IS 475:
The Doctor Scheduler

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Group 10

Business Problems

- Current appointment scheduling can be difficult for doctors to interpret due to appointment data including duplicate and incorrect data recorded.
- This may be caused by incorrect data entry from the client or misinterpretation between client and employee.
- Fragmented data
- Tedious manual data entering

Proposed Solution

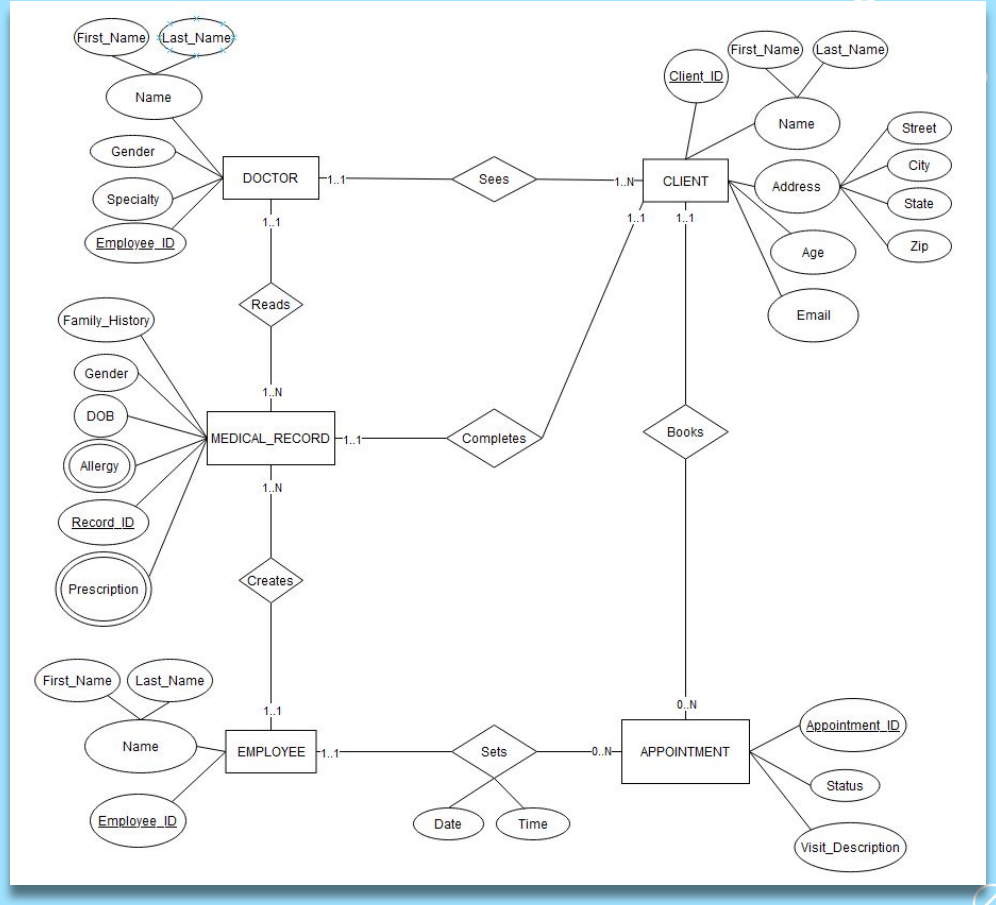
- We will be solving these problems by applying specific business rules and requirements to standardize the data that is entered when creating an appointment.
- The purpose is to improve the efficiency and quality of information systems in healthcare organizations.
- Efficiency is the key to managing data.

Business Rules

- A Doctor can only handle 16 clients per day.
- Doctor can’t see two clients at the same time.
- Client can’t schedule two appointments in the same day.
- A ‘Client ID’ must be assigned for each client.
  - Each client must also be assigned a ‘Record ID’.
- A **date** and **time** must be entered to schedule an appointment.

