Team Member Names:

Abhash Sharma

Sanjay Ramanathan

Project Title:

Doctor Base

Project Step 3 Draft Version: Design HTML Interface

Changes Based on Feedback on Step 2 Final Draft:

Our TA informed us that everything seemed right with our Final Draft for Step 2. Hence, we decided to not make any changes for Step 3 Draft.

Feedback by the peer reviewer

Ryan Jensen 7 days ago

- **Does the overview describe what problem is to be solved by a website with DB back end?**
  - **Yes it does. Very descriptive!**
- **Does the overview list specific facts?**
  - **Yes, it provides specific numbers in terms of doctors, patients, tables, orders/results, etc.**
- **Are at least four entities described and does each one represent a single idea to be stored as a list?**
  - **Yes.**
- **Does the outline of entity details describe the purpose of each, list attribute data types and constraints and describe relationships between entities**?
  - Yes, it does, very descriptive and detailed.
- **Does the outline clearly indicate which entities (tables) will be implemented and which team member is primarily assigned to the associated page(s)?**
  - **It outlines the entities to be implemented but does not declare which team member is primarily assigned to the page.**
- **Are 1:M relationships correctly formulated? Is there at least one M:M relationship?**
  - **Yes!**
- **Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?**
  - Yes, they've kept the naming of entities/attributes standardized.

Zhiming Deng 6 days ago

Does the overview describe what problem is to be solved by a website with DB back end? - Yes, they did give a detailed background to describe the problem.

Does the overview list specific facts? - Yes they estimated the number of doctors, patients and orders.

Are at least four entities described and does each one represent a single idea to be stored as a list? - Yes there are 5 entities and 1 M:M relationship, each of them represents a single idea (entity or relationship).

Does the outline of entity details describe the purpose of each, list attribute data types and constraints and describe relationships between entities? Yes, there are detailed description for each entity. However I feel like that Doctor is also a kind of Staff, because in the Staff entity, the member `staffType` indicates that Nurse and Neurology and many other professions belong to Staff, in my opinion, the doctor should be also part of them.

Does the outline clearly indicate which entities (tables) will be implemented and which team member is primarily assigned to the associated page(s)? I did see that part of the work will be implemented by one of the team member, I didn't see the assignment for the other team member but I can assume that the remaining part will be implemented by the other team member. It will be better if it is mentioned explicitly.

Are 1:M relationships correctly formulated? Is there at least one M:M relationship? Yes.

Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming? Yes they are pretty consistent. But one small nit: I will prefer `DoctorsPatients` over `Doctors_Patients` (maybe i was wrong:))

Shukie Yuk Shu Li 6 days ago **Does the overview describe what problem is to be solved by a website with DB back end?**

- Yes. They mentioned how the existence of multiple data types & relationships among their 5 entities would be problematic without a db back end.

Does the overview list specific facts?

- Yes. Numerical facts describing the scale of the database is provided, the number of entity and tables are also provided.

Are at least four entities described and does each one represent a single idea to be stored a s a list?

- Yes.

Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities?

- Each entity comes with a description of its purpose.
- Attribute datatypes and constraints are given. However, I think the length of each datatype could be included for more clarity. For example, varchar datatypes could be followed with a length (ie varchar(255)).
- Relationships are listed in great detail. Cardinality and participation are both included in the relationship notations. I think this is a good notation to use in general since it depicts a lot more information with little added content.

Does the outline clearly indicate which entities (tables) will be implemented and which team member is primarily assigned to the associated page(s)?

- No. They only indicate which member will be implementing the chosen M:M relationship, but not for entities and other relationships.

Are 1:M relationships correctly formulated?

