

IT214: Database Management Systems

Database Project - Minimal FD Set

FarmConnect: A Farmer-Buyer Bidding System

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Functional Dependency and Normal Forms**Farmer(FarmerID, Name, FarmingType, City, LocationID, Rating)**

- $\text{FarmerID} \rightarrow \text{Name}$
- $\text{FarmerID} \rightarrow \text{FarmingType}$
- $\text{FarmerID} \rightarrow \text{City}$
- $\text{FarmerID} \rightarrow \text{LocationID}$
- $\text{FarmerID} \rightarrow \text{Rating}$

Key : **FarmerID**

This relation is in **BCNF**

Buyer(BuyerID, Name, BuyerType, City, LocationID)

- $\text{BuyerID} \rightarrow \text{Name}$
- $\text{BuyerID} \rightarrow \text{BuyerType}$
- $\text{BuyerID} \rightarrow \text{City}$
- $\text{BuyerID} \rightarrow \text{LocationID}$

Key : **BuyerID**

This relation is in **BCNF**

Crop(cropName,CropCategory,ShelfLife)

- $\text{CropName} \rightarrow \text{CropCategory}$
- $\text{CropName} \rightarrow \text{ShelfLife}$

Key : **CropName**

This relation is in **BCNF**

Location(LocationID,State,RelativeDistance)

- $\text{LocationID} \rightarrow \text{District}$
- $\text{LocationID} \rightarrow \text{State}$
- $\text{LocationID} \rightarrow \text{RelativeDistance}$

Key : **LocationID**

This relation is in **BCNF**

Market(FarmerID,CropName,HarvestTime,ListedQuantity, Start__Price, QtyRemaining, Status)

- {FarmerID , CropName , HarvestTime} \rightarrow Start__Price
- {FarmerID , CropName , HarvestTime} \rightarrow ListedQuantity
- {FarmerID , CropName , HarvestTime} \rightarrow QtyRemaining
- {FarmerID , CropName , HarvestTime} \rightarrow Status

Key : {**FarmerID , CropName , HarvestTime**}

This relation is in **BCNF**

Bid(BidID, BuyerID, FarmerID, CropName, BidQuantity, BidAmount, BidTime, HarvestTime)

- BidID \rightarrow BuyerID
- BidID \rightarrow FarmerID
- BidID \rightarrow CropName
- BidID \rightarrow BidQuantity
- BidID \rightarrow BidAmount
- BidID \rightarrow BidTime
- BidID \rightarrow HarvestTime

Key : **BidID**

This relation is in **BCNF**

Transaction(TransactionID,BidID,TotalPayableCharges, PaymentMethod,PaymentStatus, TransTime)

- TransactionID \rightarrow BidID
- TransactionID \rightarrow TotalPayableCharges
- TransactionID \rightarrow PaymentMethod
- TransactionID \rightarrow PaymentStatus
- TransactionID \rightarrow TransTime

Key : **TransactionID**

This relation is in **BCNF**

Farmer__Email(FarmerID, Farmer__Email)

Key : **FarmerID, Farmer__Email**

This relation is in **BCNF**

Farmer__PhoneNo(FarmerID, Farmer__PhoneNo)

Key : **FarmerID, Farmer__PhoneNo**

This relation is in **BCNF**

Buyer__Email(BuyerID, Buyer__Email)

Key : **BuyerID, Buyer__Email**

This relation is in **BCNF**

Buyer__PhoneNo(BuyerID, Buyer__PhoneNo)

- $\text{BuyerID} \rightarrow \text{Buyer_PhoneNo}$

Key : **BuyerID, Buyer__PhoneNo**

This relation is in **BCNF**

CropRequested(BuyerID, CropName, FarmerID, Quantityrequested, AffordablePrice, Status, ReqTime)

- $\{\text{BuyerID, CropName, ReqTime}\} \rightarrow \text{QuantityRequested}$
- $\{\text{BuyerID, CropName, ReqTime}\} \rightarrow \text{AffordableAtPrice}$
- $\{\text{BuyerID, CropName, ReqTime}\} \rightarrow \text{Status}$
- $\{\text{BuyerID, CropName, ReqTime}\} \rightarrow \text{FarmerID}$

Key : **{BuyerID, CropName, ReqTime}**

This relation is in **BCNF**