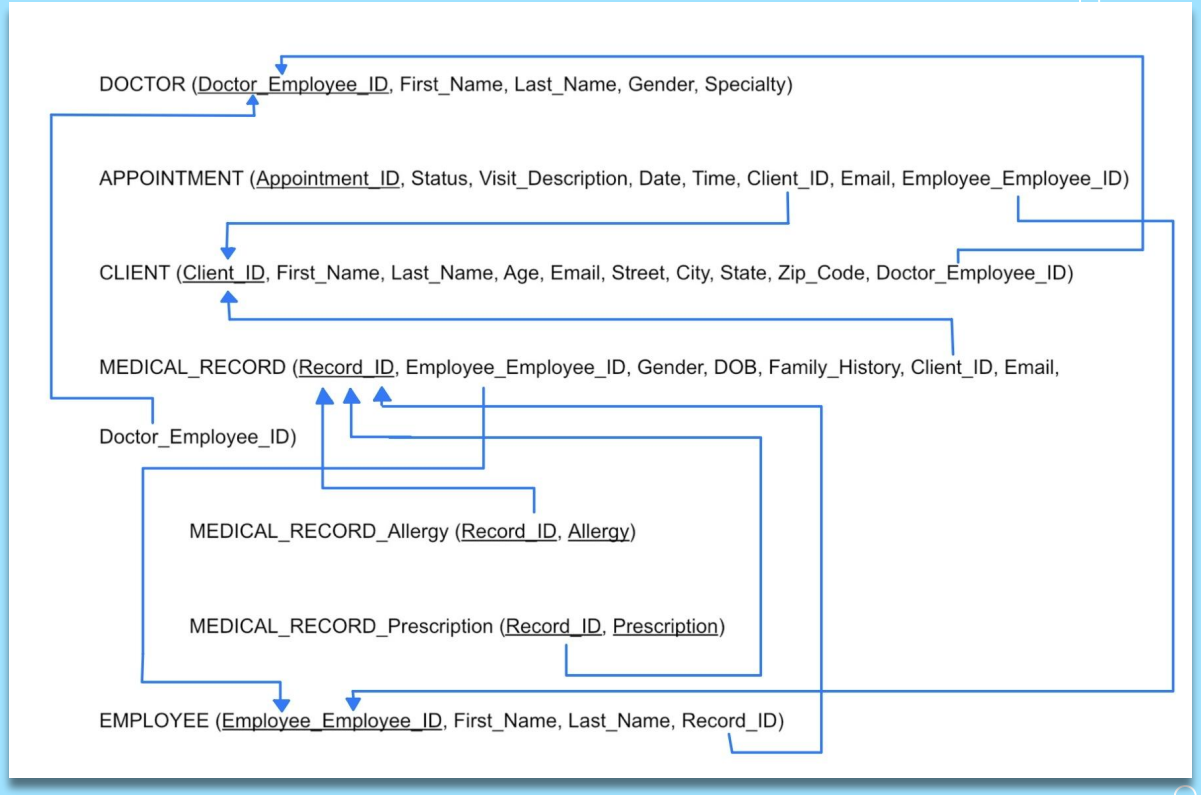
ERD

- One doctor can see many clients but one doctor can only see one client at a time.
- Records are kept only when doctors see at least one client.
- Each employee is described by their first name, last name, and unique Employee ID.
- When an appointment is set, date and time are specified.



Logical Schema

- CLIENT and MEDICAL_RECORD is a One-To-One relationship, causing Client_ID to be transferred to MEDICAL_RECORD as foreign key.
- Multi-valued attributes Allergy and Prescription in the MEDICAL_RECORD table causes separate entries within the Logical Schema.



SQL Commands

- MySQL Version 8 (Screenshot contains database creation, table creation)
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```sql
-- Creating database
CREATE DATABASE IF NOT EXISTS Doctor_Scheduler;
USE Doctor_Scheduler;

-- Create Table for Doctor - JOSIE

CREATE TABLE IF NOT EXISTS Doctor (
Doctor_Employee_ID char(6) primary key,
First_Name varchar(50) not null,
Last_Name varchar(50) not null,
Gender char(1),
Specialty varchar(100)
);

