

USER

UserID	Firstname	Lastname	Gender	Date(DOB)	Month(DOB)	Year(DOB)	Weight	Height	Blood Group	Geographical Location	Climate	TimeZone
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DISEASE/ISSUE

DiseaseID	Severity	DiseaseName	Triggering Environment		Communicability
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TEST REPORTS

UserID	TreatmentID	TestID	Date( Time of Test)	Month (Time of Test)	Year (Time of Test)	Test Report	Org' Lab	Doctor/practitioner under consultation	Test Type
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MEDICATION

DiseaseID	Type of Treatment	MedicationID	Medication Name	Food restriction conditions	
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PRESCRIBED TREATMENTS

DiseaseID	Expense	Cure Time	Source of prescription	Description of Treatment	Type of Treatment	Practitioner	Specialization
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UNDERGOING TREATMENTS

UserID	TreatmentID	(Treatment start age)	Description	Status	Doctor under consultation	Associated hospital /org	DiseaseID
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MEDICAL HISTORY

UserID		
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HAS DISEASE

UserID	DiseaseID
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SYMPTOMS

DiseaseID	Symptom
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ALLERGIES

UserID	Allergies
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GENETIC CHARACTER

UserID	Genetic Characteristics
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PATHOGENS AS.

DiseaseID	Pathogens Associated
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SIDE-EFFECTS

DiseaseID	MedicationID	SideEffects
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DRUG\_DRUG INTERACTION

DiseaseID	Drug-Drug Interaction	MedicationID
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REQUIRES

UserID	DiseaseID	MedicationID	
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AYURVEDA\_MED.

MedicationID	Dilution Level
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TCM\_MED.

MedicationID	Therapies
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ALLOPATHY\_MED.

MedicationID		
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HOMEOPATHY\_MED.

MedicationID
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CHIROPRACTIC\_MED.

MedicationID
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CHIROPRACTIC\_T.

DiseaseID
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HOMEOPATHY\_T.

DiseaseID	Practitioner
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ALLOPATHY\_T.

DiseaseID
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TCM\_T.

DiseaseID
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AYURVEDA\_T.

DiseaseID	Practitioner
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LEGEND  
\_MED : MEDICATION  
\_T : TREATMENT

# USER

UserID	Firstname	Lastname	Gender	Date(DOB)	Month(DOB)	Year(DOB)	Weight	Height	Blood Group	Location ID
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# LOCATIONS

Location ID	Climate Zone	Time Zone	Geographical Location
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# DISEASE/ISSUE

DiseaseID	Severity	DiseaseName	Triggering Environment	Communicability
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# TEST REPORTS

UserID	TreatmentID	TestID	Date( Time of Test)	Month (Time of Test)	Year (Time of Test)	Test Report	Orig. Lab	Doctor/practitioner under consultation	Test Type
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# MEDICATION

DiseaseID	Type of Treatment	MedicationID	Medication Name	Food restriction/contraindication
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# PRESCRIBED TREATMENTS

DiseaseID	Expense	Cure Time	Source of prescription	Description of Treatment	Type of Treatment	Type of Treatment	Practitioner	Specialization
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# UNDERGOING TREATMENTS

UserID	TreatmentID	(Treatment start) age	Description	Status	Doctor under consultation	Associated hospital /org	DiseaseID
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# MEDICAL HISTORY

UserID
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# HAS DISEASE

UserID	DiseaseID
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# SYMPTOMS

DiseaseID	Symptom
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# ALLERGIES

UserID	Allergies
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# GENETIC CHARACTER

UserID	Genetic Characteristics
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# PATHOGENS AS.

DiseaseID	Pathogens Associated
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# SIDE-EFFECTS

DiseaseID	MedicationID	SideEffects
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# DRUG\_DRUG INTERACTION

DiseaseID	Drug-Drug Interaction	MedicationID
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# REQUIRES

UserID	DiseaseID	MedicationID
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# AYURVEDA\_MED.

