HOSPITAL MANAGEMENT SYSTEM

Team Floppy Disks

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Improvements in ER Model

Changed the generalisations to complete participation in Users and other_workers.
Also we renamed p_id and p_name of permission to per_id and per_name.
Removed doc_ssn from grade_1 table

ER Model to Relational Model

- Step 1: Mapping of Regular Entity Types

Mapped the regular entities as specified

- Step 2: Mapping of Weak Entity Types

dosage	
m_id	varchar
med_salt	varchar
med_availibility	varchar

maintenanceSchedule	
dep_id	varchar
costPerWeek	int
timeOfUnavailiablity	int

● Step 3: Mapping of Binary 1:1 Relationship Types

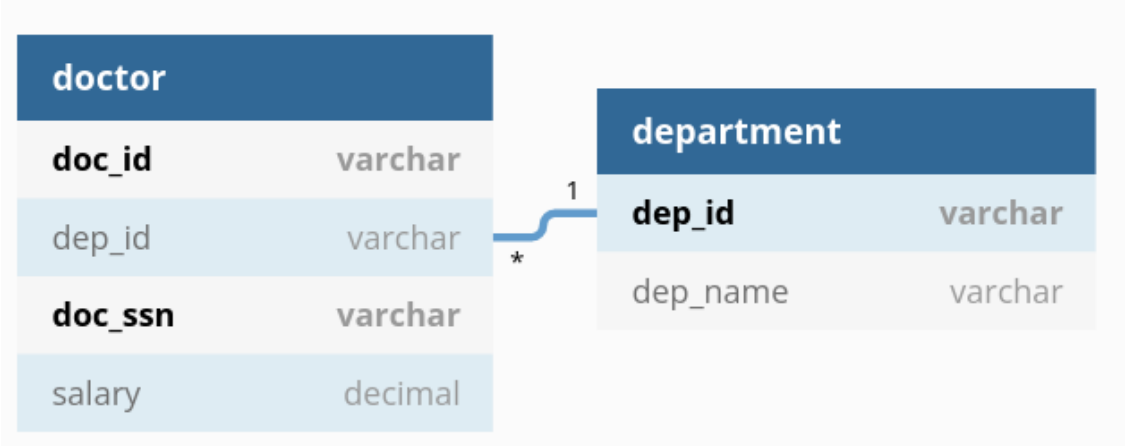
No such relations (covered in weak entity type)

● Step 4: Mapping of Binary 1:N Relationship Types

Used foreign key approach:-
I.e. primary key of **department** added in the entity **doctor** to make a relationship.

Relationships:

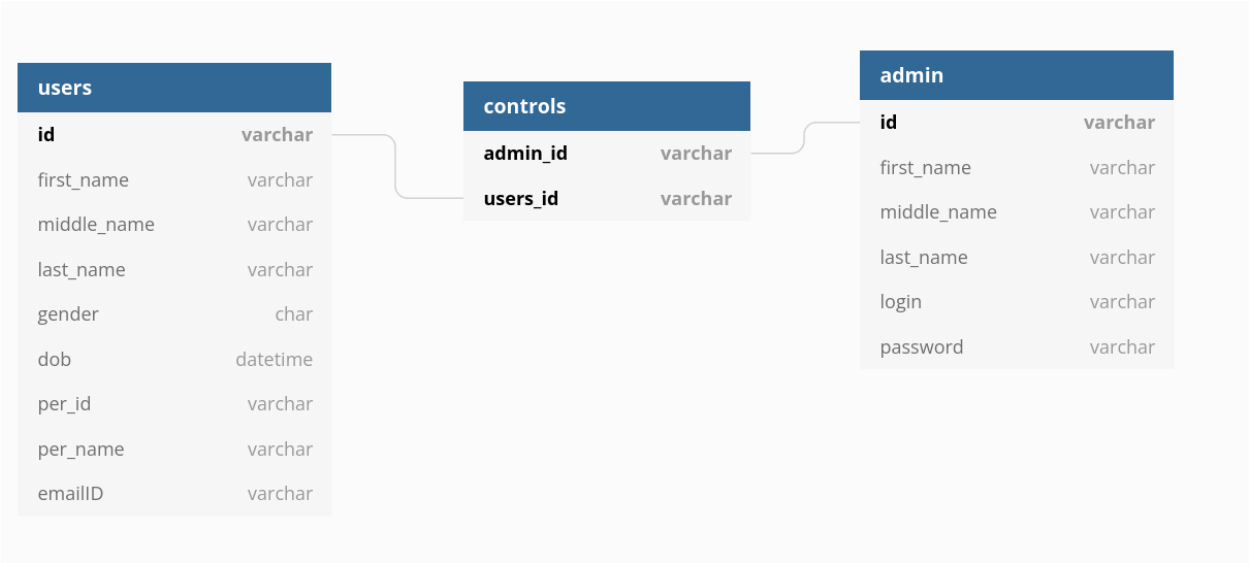
doctor **in** department



● Step 5: Mapping of Binary M:N Relationship Types

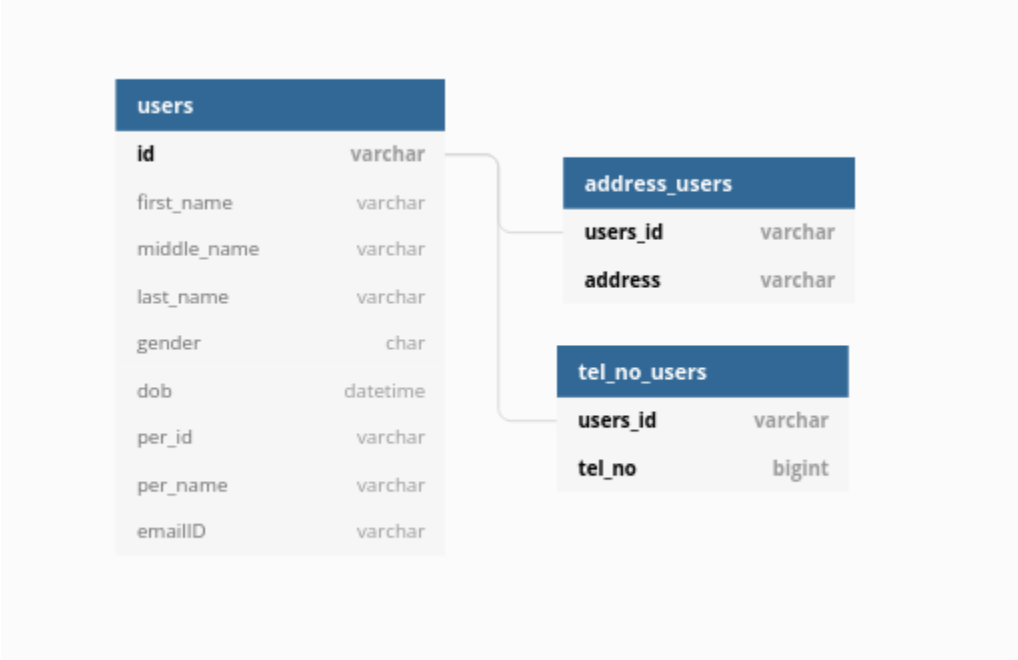
admin **controls** users

This can be done using the **relationship relation** option in which a new relation table needs to be drawn primary key of the new table is usually the combination of all the foreign keys that reference the relations representing the participating entity types.



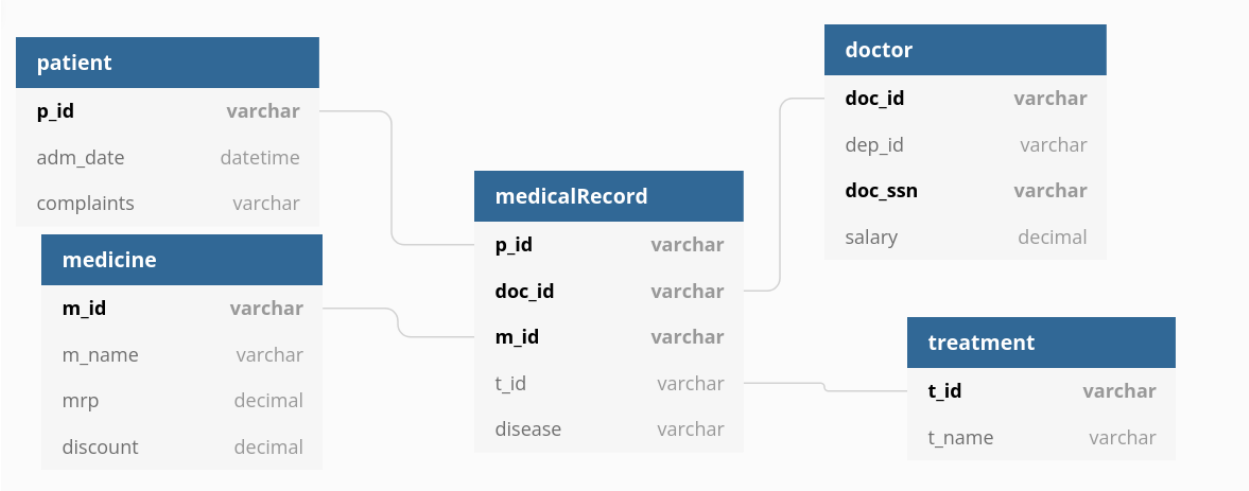
● Step 6: Mapping of Multivalued Attributes:-