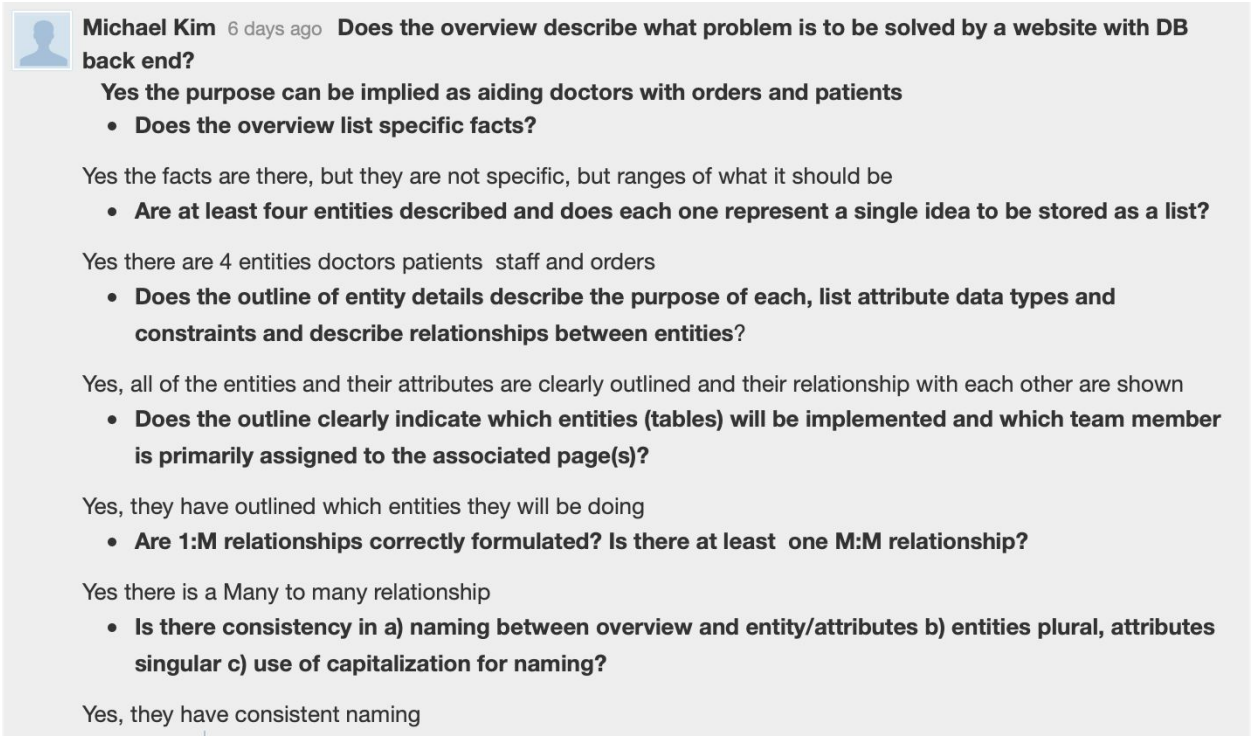
- Yes.

Is there at least one M:M relationship?

- Yes.

Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?

- a) Yes.
- b) Yes.
- c) Yes.



Michael Kim 6 days ago **Does the overview describe what problem is to be solved by a website with DB back end?**

Yes the purpose can be implied as aiding doctors with orders and patients

- **Does the overview list specific facts?**

Yes the facts are there, but they are not specific, but ranges of what it should be

- **Are at least four entities described and does each one represent a single idea to be stored as a list?**

Yes there are 4 entities doctors patients staff and orders

- **Does the outline of entity details describe the purpose of each, list attribute data types and constraints and describe relationships between entities**?

Yes, all of the entities and their attributes are clearly outlined and their relationship with each other are shown

- **Does the outline clearly indicate which entities (tables) will be implemented and which team member is primarily assigned to the associated page(s)?**

Yes, they have outlined which entities they will be doing

- **Are 1:M relationships correctly formulated? Is there at least one M:M relationship?**

Yes there is a Many to many relationship

- **Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?**

Yes, they have consistent naming

Actions based on the feedback

- Actions not taken:
  - Kept Doctors_Patients naming convention as is because we are already comfortable with Doctors_Patients over the suggested DoctorPatient.
  - It was suggested that we must include Doctors in the Staff entity. While this is a great suggestion, we have decided to separate Doctors from other members of the hospital workforce. We will not be handling the case when a Doctor refers a patient to another Doctor.
- Actions taken:
  - Now we have a member responsible for each entity table.
  - Where appropriate we have added varchar(255). This would be beneficial when coding so we have decided to change it.

Upgrades to the Draft version

- No self-inforced design changes on the database.
- Changed the rough hand-drawn ERD and Schema with clean computer generated diagrams.