-- Insert data for Doctor

INSERT INTO Doctor (doctor_employee_ID, first_name, last_name, gender, specialty) VALUES
('d00001', 'Alexandra', 'Alvarado', 'F', 'Obstetrics and Gynecology'),
('d00002', 'Ronnie', 'Cunningham', 'M', 'Physical Medicine and Rehabilitation'),
('d00003', 'Marsha', 'Carlson', 'F', 'Family Medicine'),
('d00004', 'Delbert', 'Beck', 'M', 'Allergy and Immunology'),
('d00005', 'Han-fen', 'Hu', 'F', 'Cardiology'),
('d00006', 'Simon', 'Sandoval', 'M', 'Family Medicine'),
('d00007', 'Mamie', 'Sharp', 'F', 'Colon and Rectal Surgery'),
('d00008', 'Alan', 'Manning', 'M', 'Obstetrics and Gynecology')
```

- Doctor/Employee tables contain 50 records

- Appointment,Client, Medical Record, Allergy, Prescription, contain 100 records

SQL Commands

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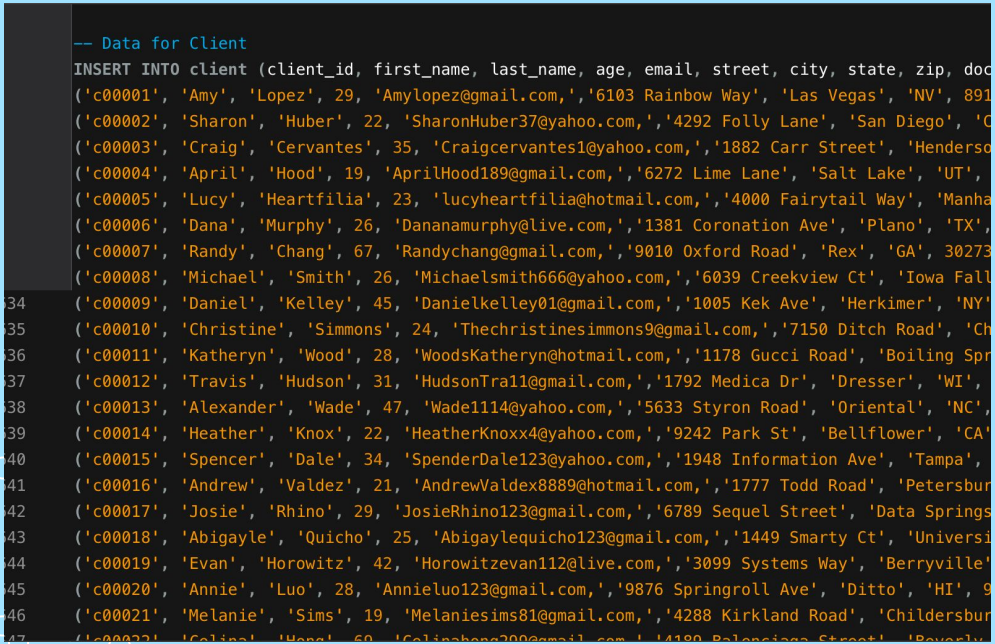