This was done by making separate tables for the multivalued attributes and making them both as foreign key referencing to users and the primary key is users_id an address both,



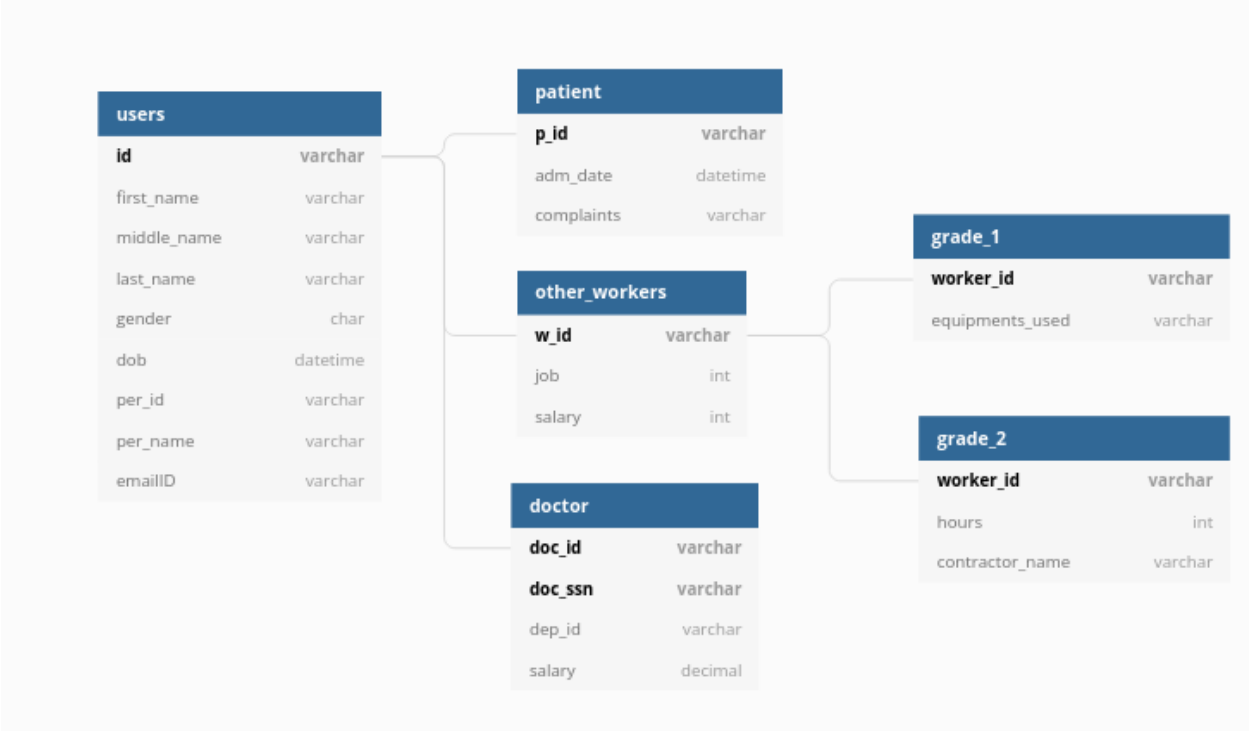
● Step 7: Mapping of N-ary Relationship Types

As explained in the book, we use the **relationship relation** but since in this case the participation constraint on t_id is 1, thus t_id will not be included in the primary key of the relationship.



● Step 8 : Mapping Specialization or Generalization

Added attributes in the specific specializations as mentioned in the book and taught in class.

