Relation	Functional Dependencies
Soldier(2nf)	Height, Weight -> BMI Service_Number ->Quarter_Name,Room_No., Cmdr_S.No,First_Name, Last_Name, Height, Weight, BMI, Age
Commander(bcnf)	Cmdr_S.No->Cmdr_Rank
Quarters(bcnf)	Quarters_Name -> No._of_Soldiers, Max_Capacity
Room(bcnf)	-
Weapons(3nf)	Weapon_Name ->Weapon_ID, Type Weapon_ID ->Weapon_Name, Type
Armory(bcnf)	-
Stores(bcnf)	-
Assigns(bcnf)	-

Normalisation:

Soldier:

1NF:

Since the attributes are atomic i.e., attributes can't be divided into sub-attributes,

It is in 1NF.

2NF:

Since there is no partial dependency,

It is in 2NF.

3NF:

Since there is a transitive dependency i.e.,

Service_Number -> Height, Weight

Height, Weight -> BMI

So, we need to split the Soldier relation into two separate relations i.e.,

R1 (Service_Number, Quarter_Name, Room_No., Cmdr_S.No, First_Name, Last_Name, Height, Weight, Age)

R2 (Height, Weight, BMI)

BCNF:

Since there is no non-prime attribute defining a prime attribute,

R1, R2 are in BCNF.

Commander:

1NF:

Since the attributes are atomic i.e., attributes can’t be divided into sub-attributes,

It is in 1NF.

2NF:

Since there is no partial dependency,

It is in 2NF.

3NF:

Since there is no transitive dependency,

It is in 3NF.

BCNF:

Since there is no non-prime attribute defining a prime attribute,

It is in BCNF.

Quarters:

1NF:

Since the attributes are atomic i.e., attributes can’t be divided into sub-attributes,

It is in 1NF.

2NF:

Since there is no partial dependency,

It is in 2NF.

3NF:

Since there is no transitive dependency,

It is in 3NF.

BCNF:

Since there is no non-prime attribute defining a prime attribute,

It is in BCNF.

Room:

1NF:

Since the attributes are atomic i.e., attributes can't be divided into sub-attributes,

It is in 1NF.

2NF:

Since there is no partial dependency,

It is in 2NF.

3NF:

Since there is no transitive dependency,

It is in 3NF.

BCNF:

Since there is no non-prime attribute defining a prime attribute,

It is in BCNF.

Weapons:

1NF:

Since the attributes are atomic i.e., attributes can't be divided into sub-attributes,

It is in 1NF.

2NF:

Since there is no partial dependency,

It is in 2NF.

3NF:

Since there is no transitive dependency,

BCNF:

Since a non-prime attribute is defining a prime attribute i.e.,

Weapon_Name ->Weapon_ID

So, we need to split the Weapons relation into two separate relations i.e.,

R3 (Weapon_ID, Type)

R4 (Weapon_Name, Type)

Now R3, R4 are in BCNF.

Armory:

1NF:

Since the attributes are atomic i.e., attributes can't be divided into sub-attributes,

It is in 1NF.

2NF:

Since there is no partial dependency,

It is in 2NF.

3NF:

Since there is no transitive dependency,

It is in 3NF.

BCNF:

Since there is no non-prime attribute defining a prime attribute,

It is in BCNF.

Stores:

1NF:

Since the attributes are atomic i.e., attributes can't be divided into sub-attributes,

It is in 1NF.

2NF:

Since there is no partial dependency,

It is in 2NF.

3NF:

Since there is no transitive dependency,

It is in 3NF.

BCNF:

Since there is no non-prime attribute defining a prime attribute,

It is in BCNF.

Assigns:

1NF:

Since the attributes are atomic i.e., attributes can’t be divided into sub-attributes,

It is in 1NF.

2NF:

Since there is no partial dependency,

It is in 2NF.

3NF:

Since there is no transitive dependency,

It is in 3NF.

BCNF:

Since there is no non-prime attribute defining a prime attribute,

It is in BCNF.