```
-- Data for Client
INSERT INTO client (client_id, first_name, last_name, age, email, street, city, state, zip, doc
('c00001', 'Amy', 'Lopez', 29, 'Amylopez@gmail.com,','6103 Rainbow Way', 'Las Vegas', 'NV', 891
('c00002', 'Sharon', 'Huber', 22, 'SharonHuber37@yahoo.com,','4292 Folly Lane', 'San Diego', 'C
('c00003', 'Craig', 'Cervantes', 35, 'Craigcervantes1@yahoo.com,','1882 Carr Street', 'Henderso
('c00004', 'April', 'Hood', 19, 'AprilHood189@gmail.com,','6272 Lime Lane', 'Salt Lake', 'UT',
('c00005', 'Lucy', 'Heartfilia', 23, 'lucyheartfilia@hotmail.com,','4000 Fairytail Way', 'Manha
('c00006', 'Dana', 'Murphy', 26, 'Dananamurphy@live.com,','1381 Coronation Ave', 'Plano', 'TX',
('c00007', 'Randy', 'Chang', 67, 'Randychang@gmail.com,','9010 Oxford Road', 'Rex', 'GA', 30273
('c00008', 'Michael', 'Smith', 26, 'Michaelsmith666@yahoo.com,','6039 Creekview Ct', 'Iowa Fall
('c00009', 'Daniel', 'Kelley', 45, 'Danielkelley01@gmail.com,','1005 Kek Ave', 'Herkimer', 'NY'
('c00010', 'Christine', 'Simmons', 24, 'Thechristinesimmons9@gmail.com,','7150 Ditch Road', 'Ch
('c00011', 'Katheryn', 'Wood', 28, 'WoodsKatheryn@hotmail.com,','1178 Gucci Road', 'Boiling Spr
('c00012', 'Travis', 'Hudson', 31, 'HudsonTra11@gmail.com,','1792 Medica Dr', 'Dresser', 'WI',
('c00013', 'Alexander', 'Wade', 47, 'Wade1114@yahoo.com,','5633 Styron Road', 'Oriental', 'NC',
('c00014', 'Heather', 'Knox', 22, 'HeatherKnoxx4@yahoo.com,','9242 Park St', 'Bellflower', 'CA'
('c00015', 'Spencer', 'Dale', 34, 'SpenderDale123@yahoo.com,','1948 Information Ave', 'Tampa',
('c00016', 'Andrew', 'Valdez', 21, 'AndrewValdex8889@hotmail.com,','1777 Todd Road', 'Petersbur
('c00017', 'Josie', 'Rhino', 29, 'JosieRhino123@gmail.com,','6789 Sequel Street', 'Data Springs
('c00018', 'Abigayle', 'Quicho', 25, 'Abigaylequicho123@gmail.com,','1449 Smarty Ct', 'Universi
('c00019', 'Evan', 'Horowitz', 42, 'Horowitzevan112@live.com,','3099 Systems Way', 'Berryville'
('c00020', 'Annie', 'Luo', 28, 'Annieluo123@gmail.com,','9876 Springroll Ave', 'Ditto', 'HI', 9
('c00021', 'Melanie', 'Sims', 19, 'Melaniesims81@gmail.com,','4288 Kirkland Road', 'Childersbur
```

- Data Dump was made utilizing Excel and Random Name/Email Generator
- Syntax was an important tool for database
- Named constraints utilized only
- ID’s went in numerical order for ease
- Doctor/Employee table contains 50 records as they can see/work with multiple clients.

Table Structure

Table: Appointment						
Column	Description	Data Type	Length	Null	PK	FK
Appointment_ID	Appointment_ID	char	6	NN	Y	
Status	Appointment Status	varchar	10			
Visit_Description	Visit Description	varchar	100			
Date	Appointment Date	date				
Time	Appointment Time	time				
Client_ID	Client_ID	char	6			CLIENT(Client_ID)
Email	Client Email	varchar	30			
Employee_Employee_ID	Employee_Employee_ID	char	6			EMPLOYEE(Employee_Employee_ID)

Doctor Table

Query 1 "How many COVID appointments were scheduled in 2022. Rename the result to COVID Appointments 2022"

- COUNT function
- LIKE command
- Column Alias

Doctor Last Name	Client First Name	Client Last Name	Client Email	Most Recent Appointment	Client DOB
Alvarado	Amy	Lopez	Amylopez@gmail.com,	2022-10-18	2001-01-28
Mclaughlin	Heather	Knox	HeatherKnoxx4@yahoo.com,	2022-08-31	1993-06-26
Phelps	Steve	Jobs	Stevejobs@apple.com,	2022-12-18	1990-10-22
Hampton	Sylvia	Villanueva	villaneva12@gmail.com,	2022-03-14	2006-07-25
