

IT 214

**G3\_11**

**Optitrack (optional crm software)**

**Group Details**

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**MINIMAL SET + BCNF FORM**

**Definition of BCNF:**

A relation is in Boyce-Codd Normal Form (BCNF) if and only if for every non-trivial functional dependency

X → Y in the relation, X is a superkey. In other words, the determinant X must contain a candidate key for

the relation.

# Medical History

* + Primary Key: Patient\_id, Mobile\_No
  + Functional Dependencies:

Patient\_id, Mobile\_No → Left\_Eye\_No\_Cyl , Left\_Eye\_No\_Sph , Left\_Eye\_No\_Deg , Right\_Eye\_No\_Cyl , Right\_Eye\_No\_Sph , Right\_Eye\_No\_Deg

* + BCNF Justification: The only determinant is Patient\_id , Mobile\_No which is the primary key. Therefore, this relation satisfies BCNF.

# Customer

* + Primary Key: Mobile\_No
  + Functional Dependencies:

Mobile\_No → Email , Address , DOB , Name

* + BCNF Justification: The only determinant is Mobile\_No , which is the primary key. Therefore, this relation satisfies BCNF.

# Loyalty Program

* + Primary Key: Mobile\_No
  + Functional Dependencies:

Mobile\_No → Join\_Date , Points\_earned , Redeem , Loyalty\_Tier

* + BCNF Justification: The only determinant is Mobile\_No , which is the primary key. Therefore, this relation satisfies BCNF.

# Branch

* + Primary Key: Branch\_Id
  + Functional Dependencies: Branch\_Id →Address , Name
  + BCNF Justification: The only determinant is Branch\_Id , which is the primary key. Therefore, this relation satisfies BCNF.

# Order

* + Primary Key: Order\_Id
  + Functional Dependencies:

Order\_Id → Date\_Of\_Expected\_Delivery , Date\_Of\_Order , Mobile\_No , Branch\_Id , Invoice\_No , Patient\_Id

* + BCNF Justification: The only determinant is Order\_Id , which is the primary key. Therefore, this relation satisfies BCNF.

# Sales\_Invoice

* + Primary Key: Invoice\_No
  + Functional Dependencies: Invoice\_No →Date , Total\_Amount
  + BCNF Justification: The only determinant is Patient\_id , which is the primary key. Therefore, this relation satisfies BCNF.

# Item

* + Primary Key: Barcode\_No
  + Functional Dependencies:

Barcode\_No →Avg\_Cost\_Price , Sale\_Price , Type(Lens/ Frame)

* + BCNF Justification: The only determinant is Barcode\_No , which is the primary key. Therefore, this relation satisfies BCNF.