Data And Applications

Project Phase - 3

Team Number: 60

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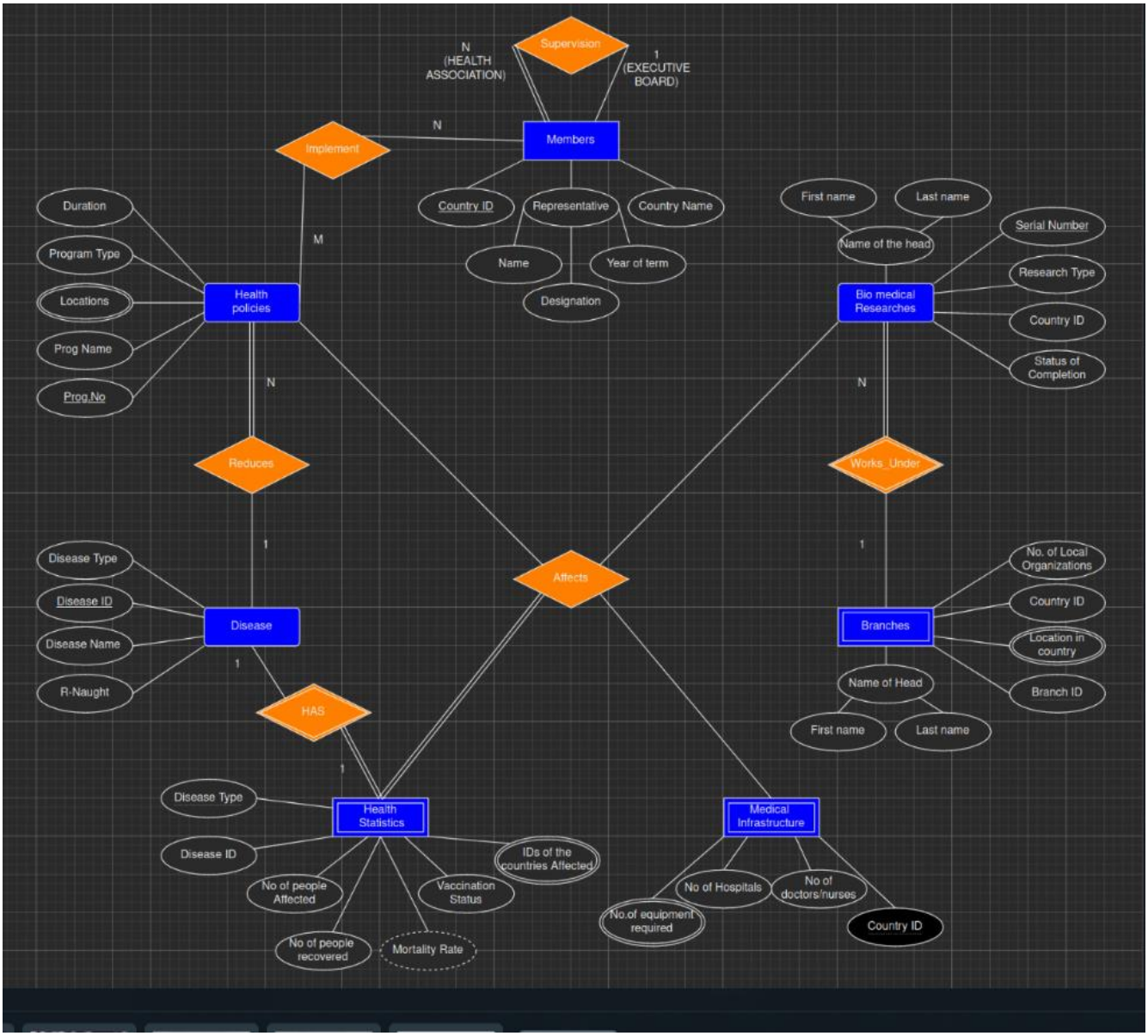
Changes Made

- New relation “HAS” is added to uniquely identify weak entity Health statistics.
- Uniquely identifying relation for Medical Infrastructure is “AFFECTS” with biomedical researches.
- Partial Key of Medical Infrastructure entity is Country ID (nothing to do with PK of members).

