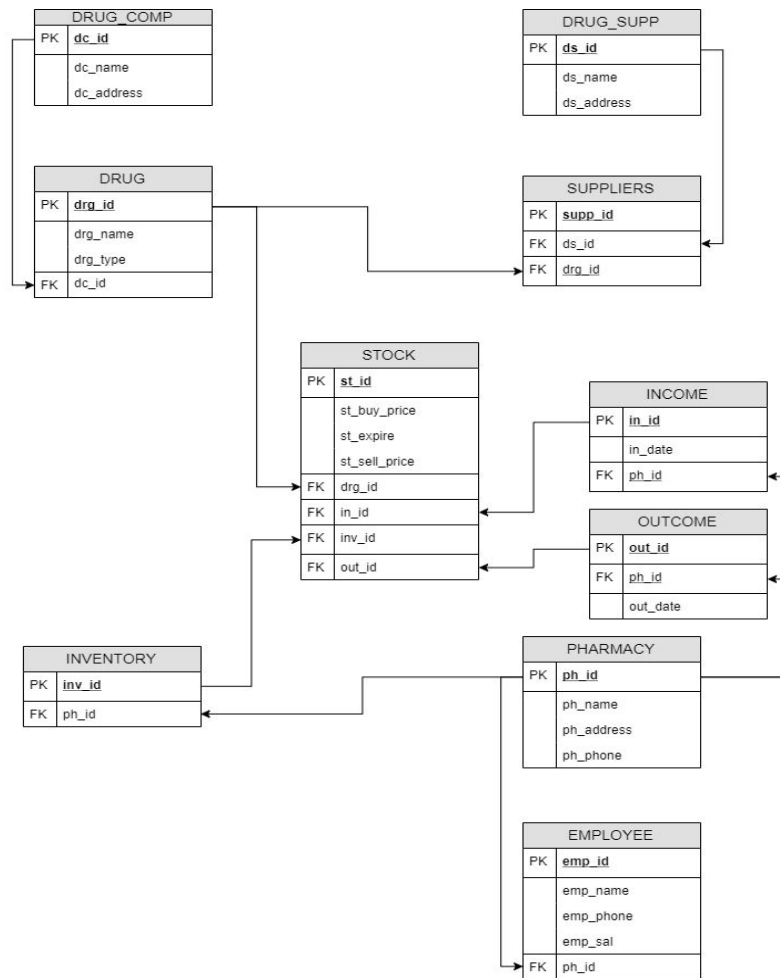


Figure 2.

Drug Schema

Column Name	Data Type	Nullable	Default	Primary Key
DRG_ID	NUMBER(13,0)	No	-	1
DRG_NAME	VARCHAR2(35)	No	-	-
DRG_TYPE	VARCHAR2(15)	No	-	-
DC_ID	NUMBER(13,0)	No	-	-

Figure 1. Drug Schema

DRG_ID is the product barcode number, that is the primary key of the table. drg_name is the name of the product, drg_type is the type of the drug (powder, pill, gel, syrup etc.), drg_expire is date type variable which specifies the expire date. supp_id, dc_id, st_id are foreign keys of the table.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
DRG_FK_1	Foreign	-	DRG_FK_1 (PHARMACYDB.DRUG_COMP)	DC_ID	NO ACTION	ENABLED	12/18/2019 06:29:41 AM	-	-
DRG_PK	Primary	-	-	DRG_ID	-	ENABLED	12/18/2019 06:29:40 AM	DRG_PK	-
SYS_C0089313008	Check	"DRG_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313009	Check	"DRG_NAME" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313010	Check	"DRG_TYPE" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313011	Check	"DC_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-

Figure 2. The Model of Drug Table

Pharmacy Schema

Column Name	Data Type	Nullable	Default	Primary Key
PH_ID	NUMBER(11,0)	No	-	1
PH_NAME	VARCHAR2(15)	Yes	-	-
PH_ADDRESS	VARCHAR2(100)	Yes	-	-
PH_PHONE	VARCHAR2(16)	Yes	-	-

Figure 3. Pharmacy Schema

Pharmacy table is one of the most important and critical part of our job. It enables to access employee's attributes, income and outcome .