Updated: Project Step 2 Draft Version: ERD & Schema

a) Fixes based on Feedback from Step 1:

- The grader advised us to clearly point out the entities of our database in our proposal section. Also, we were told to explain how a client could benefit from our database.
- We have decided to fix our proposal by adding two new sections to the Overview of our proposal. First we will clearly list out our entities. Then, we will explain how our database could help potential clients.
- Out of the two M:M relationships, only the Doctors:Patients relationship will be implemented in the final project.

b) Project Outline and Database Outline - Updated Version:

a) Overview:

A hospital consisting of 50+ doctors and staff members, 1000+ patients, and 5000+ orders and results, allows for quite a bit of complexity. There are five entities in the database: 1) Doctors, 2) Patients, 3) Staff, 4) Orders, and 5) Results. Among these 5 entities, there can be different types, multiple relationships, and numerous ways for information to get lost/mixed up.

A database with around 5-10 tables (for entities and relationships) in combination with a neat front-end display with about 3-5 pages, allows for a much easier and efficient way of viewing and managing this data.

Doctors would be able to put in Orders(additional visits, blood tests, x-ray, etc) for Patients, and assign it to a pertinent Staff. At the other end, Staff can check the Orders that need to be fulfilled, fulfill it accordingly and load up the Results of the Order. Eventually, Doctors, in their own time, or in Patient's next visit would be able to check on the Results of their Order.

Our Database will allow a small hospital to securely initiate, track, and fulfill orders for all Patients that decide to get treatment there. Besides that, more functionalities, where only certain types of doctors or staff can issue certain orders or change the status of the order, can be added.

b) Database outline, in words:

A database for a small clinic/hospital.

1. **Doctors**: Records the details of Doctors that work in Hospital.
    - doctorID: int, auto_increment, unique, not NULL, PK
    - lastName: varchar(255), not NULL
    - firstName: varchar(255), not NULL
    - department: varchar(255), not NULL
    - Relationship (Doctor-Patient)(0M:1M): Doctors can have zero or many Patients and a Patient can have one or many Doctors. Defined in Doctor_Patient table.
    - Relationship (Doctors-Orders)(11:0M): An Order can come from one and only one Doctor, while a Doctor can send zero to multiple Orders, doctorID is FK in Order
    - Relationship (Doctor-Patient)(11:0M): All Patients must have one and only one primary Doctor, while a Doctor can be a primary Doctor for zero to multiple Patients, primaryDoctorID is a FK in Patient
    - Implemented by: Abhash Sharma
2. **Patients**: All the Patients who are being/have been treated by the hospital
    - patientID: int, auto_increment, unique, not NULL, PK
    - lastName: varchar(255), not NULL
    - firstName: varchar(255), not NULL
    - primaryDoctorID: assigns Doctor to a Patient, not NULL FK
    - Relationship (Patient-Order)(11:0M): an Order can be connected to just one Patient, but a Patient can have zero to multiple Orders. patientID is FK in Order.
    - Relationship (Patient-Staff)(0M:0M): A Patient can be handled by zero or multiple Staff and vice versa. Defined in Staff_Patient table.
    - Relationship (Doctors-Patients)(0M:1M): Doctors can have zero or many Patients and a Patient can have one or many Doctors. Defined in Doctor_Patient table.
    - Implemented by: Abhash Sharma
3. **Staff**: All types of Staff members currently active in the hospital
    - staffID: int, auto_increment, unique, not NULL, PK
    - staffType: (Nurse, Pharmacy, Lab Technician, Radiology, Neurology etc.), varchar(255), not NULL
    - lastName: varchar(255), not NULL
    - firstName: varchar(255), not NULL
    - Relationship (Staff-Order)(01:0M): A Staff can have zero or multiple Orders to handle. An Order can only be handled by one and only one Staff. staffID is FK in Order.

- Relationship (Patient-Staff)(0M:0M): A Patient can be handled by zero or multiple Staff and vice versa. Defined in Staff_Patient table.
- Implemented by: Sanjay Ramanathan