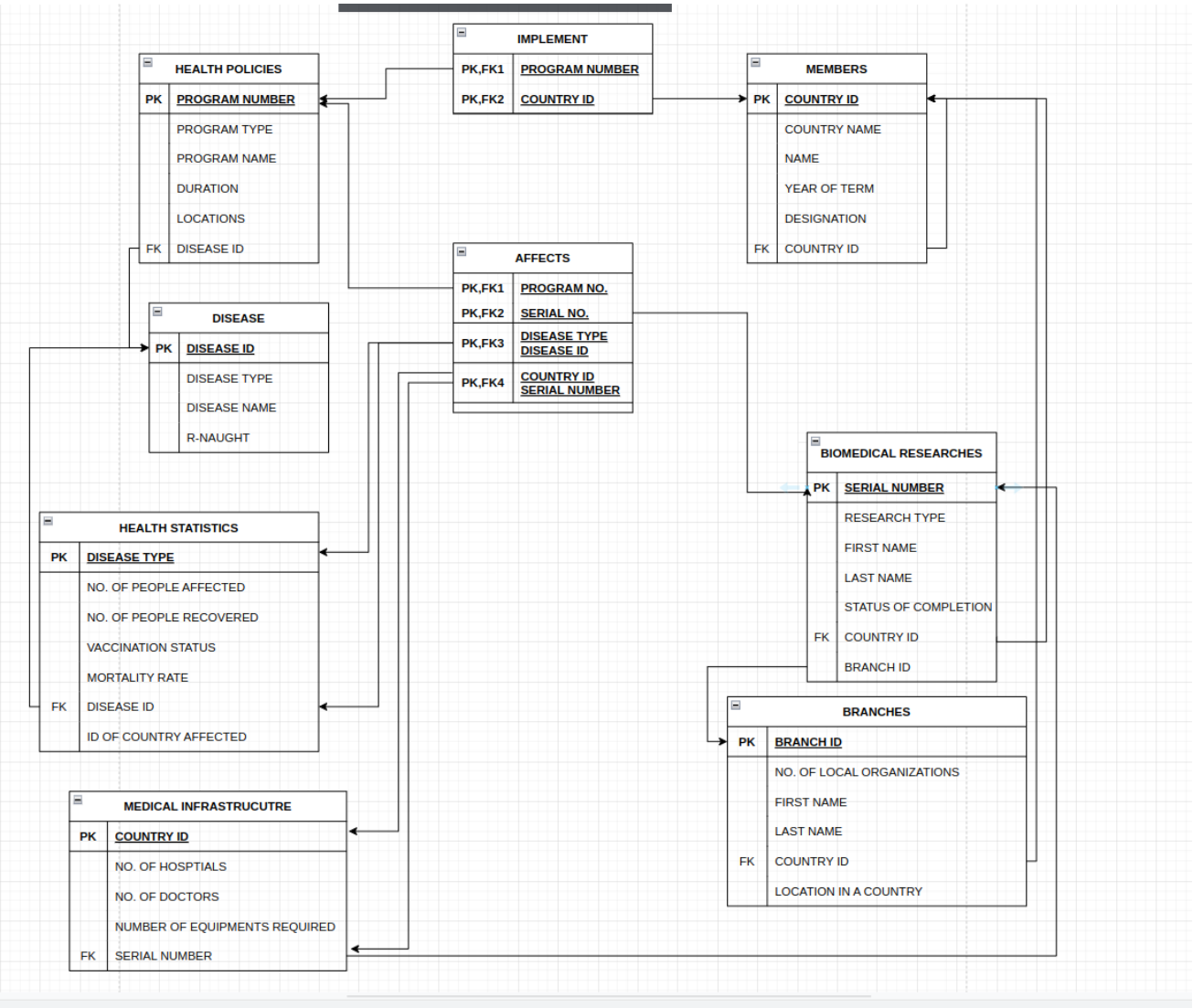
- Partial Key of Health statistics entity is Disease Type.



ER Model to Relational Model

Followed steps from Elmasri Navathe Book Chapter-9,

Concisely: https://www.tutorialspoint.com/explain-the-conversion-of-er-diagrams-to-tables-in-dbms



- Step 1: Mapping of Regular Entity Types

For strong entities, create a separate table with the same name and include all attributes of the entity in the table. For composite attributes divide them into simple attributes. Select the primary key for the table.

- Step 2: Mapping of Weak Entity Types

  For each weak entity type in the ER schema a relation is created which includes all simple attributes of the weak entity as attributes of relation. Each Relation includes the primary key of the owner Entity as a foreign key.

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

  For one-one relationship between entities A and B, modify either A or B to include the other entities primary key.

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

For one to many relationship, modify the M entity to include the primary key of the other entity.

