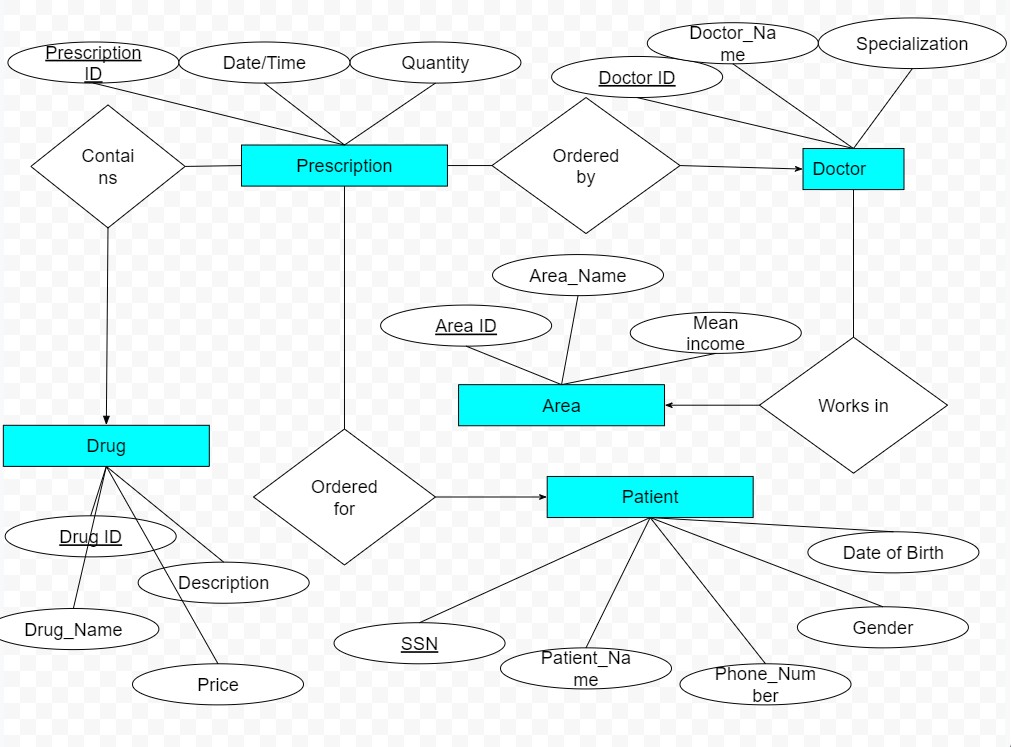
**Students: Chris Vlassis, Konstantinos Vlassis**

Analysis of Medical prescriptions:

1. **ERD Model**

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1. **CREATE TABLE Statements**

CREATE TABLE Prescription(

Prescription\_ID INT PRIMARY KEY,

Date\_Time DATETIME,

Quantity INT,

Doctor\_ID INT,

Drug\_ID INT,

SSN INT,

FOREIGN KEY (Doctor\_ID) REFERENCES doctor(Doctor\_ID),

FOREIGN KEY (Drug\_ID) REFERENCES drug(Drug\_ID),

FOREIGN KEY (SSN) REFERENCES patient(SSN));

CREATE TABLE Doctor(

Doctor\_ID INT PRIMARY KEY,

Doctor\_Name VARCHAR(40),

Specialization VARCHAR(40),

Area\_ID INT,

FOREIGN KEY (Area\_ID) REFERENCES areaa(Area\_ID));

CREATE TABLE Areaa(

Area\_ID INT PRIMARY KEY,

Area\_Name VARCHAR(40),

Mean\_Income INT);

CREATE TABLE Drug(

Drug\_ID INT PRIMARY KEY,

Drug\_Name VARCHAR(40),

Descriptionn VARCHAR(100),

Price DECIMAL(10,2));

CREATE TABLE Patient(

SSN INT PRIMARY KEY,

Patient\_Name VARCHAR(40),

Phone\_Number INT,

Gender VARCHAR(40),

Date\_of\_Birth DATE);