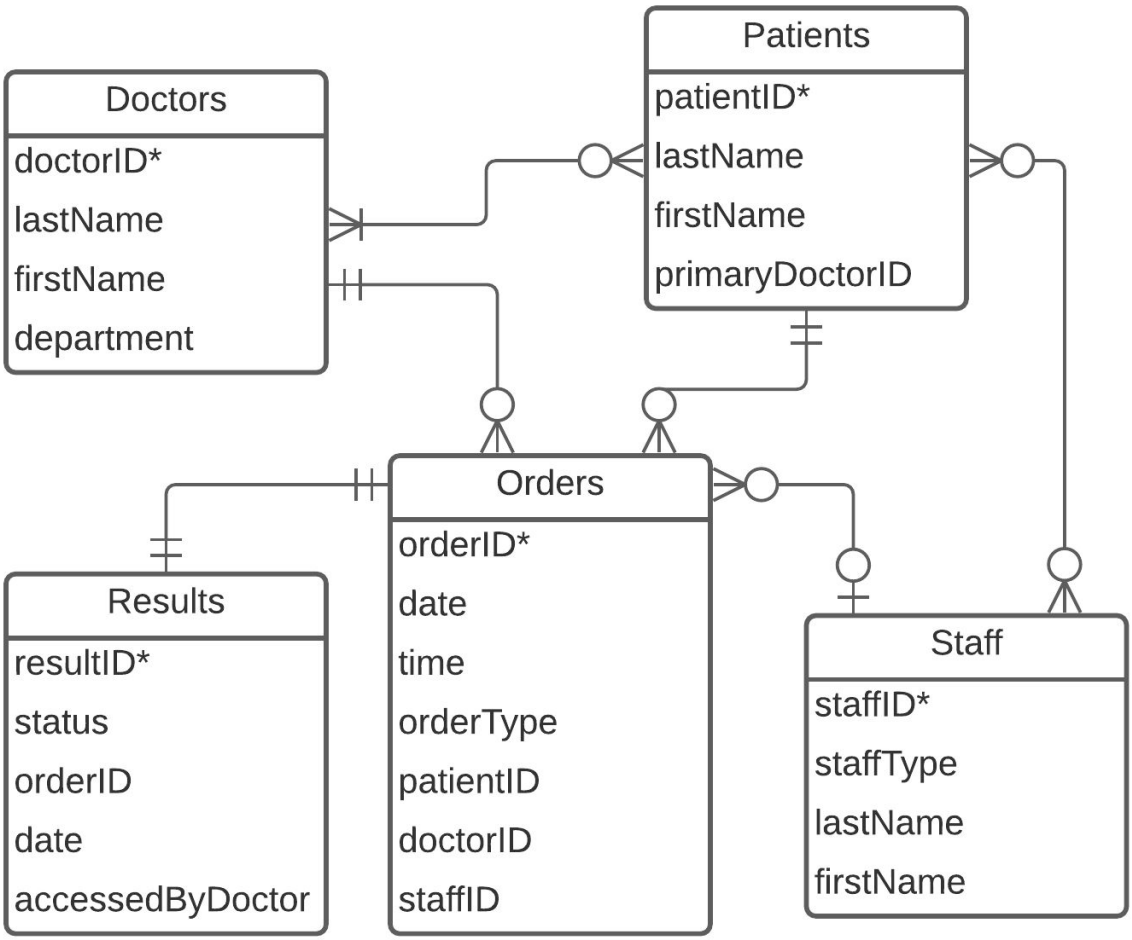
4. **Orders**: All the Orders made to Patients
    - orderID: int, auto_increment, unique, not NULL, PK
    - date: date, not NULL, date the Order was generated
    - time: time, not NULL, time the Order was generated
    - orderType: (prescription, x-ray, blood test, specialist appointment, etc.), varchar(255), not NULL
    - patientID: used to connect Patient to Order, not NULL, FK
    - doctorID: used to connect an Order to Doctor, not NULL, FK
    - staffID: NULL (until assignment), used to connect an Order to Staff, FK
    - Relationship (Order-Result)(11:11): An Order can have one and only one Result, and a Result can have one and only one Order. orderID is FK in Results
    - Implemented by: Sanjay Ramanathan
5. **Results**: The Results of all the Orders made to Patients
    - resultID: int, auto_increment, unique, not NULL, PK
    - status (Received/in progress/Completed/Sent): varchar(255), not NULL
    - orderID: used to connect an Order to a Result, not NULL, FK
    - date: NULL, date on which the Result was generated (on which the Order was fulfilled)
    - accessedByDoctor: bool, FALSE, changed to TRUE only after doctorID in Order or patientID's primaryDoctorID accesses the Results.
    - Implemented by: Sanjay Ramanathan
6. **Doctors_Patients**: Assigns a Doctor to a Patient(M:M relationship table)
    - doctorID: the Doctor being assigned to a Patient, not NULL, FK
    - patientID: the Patient being assigned to a Doctor, not NULL, FK
    - Implemented by: Sanjay Ramanathan

Identify entities and M:M relationship to implement and assign to team members.