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

For many- many relationships, create a serrated table including the primary keys of the M and N side of the as foreign keys in the new table and make their combination as the primary key for the new table.

- Step 6: Mapping of Multivalued Attributes:

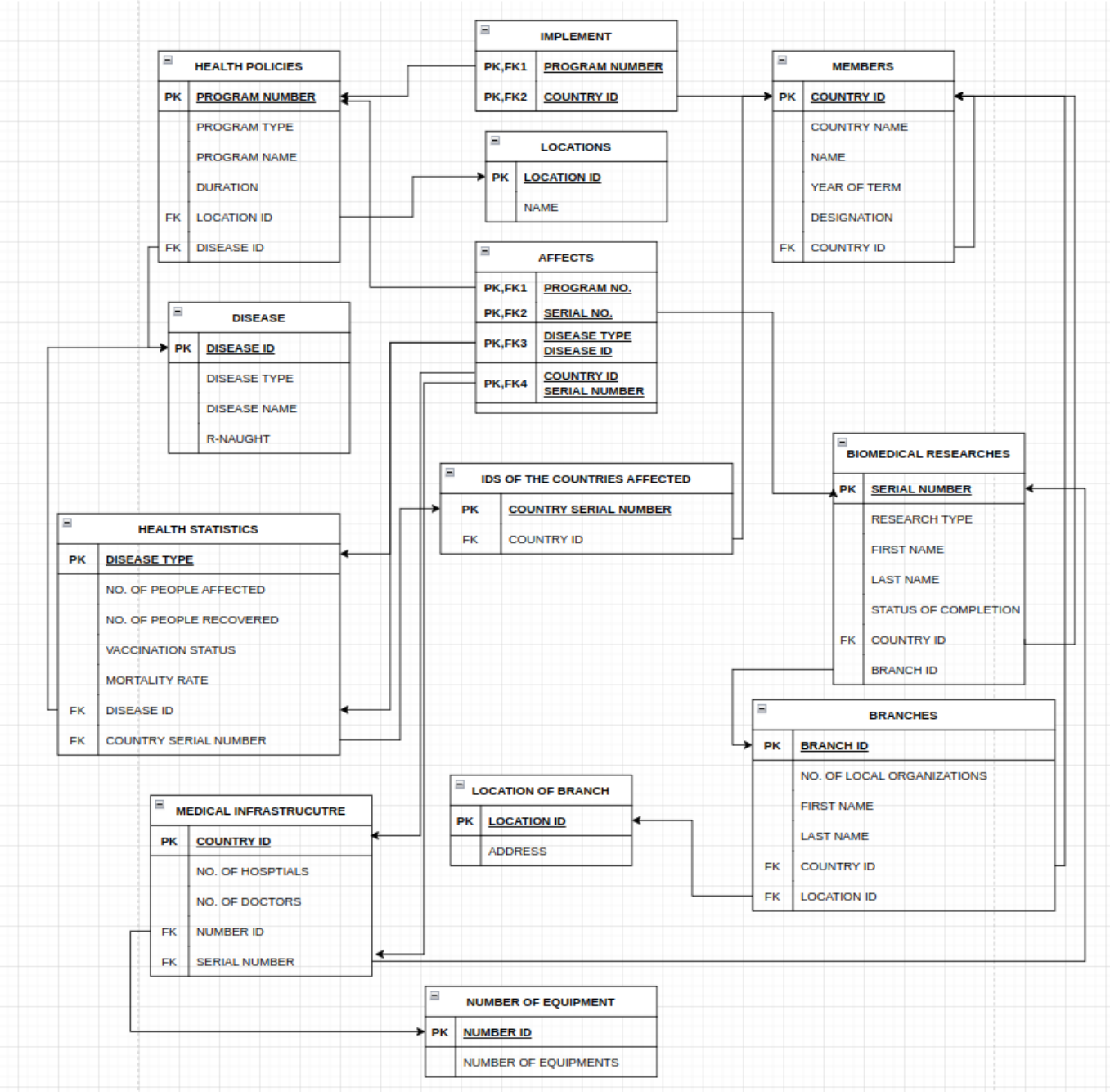
  For Multivalued Attributes such as LOCATIONS we created new table and removed these attributes from health policies and added location ID as foreign key.

- Step 7: Mapping of N-ary Relationship types:

For n-ary relationships, create a separate table which includes all the primary keys of the entities involved in the relationship as the foreign key. The combination of these foreign keys is then declared as the primary key.