'ph_id' is the primary key that represents pharmacy id. 'ph_name' is varchar typed attribute which holds name of the pharmacy. 'ph_address' is the varchar typed attribute which specifies where the Pharmacy Branch is. 'phone' attribute is allow to contact with phone number to specified branch. For each branch of pharmacy there can work at least 1 employee (which is owner) and maximum 'n' employees. That implies you can access to specified employee with 'ph_id'(which is primary key) and employee's attributes. Also there are the same relations with inventory, outcome and the income.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
PH_PK	Primary	-	-	PH_ID	-	ENABLED	12/18/2019 06:29:40 AM	PH_PK	-
SYS_C0089313028	Check	"PH_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-

Figure 4. The Model of Pharmacy Table

Inventory Schema

Column Name	Data Type	Nullable	Default	Primary Key
INV_ID	NUMBER(11,0)	No	-	1
PH_ID	NUMBER(11,0)	No	-	-

Figure 5. Inventory Schema

Inventory table is the common point of the tasks. 'inv_id' is the primary and auto incremented key of the table. 'ph_id' is specifies which pharmacy owns this inventory (*one of the foreign key*).

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
INV_FK	Foreign	-	INV_FK (PHARMACYDB.PHARMACY)	PH_ID	NO ACTION	ENABLED	12/18/2019 06:29:41 AM	-	-
INV_PK	Primary	-	-	INV_ID	-	ENABLED	12/18/2019 06:29:40 AM	INV_PK	-
SYS_C0089313030	Check	"INV_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313031	Check	"PH_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-

Figure 6. The Model of Inventory Table

Employee Schema

Column Name	Data Type	Nullable	Default	Primary Key
EMP_ID	NUMBER(11,0)	No	-	1
EMP_NAME	VARCHAR2(200)	Yes	-	-
EMP_PHONE	VARCHAR2(16)	Yes	-	-
EMP_SAL	NUMBER(6,2)	Yes	-	-
PH_ID	NUMBER(11,0)	No	-	-

Figure 7. Employee Schema

Employee table is stands for working employees in pharmacy branch. 'emp_id' is the primary key. 'phone' is phone number. 'emp_sal' represents employees salary per month. 'name' is full-name of the specified employee. 'ph_id' is the foreign key of this table. It provides to access workplace (in which pharmacy branch) of specified employee.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
EMP_FK	Foreign	-	EMP_FK (PHARMACYDB.PHARMACY)	PH_ID	NO ACTION	ENABLED	12/18/2019 06:29:41 AM	-	-
EMP_PK	Primary	-	-	EMP_ID	-	ENABLED	12/18/2019 06:29:40 AM	EMP_PK	-
SYS_C0089313033	Check	"EMP_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313034	Check	"PH_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-

Figure 8. The Model of Employee Table

Supplier Schema

Column Name	Data Type	Nullable	Default	Primary Key
SUPP_ID	NUMBER(11,0)	No	-	1
DS_ID	NUMBER(11,0)	No	-	-
DRG_ID	NUMBER(11,0)	No	-	-

Figure 9. Supplier Schema

Supplier holds the data that which drug supplied by which drug supplier. It has two different foreign key as an attribute. With combining suppliers schema we can all drugs that specific drug supplier (or drug suppliers) supply and which drug can supply by which drug suppliers.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
SUPP_FK_1	Foreign	-	SUPP_FK_1 (PHARMACYDB.DRUG_SUPP)	DS_ID	NO ACTION	ENABLED	12/18/2019 06:29:40 AM	-	-
SUPP_FK_2	Foreign	-	SUPP_FK_2 (PHARMACYDB.DRUG)	DRG_ID	NO ACTION	ENABLED	12/18/2019 06:29:40 AM	-	-
SUPP_PK	Primary	-	-	SUPP_ID	-	ENABLED	12/18/2019 06:29:40 AM	SUPP_PK	-
SYS_C0089313004	Check	"SUPP_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313005	Check	"DS_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313006	Check	"DRG_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-

Figure 10. The Model of Supplier Schema

Drug Company Schema

Column Name	Data Type	Nullable	Default	Primary Key
DC_ID	NUMBER(11,0)	No	-	1
DC_NAME	VARCHAR2(20)	No	-	-
DC_ADDRESS	VARCHAR2(100)	Yes	-	-

Figure 11. Drug Company Schema

Drug company is a firm that manufacture medicines. Pfizer and Bayer can be an example of drug companies. Address holds headquarters, and name attribute holds the name of company.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
DC_PK	Primary	-	-	DC_ID	-	ENABLED	12/18/2019 06:29:39 AM	DC_PK	-
SYS_C0089312998	Check	"DC_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:39 AM	-	-
SYS_C0089312999	Check	"DC_NAME" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:39 AM	-	-

Figure 12. The Model of Drug Company Table

Drug Supplier Schema

Column Name	Data Type	Nullable	Default	Primary Key
DS_ID	NUMBER(11,0)	No	-	1
DS_NAME	VARCHAR2(20)	No	-	-
DS_ADDRESS	VARCHAR2(100)	Yes	-	-