MedicationID	Dilution Level
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# TCM\_MED.

MedicationID	Therapies
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# ALLOPATHY\_MED.

MedicationID
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# HOMEOPATHY\_MED.

MedicationID
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# CHIROPRACTIC\_MED.

MedicationID
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# CHIROPRACTIC\_T.

DiseaseID
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# HOMEOPATHY\_T.

DiseaseID	Practitioner
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# ALLOPATHY\_T.

DiseaseID
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# TCM\_T.

DiseaseID
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# AYURVEDA\_T.

DiseaseID	Practitioner
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# BEST PRACTITIONERS

Type of Treatment	Practitioner	Specialization
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LEGEND  
\_MED : MEDICATION  
\_T : TREATMENT

### Step 1: Mapping of Regular Entity Types

- **Regular Entity Types:** These represent entities that have attributes with unique identifiers. Each regular entity type is transformed into a table with attributes representing those of the entity. Each table receives a primary key that uniquely identifies each row.

### Step 2: Mapping of Weak Entity Types

- **Weak Entity Types:** These depend on another entity for their existence . A new table is created to represent the weak entity with a foreign key linking to the parent table.

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

- **Binary 1:1 Relationship Types:** A table for each side of the relationship is created, and a foreign key is used to link the two tables. The choice of which table receives the primary key depended on practical considerations.

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

- **Binary 1:N Relationship Types:** One table serves as the "parent" table (with the primary key), and the other serves as the "child" table with a foreign key linking it to the parent table. We choose the one on the N-side as the child, so to say.

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

- **Binary M:N Relationship Types:** This results in the creation of a new table that acts as the junction or relationship table. The table contains the primary keys of both parent tables as foreign keys, enabling the many-to-many relationship.

### Step 6: Mapping of Multivalued Attributes

- **Multivalued Attributes:** These are attributes that can have more than one value for a single entity (e.g., a person having multiple allergies, side effects of medicines etc.). A new table is created to represent this, with a foreign key linking back to the original entity table.

### Step 7: Mapping of N-ary Relationship Types

- **N-ary Relationship Types:** If a relationship involves more than two entities (e.g., Doctor, Patient, Procedure), a new table is created representing the relationship, incorporating the primary keys of all involved entities as foreign keys. We have one 4-ary relationship with 3 Primary keys.

### 1NF to 2NF:

- There were no 1NF to 2NF violations. Each attribute within regular entity types was atomic and independent.

## 2NF to 3NF:

- **PRESCRIBED\_TREATMENTS table:**

Current Structure:

PRESCRIBED\_TREATMENTS(DiseaseID, Source of prescription, Description of treatment, Type of treatment, Practitioner, Specialisation)

Found Dependencies:

Type of treatment → Practitioner

Type of treatment → Specialisation

Final Structure:

PRESCRIBED\_TREATMENTS(DiseaseID, Source of prescription, Description of treatment, Type of treatment)

TREATMENT\_TYPES(Type of treatment, Practitioner, Specialisation)

- **USER table:**

Current Structure:

USER(UserID, FirstName, LastName, Gender, Weight, Height, BloodGroup, GeographicalLocation, Climate, TimeZone)

Found Dependencies:

GeographicalLocation → Climate (Location determines climate zone).

GeographicalLocation → TimeZone (Location determines time zone).

Final Structure:

USER(UserID, FirstName, LastName, Gender, Weight, Height, BloodGroup, LocationID)

LOCATIONS(LocationID, GeographicalLocation, Climate, TimeZone)

## Assumptions:

- MedicationID (candidate key) has been added in sub class relations to maintain cohesiveness of the relation.
- Candidates Keys:
  - DiseaseName in DISEASE entity
  - MedicationID and MedicationName in MEDICATION entity (each differently)

- TreatmentID in UNDERGOING TREATMENTS entity is a partial key.
- The sub classes in MEDICATION are overlapping.
- Added attributes Practitioner, Specialisation and TimeZone, Climate in Prescribed Treatments and User respectively for context build.