1. **SQL Code**

**a.**

SELECT

p.Patient\_Name,p.SSN

FROM

patient AS p,

prescription AS pr

WHERE

Gender = 'Male'

AND DATE\_FORMAT(FROM\_DAYS(DATEDIFF(NOW(), date\_of\_Birth)),

'%Y') + 0 > 30

AND YEAR(Date\_Time) = '2021'

AND p.SSN = pr.SSN

GROUP BY p.SSN;

**b.**

select SSN, Total\_Amount

FROM( SELECT

p.SSN,Quantity, Price, sum(Price\*Quantity) AS Total\_Amount

from prescription pr

JOIN drug dr ON pr.Drug\_ID = dr.Drug\_ID

JOIN patient p ON p.SSN = pr.SSN

WHERE Gender = 'Female' AND

year(Date\_Time) = '2021'

group by p.SSN) as tableee

where Total\_Amount>1000;

**c.**

SELECT

a.Area\_ID,

a.Area\_Name,

sum(Price\*Quantity) as Total\_Amount\_of\_Money

FROM areaa a

JOIN doctor d ON d.Area\_ID = a.Area\_ID

JOIN prescription p ON p.Doctor\_ID = d.Doctor\_ID

JOIN drug dr ON dr.Drug\_ID = p.Drug\_ID

group by a.Area\_ID;

**d.**

SELECT

p.Drug\_ID,

EXTRACT(MONTH FROM Date\_Time) as Month,

sum(Price\*Quantity) as Total\_Amount\_of\_Money

FROM prescription p

JOIN drug dr ON dr.Drug\_ID = p.Drug\_ID

WHERE YEAR(Date\_Time) = '2021'

GROUP BY EXTRACT(MONTH FROM Date\_Time),p.Drug\_ID;

**e.**

select

pr.Doctor\_ID,

Doctor\_Name,

sum(Price\*Quantity) as Total\_Amount\_of\_Money

from areaa a

JOIN doctor dr ON dr.Area\_ID = a.Area\_ID

JOIN prescription pr ON pr.Doctor\_ID = dr.Doctor\_ID

JOIN drug drg ON drg.Drug\_ID = pr.Drug\_ID

WHERE Mean\_Income BETWEEN 20000 and 30000

group by pr.Doctor\_ID;

**f.**

select

Specialization,

count(Prescription\_ID) as total\_number\_of\_perscriptions

from doctor d

JOIN prescription p ON p.Doctor\_ID = d.Doctor\_ID

WHERE year(Date\_Time) = '2021'

group by Specialization;

**g.**

select

pr.Drug\_ID,

concat((SUM(CASE when year(Date\_Time) = '2021' then Price\*Quantity end) - SUM(CASE when year(Date\_Time) = '2020' then Price\*Quantity end))

/

SUM(CASE when year(Date\_Time) = '2020' then Price\*Quantity end)\*100, '%') as Total\_Amount\_of\_Money

from prescription pr

JOIN drug dr ON dr.Drug\_ID = pr.Drug\_ID

group by Drug\_ID;

**h.**

select

pr.Drug\_ID,

sum(CASE

WHEN Gender = 'Male' THEN Price\*Quantity

END) as MALES,

sum(CASE

WHEN Gender = 'Female' THEN Price\*Quantity

END) as FEMALES

from patient p

JOIN prescription pr ON p.SSN = pr.SSN

JOIN drug dr ON dr.Drug\_ID = pr.Drug\_ID

WHERE YEAR(Date\_Time) = '2021'

GROUP BY Gender, pr.Drug\_ID;

1. **Using Python for printing results**

connection = pyodbc.connect('Driver={MySQL ODBC 8.0 ANSI Driver};'

'Server=localhost;'

'UID=root;'

'Database=assigment\_1;'