Figure 13. Drug Supplier Schema

Drug supplier is the firm that hold big amount of drugs and deliver to the pharmacies whenever they need. DS_ID (Which is the FK of the table Suppliers) is the primary key of this schema. Name holds the name of Drug supplier and address implies the location of Drug supplier.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
DS_PK	Primary	-	-	DS_ID	-	ENABLED	12/18/2019 06:29:40 AM	DS_PK	-
SYS_C0089313001	Check	"DS_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313002	Check	"DS_NAME" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-

Figure 14. The Model of Drug Supplier Table

Stock Schema

Column Name	Data Type	Nullable	Default	Primary Key
ST_ID	NUMBER(11,0)	No	-	1
ST_BUY_PRICE	NUMBER(6,2)	No	-	-
ST_EXPIRE	DATE	No	-	-
ST_SELL_PRICE	NUMBER(6,2)	No	-	-
INV_ID	NUMBER(11,0)	No	-	-
IN_ID	NUMBER(11,0)	Yes	-	-
OUT_ID	NUMBER(11,0)	No	-	-
DRG_ID	NUMBER(11,0)	No	-	-

Figure 15. Stock Schema

Stock is the medicine that contains in specific inventory. Inventory and Drug has many to many relations. Stock holds buy_price and sell_price so that every item in inventory. If in_id (which is foreign key) is NULL that means this stock hasn't sold yet. Every stock should has out_id.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
STK_FK_3	Foreign	-	STK_FK_3 (PHARMACYDB.OUTCOME)	OUT_ID	NO ACTION	ENABLED	12/18/2019 06:29:41 AM	-	-
STK_FK_4	Foreign	-	STK_FK_4 (PHARMACYDB.DRUG)	DRG_ID	NO ACTION	ENABLED	12/18/2019 06:29:41 AM	-	-
ST_FK_1	Foreign	-	ST_FK_1 (PHARMACYDB.INVENTORY)	INV_ID	NO ACTION	ENABLED	12/18/2019 06:29:41 AM	-	-
ST_FK_2	Foreign	-	ST_FK_2 (PHARMACYDB.INCOME)	IN_ID	NO ACTION	ENABLED	12/18/2019 06:29:41 AM	-	-
ST_PK	Primary	-	-	ST_ID	-	ENABLED	12/18/2019 06:29:40 AM	ST_PK	-
SYS_C0089313013	Check	"ST_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313014	Check	"ST_BUY_PRICE" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313015	Check	"ST_EXPIRE" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313016	Check	"ST_SELL_PRICE" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313017	Check	"INV_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313019	Check	"OUT_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313020	Check	"DRG_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-

Figure 16. The Model of Stock Table

Income Schema

Column Name	Data Type	Nullable	Default	Primary Key
IN_ID	NUMBER(11,0)	No	-	1
IN_DATE	DATE	No	-	-
PH_ID	NUMBER(11,0)	Yes	-	-

Figure 17. Income Schema

Income table store in_id ph_id and date. Since stock table store in_id and inv_id (inventory id), we can learn where this income comes from.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
IN_FK	Foreign	-	IN_FK (PHARMACYDB.PHARMACY)	PH_ID	NO ACTION	ENABLED	12/18/2019 06:29:41 AM	-	-
IN_PK	Primary	-	-	IN_ID	-	ENABLED	12/18/2019 06:29:40 AM	IN_PK	-
SYS_C0089313022	Check	"IN_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313023	Check	"IN_DATE" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-

Figure 8. The Model of Income Table

Outcome Schema

Column Name	Data Type	Nullable	Default	Primary Key
OUT_ID	NUMBER(11,0)	No	-	1
OUT_DATE	DATE	No	-	-
PH_ID	NUMBER(11,0)	Yes	-	-

Figure 19. Outcome Schema

Outcome table store in_id ph_id and date. We can easily learn how many stock bought from specific pharmacy and by joining this table with stock we can learn how much money spent in different time periods.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
OUT_FK	Foreign	-	OUT_FK (PHARMACYDB.PHARMACY)	PH_ID	NO ACTION	ENABLED	12/18/2019 06:29:41 AM	-	-
OUT_PK	Primary	-	-	OUT_ID	-	ENABLED	12/18/2019 06:29:40 AM	OUT_PK	-
SYS_C0089313025	Check	"OUT_ID" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-
SYS_C0089313026	Check	"OUT_DATE" IS NOT NULL	-	-	-	ENABLED	12/18/2019 06:29:40 AM	-	-

Figure 20. The Model of Outcome Table

TABLES

The dummy data is added to the corresponding tables and generated to illustrate the small pharmacy for draft. You can see the some of the generated tables as below.