Howell	Austin	Ruiz	kingma@optonline.net	2022-09-02	2003-12-23
Waters	Maia	Crawford	valdez@verizon.net	2022-06-22	1988-05-17
Jacobs	Cory	Chambers	gfxguy@mac.com	2022-11-21	1969-08-30

Doctor Table

Query 2 "-- Find patients who are prescribed Amoxicillin. List their doctor's last name, the client's first/last name, email address, most recent appointment, and client DOB. Group by the appropriate fields.'

- iNNER JOIN
- LEFT OUTER JOIN
- Column Alias
- MAX function

Doctor Last Name	Client First Name	Client Last Name	Client Email	Most Recent Appointment	Client DOB
Alvarado	Amy	Lopez	Amylopez@gmail.com,	2022-10-18	2001-01-28
Mclaughlin	Heather	Knox	HeatherKnoxx4@yahoo.com,	2022-08-31	1993-06-26
Phelps	Steve	Jobs	Stevejobs@apple.com,	2022-12-18	1990-10-22
Hampton	Sylvia	Villanueva	villaneva12@gmail.com,	2022-03-14	2006-07-25
Howell	Austin	Ruiz	kingma@optonline.net	2022-09-02	2003-12-23
Waters	Maia	Crawford	valdez@verizon.net	2022-06-22	1988-05-17
Jacobs	Cory	Chambers	gfxguy@mac.com	2022-11-21	1969-08-30

Medical Record Table

Query 1 “Find the total number of Clients who are older than 50. List the Client’s last name, the total amount of clients visiting for vaccinations, and status. Sort the result by client’s age and client's last name in descending order.”

- SUM function
- INNER JOIN
- Column Alias

Client Last Name	Total Age of Clients	Status
Phelps	64	completed
Oconnell	62	completed
Irwin	72	completed
Craft	55	completed
Chang	67	completed

Client Table

Query 1: “Retrieve the client email and date where appointment status is canceled between June 1, 2022 and December 31, 2022. Sort the result by email in ascending order.”

email	date
Gwalker21@yahoo.com,	2022-09-21
Horowitzevan112@live.com,	2022-07-24
jenniferpage77@gmail.com,	2022-08-08
mrfinkaur17@gmail.com,	2022-06-13
naruto@gmail.com,	2022-06-15
psharpe@gmail.com	2022-09-22

Appointment Table

Query 1: “Find all COVID related appointments in the last 8 months (April 1, 2022 - November 30, 2022). List the Client’s first and last name, gender, age, family history, and date of their appointment. Sort by date in descending order.”

Client First Name	Client Last Name	Gender	Age	Family Medical History	Appointment Date
Hazel	Flynn	M	20	Mad Cow Disease, COVID-19	2022-11-18
Dawson	Collins	F	18	Heart Disease	2022-10-12
Aria	Li	F	22	Diabetes	2022-09-22
Austin	Ruiz	M	18	Asthma	2022-09-02
Eve	Hamilton	F	25	NULL	2022-08-31
Melanie	Sims	F	19	NULL	2022-08-08
Frank	Ibarra	F	53	NULL	2022-08-08
Katheryn	Wood	M	28	NULL	2022-05-22
Donovan	Willis	F	25	NULL	2022-05-22
Michael	Smith	M	26	NULL	2022-05-21
Elon	Musk	M	69	NULL	2022-04-10
Israel	Peck	F	18	Mad Cow Disease	2022-04-05

Employee Table

Query 1: “Select all female clients first and last name whose age is older client Iliana Hodges. Show their first name, last name, and age.”

First Name	Last Name	Age
Craig	Cervantes	35
Quinton	Werner	35
Barrett	Wood	40
Alvaro	Kim	44
Adan	Arroyo	46
Jessica	Roberts	49
Carlie	Mccarty	51
Shyanne	Watson	53
Jaylen	Fleming	53
Frank	Ibarra	53
Jaxon	Bentley	54
Gavin	Craft	55
Valery	Webster	56
Heather	Wong	57
Steve	Jobs	58
Loretta	Vazquez	58
Nylah	Kemp	61
Ariella	Ford	62
Frida	Oconnell	62
Craig	Carlson	62
Maddison	Banks	66
Randy	Chang	67
Celina	Hong	69
Fynn	Kaur	71
Roxanna	Pecks	73
Kieran	Rubio	76
Ryan	Sanders	77
Maia	Crawford	77
Amara	Davies	79
Jennifer	Page	88

Thanks!