'PASSWORD=\*\*\*\*\*\*\*\*\*')

cursor = connection.cursor()

cursor.execute('SELECT pr.Prescription\_ID, pr.Date\_Time, p.Patient\_Name, p.Phone\_Number, dr.Doctor\_Name, dr.Specialization, d.Drug\_Name, d.Price, pr.Quantity '

'FROM patient p '

'JOIN prescription pr ON p.SSN = pr.SSN '

'JOIN doctor dr ON dr.Doctor\_ID = pr.Doctor\_ID '

'JOIN areaa a ON dr. Area\_ID = a.Area\_ID '

'JOIN drug d ON pr.Drug\_ID = d.Drug\_ID')

for row in cursor:

print(row)

**Here are some of the inserts that were made.**

INSERT INTO areaa VALUES (3, 'thesalonika',10000);

INSERT INTO areaa VALUES (4, 'Kerkyra',5000);

INSERT INTO areaa VALUES (4, 'Patras',40000);

INSERT INTO areaa VALUES (5, 'Ioannina',30000);

INSERT INTO areaa VALUES (6, 'Agias Lavras',80000);

INSERT INTO areaa VALUES (7, 'Peireas',4000);

INSERT INTO areaa VALUES (8, 'Komotini',13000);

INSERT INTO areaa VALUES (12, 'Leykada',40000);

INSERT INTO doctor VALUES(1,'Takis','Kardiologos',1);

INSERT INTO doctor VALUES(2,'akis','Kardiologos',2);

INSERT INTO doctor VALUES(3,'alkis','Kardiologos',2);

INSERT INTO doctor VALUES(4,'Christs','Ofthalmiators',3);

INSERT INTO doctor VALUES(5,'Kwstas','Paidiatros',3);

INSERT INTO doctor VALUES(6,'Spyros','Pathologos',4);

INSERT INTO Patient VALUES(22222,'Takis', 69820555,'Male','1998-06-15');

INSERT INTO Patient VALUES(44444,'akis', 69877700,'Female','1994-09-24');

INSERT INTO Patient VALUES(33333333,'alkis', 69829990,'Male','1998-06-21');

INSERT INTO Patient VALUES(77777777,'Christs', 69555550,'Female','1987-05-22');

INSERT INTO Patient VALUES(88888888,'Kwstas', 69950,'Male','1990-07-14');

INSERT INTO Patient VALUES(999999,'Spyros', 698672200,'Female','1950-04-01');

INSERT INTO prescription VALUES(111,'2022-01-03 15:30:00',25,1,22222);

INSERT INTO prescription VALUES(112,'2022-01-03 15:30:00',25,1,22222);

INSERT INTO prescription VALUES(113,'2022-01-03 15:30:00',25,1,22222);

INSERT INTO drug VALUES(22,'Otivin','cold',50);

INSERT INTO drug VALUES(23,'Eyes m','Sadsa',30);

INSERT INTO drug VALUES(24,'Ponstant','PAin reliveer',14);

INSERT INTO perscription\_drug\_identification VALUES(111,24);

INSERT INTO perscription\_drug\_identification VALUES(111,23);

INSERT INTO perscription\_drug\_identification VALUES(112,24);

INSERT INTO perscription\_drug\_identification VALUES(112,22);

INSERT INTO perscription\_drug\_identification VALUES(113,22);

INSERT INTO perscription\_drug\_identification VALUES(111,22);

insert into prescription VALUES(114,'2021-04-08 19:30:00',30,2,3389);

insert into prescription VALUES(115,'2021-04-08 19:30:00',30,2,3389);

insert into prescription VALUES(116,'2021-04-08 19:30:00',30,2,3389);

insert into prescription VALUES(125,'2021-04-08 20:30:00',30,2,88888888);

insert into prescription VALUES(127,'2021-04-08 20:30:00',30,2,88888888);

insert into prescription VALUES(128,'2021-04-08 20:30:00',30,2,88888888);

insert into patient VALUES(3389,'PETROS',69845365,'Male','1990-07-14');