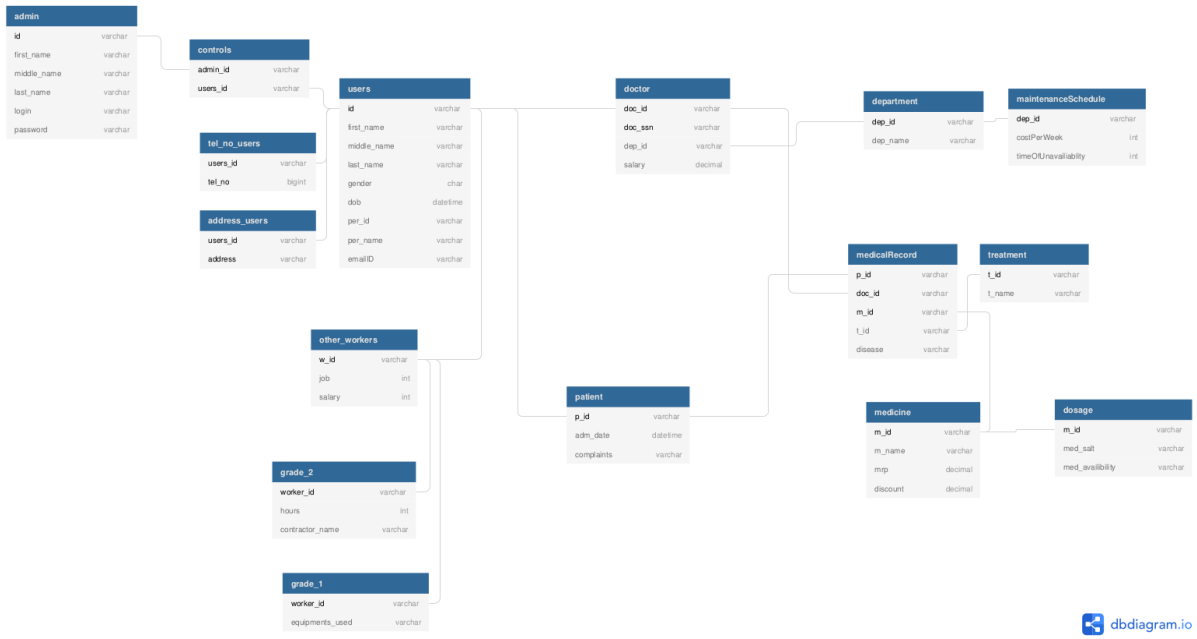


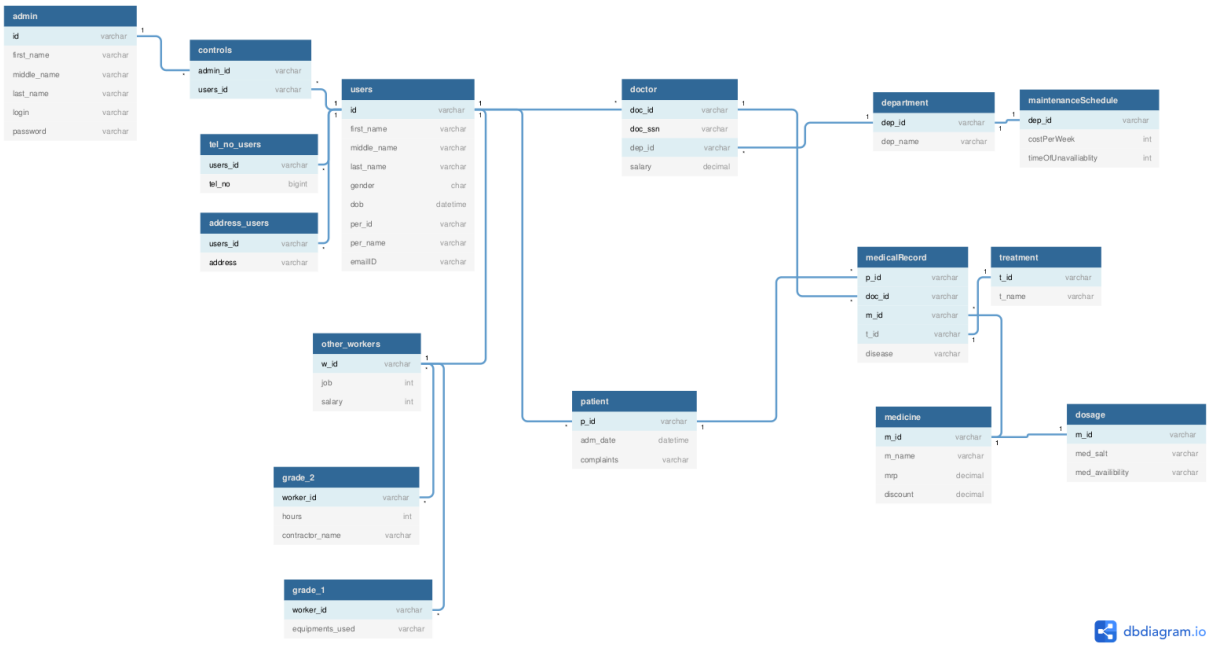
- Step 9: Mapping of Union Types (Categories)