Conversion of Relational Model to 1NF

The multivalued attributes have been made into different tables to convert to 1NF.



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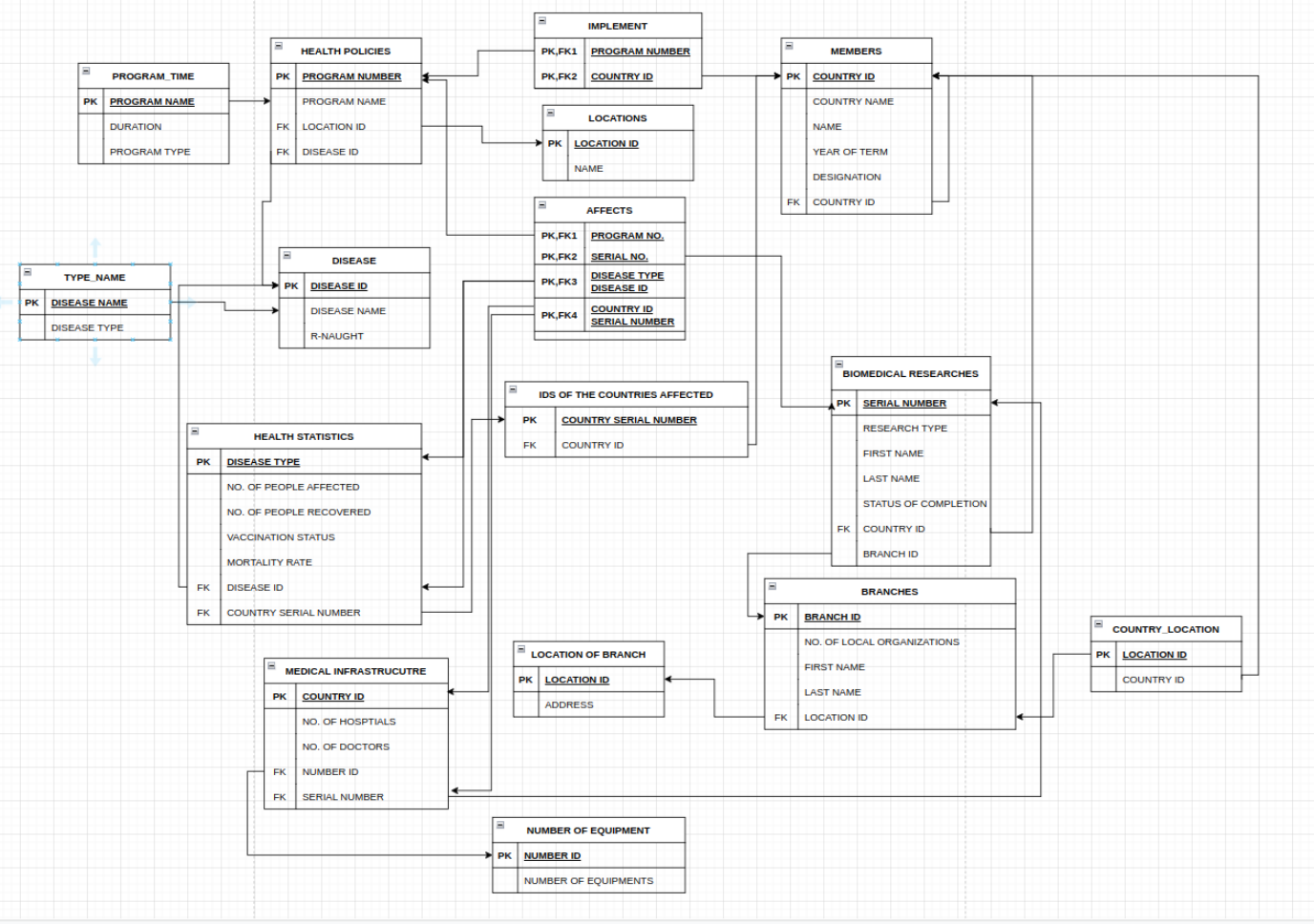
Conversion of 1 NF to 2 NF

The relational model is already in 2NF as all of its primary keys have exactly one attribute. Also, it does not have any non-prime attribute that is functionally dependent on any proper subset of any candidate key of the relation.

Conversion of 2 NF to 3 NF

The non-prime attribute dependence with another non-prime attribute has been deleted by creating new tables.



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THANK YOU