Different Normalization form of the project “Hospita Management System”

Step 1: Unnormalized Form (UNF):

A poorly structured database may contain redundant data in a single table:

Patient_ID	Patient_Name	Age	Doctor_Name	Specialization	Appointment_Date	Prescription
101	John Doe	45	Dr. Smith	Cardiologist	2025-02-10	MedA, MedB
101	John Doe	45	Dr. Brown	Neurologist	2025-02-12	MedC
102	Alice White	34	Dr. Smith	Cardiologist	2025-02-15	MedD, MedE

Step 2: First Normal Form (1NF):

Patient_ID	Patient_Name	Age	Doctor_Name	Specialization	Appointment_Date	Prescription
101	John Doe	45	Dr. Smith	Cardiologist	2025-02-10	MedA
101	John Doe	45	Dr. Smith	Cardiologist	2025-02-10	MedB
101	John Doe	45	Dr. Brown	Neurologist	2025-02-12	MedC
102	Alice White	34	Dr. Smith	Cardiologist	2025-02-15	MedD
102	Alice White	34	Dr. Smith	Cardiologist	2025-02-15	MedE

Step 3: Second Normal Form (2NF):

2NF Rule: Remove partial dependencies.

Patient Table:

Patient_ID	Patient_Name	Age
101	John Doe	45
102	Alice White	34

Doctor Table:

Doctor_ID	Doctor_Name	Specialization
201	Dr. Smith	Cardiologist
202	Dr. Brown	Neurologist

Appointment Table:

Appointment_ID	Patient_ID	Doctor_ID	Appointment_Date
301	101	201	2025-02-10
302	101	202	2025-02-12
303	102	201	2025-02-15

Prescription Table:

Prescription_ID	Appointment_ID	Medication
401	301	MedA
402	301	MedB
403	302	MedC
404	303	MedD
405	303	MedE

Step 4: Third Normal Form (3NF):

3NF Rule: Remove transitive dependencies:

1. Patient Table:

Patient_ID	Patient_Name	Age
101	John Doe	45
102	Alice White	34

2.Doctor Table:

Doctor_ID	Doctor_Name	Specialization
201	Dr. Smith	Cardiologist
202	Dr. Brown	Neurologist

3.Appointment Table:

Appointment_ID	Patient_ID	Doctor_ID	Appointment_Date
301	101	201	2025-02-10
302	101	202	2025-02-12
303	102	201	2025-02-15

4. Prescription Table:

Prescription_ID	Appointment_ID	Medication
401	301	MedA
402	301	MedB
403	302	MedC
404	303	MedD
405	303	MedE