No Union Types Exist in our Schema

The Relational Model Obtained from the ER:-

Note:- The doc_id in the doctor table is the only primary key and doc_ssn is another potential candidate key, due to the limitations of the site we could not represent both of them so we have bolded doc_ssn also, but in table consider doc_id as the only primary key.





Conversion of Relational Model to 1NF

Already in 1NF form

Conversion of 1NF Relational Model to 2NF

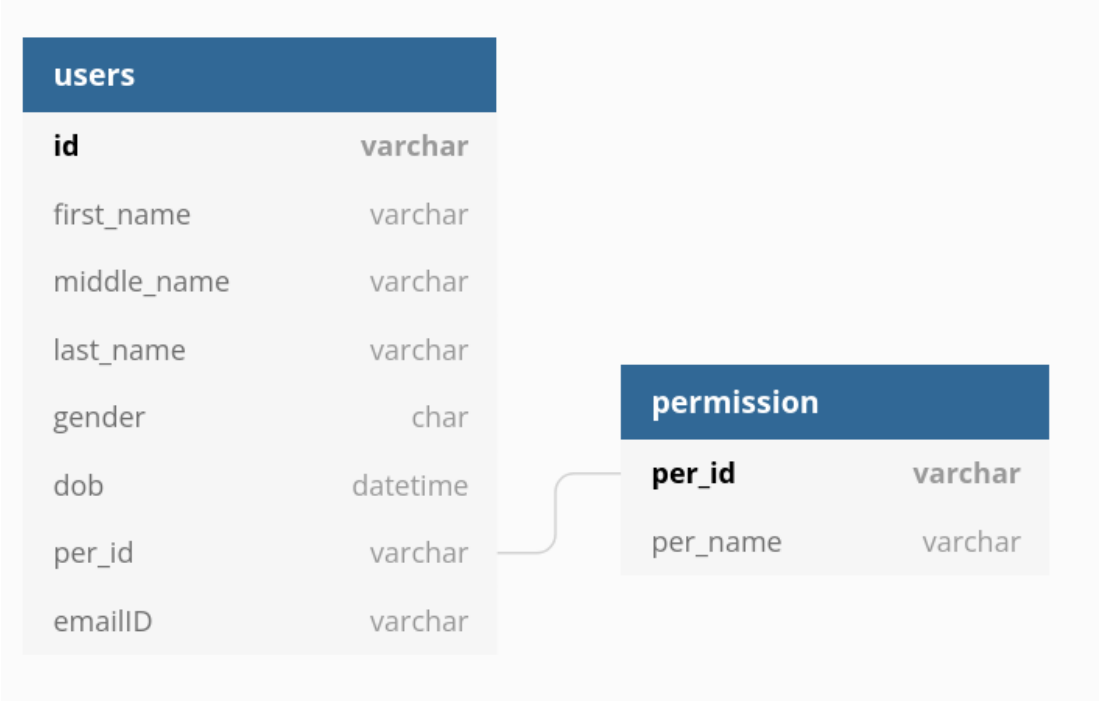
Conversion to the second normal form is concerned with changing tables with non-prime attributes which are not fully functional dependent on the primary key into multiple tables.

The relational model is already in 2NF also.

Conversion of 2NF Relational Model to 3NF

Conversion to the Third Normal Form concerns with handling all the Transitive Dependency in our relational model.

The tables violating this can be seen in user where we see that per_id should determine per_name but per_id is being determined by id so we can make a new table permission which is in foreign key per_id.



Final 3NF diagram

Link:- https://dbdiagram.io/d/615f2c8d940c4c4eec8a9beb