Table 1. Drug Table

DRG_ID	DRG_NAME	DRG_TYPE	DC_ID
1	PAROL	PILL	1
2	PAROL	GEL	1
3	ARVELES	PILL	3
4	BENGAY	GEL	4
5	VERMIDON	PILL	5
6	XANAX	PILL	7
7	CALPOL	SYRUP	1
8	NUROFEN	PILL	3
9	DOLOREX	PILL	1
10	LEVMOND	PILL	3
11	PASSIFLORA	SYRUP	1
12	AUGMENTIN	PILL	5
13	AUGMENTIN	SYRUP	5
14	PEREBRON	SYRUP	8
15	RENNIE	CHEWABLE TABLET	1

Table 2. Pharmacy Table

PH_ID	PH_NAME	PH_ADDRESS	PH_PHONE
1	Sifa	Unlu Sk. No.6	2322547685
2	Hayat	Mithatpasa Cd. No.279	2323553535

Table 3. Inventory Table

INV_ID	PH_ID
1	1
2	1
3	2

Table 4. Employee Table

EMP_ID	EMP_NAME	EMP_PHONE	EMP_SAL	PH_ID
1	SAID ALIR	+905505500	3000	1
2	MERT CALIS	+905500055	3000	1
3	BERKAY VURKAN	+905502500	5000	1
4	DOGUKAN GOK	+905505530	3000	2
5	ZUHAL ERTEN	+905505515	2000	2
6	NURI ZIYA GUN	+905305500	3500	2

Table 5. Supplier Table

SUPP_ID	DS_ID	DRG_ID
1	1	1
2	2	1
3	3	1
4	4	1
5	5	2
6	1	2
7	2	3
8	3	3
9	4	4
10	5	4
11	1	5
12	2	6
13	3	7
14	4	8
15	5	9

Table 6. Drug Company Table

DC_ID	DC_NAME	DC_ADDRESS
1	Pfizer	Pfizer Türkiye, Ortaköy 34347 İstanbul - Türkiye
2	Bayer	UNKNOWN
3	Roche	Foundation Medicine, Inc. 150 Second Street Cambridge MA 02141
4	Abbvie	USA
5	JOHNSON&JOHNSON	New Brunswick, New Jersey, USA
6	Sanofi	Paris/France
7	MERCK	NEW JERSEY/USA
8	NOVARTIS	BASEL/SWITZERLAND
9	GILEAD	CALIFORNIA/USA
10	AMGEN	CALIFORNIA/USA

Table 7. Drug Supplier Table

DS_ID	DS_NAME	DS_ADDRESS
1	SELCUK ECZA DEPOSU	Buca Organize Sanayi Bölgesi/Konak/İzmir
2	DILEK ECZA DEPOSU	Karşıyaka/İzmir
3	EDAK ECZA DEPOSU	Balçova/İzmir
4	FARUK ECZA DEPOSU	Tepecik/İzmir
5	GUNDAN ECZA DEPOSU	Gunaltay/Konak/İzmir

Table 8. Stock Table

ST_ID	ST_BUY_PRICE	ST_EXPIRE	ST_SELL_PRICE	INV_ID	IN_ID	OUT_ID	DRG_ID
28	14	01/01/2022	19	1	1	3	15
31	20	07/01/2022	25	2	2	6	13
32	20	03/01/2022	25	2	8	7	13
34	3	03/15/2022	8	2	3	9	4
36	6	03/01/2022	10	3	4	11	17
40	30	03/01/2022	45	1	5	15	14
42	20	03/01/2022	25	1	6	17	4
44	115	07/01/2022	155	2	7	19	6
50	4	03/01/2022	8	2	10	25	11
1	5	02/18/2027	22	1	11	26	3
3	15	05/05/2028	32	1	12	28	15
4	10	04/07/2022	19	2	13	29	28
7	9	11/08/2024	18	1	14	32	13
8	34	10/05/2029	53	3	15	33	18
26	10	03/01/2022	15	1	-	1	3

Table 9. Income Table

IN_ID	IN_DATE	PH_ID
1	04/05/2019	2
2	05/30/2019	2
3	01/09/2019	2
4	01/12/2019	2
5	04/23/2019	2
6	04/10/2019	1
7	04/23/2019	1
8	05/19/2019	1
9	05/19/2019	1
10	10/29/2019	1
11	12/12/2019	1
12	09/06/2019	1
13	11/02/2019	1
14	11/06/2019	1
15	12/13/2019	1

Table 10. Outcome Table

OUT_ID	OUT_DATE	PH_ID
1	12/13/2019	1
2	12/10/2019	1
3	12/01/2019	1
4	12/05/2019	1
5	12/30/2019	1
6	11/03/2019	1
7	11/11/2019	1
8	11/24/2019	1
9	11/30/2019	1
10	11/30/2019	1
11	10/03/2019	1
12	10/08/2019	1
13	10/12/2019	1
14	10/12/2019	1
15	10/13/2019	1