- The final tables we will apply in our project are Doctors, Patients, Staff, Orders, Results, and Doctors_Patients.
- The two many-to-many relationships from Step 1 were: 1) Between Doctors and Patients and 2) Between Staff and Patients.
- We will implement the 1) Doctor-Patient M:M relationship.

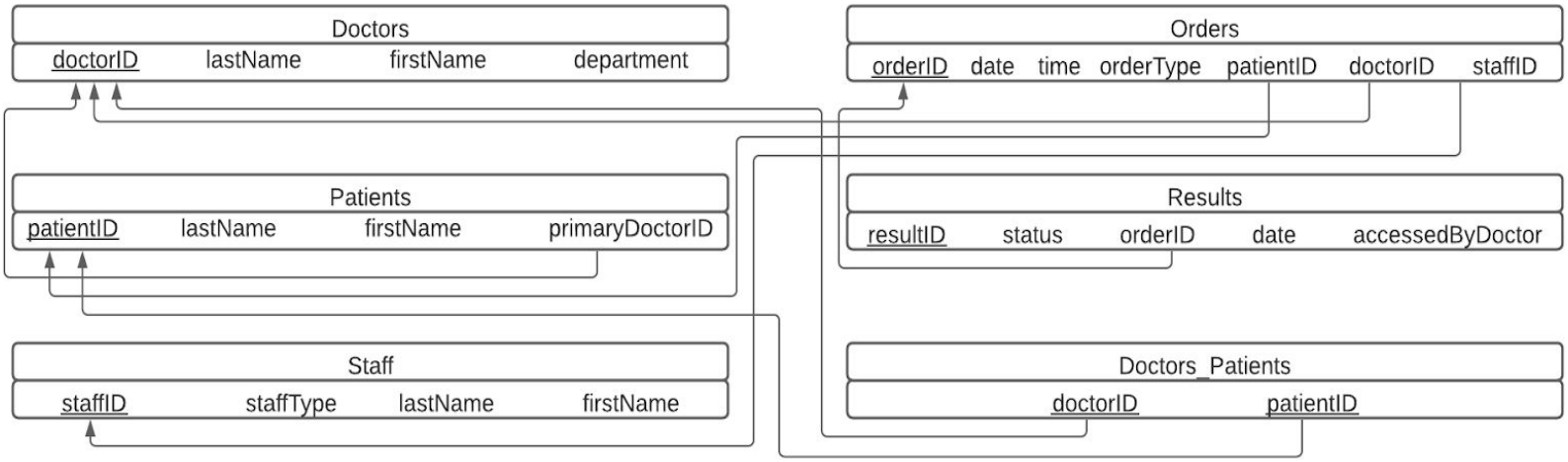
- Other site features such as the home page and error pages will be implemented by Sanjay Ramanathan

c) Entity-Relationship Diagram:



The primary key in the 5 entities here is an auto incrementing ID, named doctorID, patientID, orderID, resultID, and staffID, correspondingly. For the M:M relationship table, the primary key is the combination of the two foreign key references, named (doctorID, patientID).

d) Schema:


Doctors
doctorID lastName firstName department
Orders
orderID date time orderType patientID doctorID staffID
Patients
patientID lastName firstName primaryDoctorID
Results
resultID status orderID date accessedByDoctor
Staff
staffID staffType lastName firstName
Doctors_Patients
doctorID patientID

CS 340 TEAM EVALUATION FORM

OCTOBER 23, 2020

RATE YOUR TEAMS PERFORMANCE USING THE SCALE BELOW.

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree

GROUP NUMBER	98	
NAME OF GROUP TEAM MEMBERS:	Abhash Sharma Sanjay Ramanathan	
SCALE AND COMMENTS	RATING	ADDITIONAL COMMENTS
HOW PREPARED WAS YOUR TEAM? Research, reading, and assignment complete	4	
HOW RESPONSIVE & COMMUNICATIVE WERE YOU BOTH AS A TEAM? Responded to requests and assignment modifications needed. Initiated and responded appropriately via email, Slack etc.	4	
DID BOTH GROUP MEMBERS PARTICIPATE EQUALLY Contributed best academic ability	4	

DID YOU BOTH FOLLOW THE INITIAL TEAM CONTRACT? Were both team members both positive and productive?	4	

Are there any suggestions for improvement for your team and what are your goals moving forward?
(Better communication, follow the contract better, modify the initial team contract, more contribution, etc?)?

- Going forward we will keep working as we have been till this point.
- Our goal is that this will yield the same level of success that we have been at.