
Database Management System (IT615)

**Normalization and Schema Refinement
for
Sustainable Agriculture Resource Management**

Group Number: 02

Aarushi Goel (202412002)

Jayesh Chauhan (202412012)

1. Normalization & Schema Refinement

- **List all the Relations & Schemas with all details**

1. Farmer(**FarmerID**, Name, FarmSize, ContactInfo)
2. Crop(**CropID**, Name, Type, GrowthPeriod, Yield)
3. Technology(**TechnologyID**, Name, Type, Purpose)
4. Soil(**SoilID**, Type, NutrientContent, pHLevel, MoistureLevel)
5. Fertilizer(**FertilizerID**, Name, Type, NutrientContent, ApplicationMethod)
6. TrainingProgram(**ProgramID**, Title, Duration, TargetAudience, Content)
7. Visitor(**VisitorID**, Name, Role, ContactInfo)
8. Policy(**PolicyID**, Name, Type, ImplementationDate)
9. Aid(**AidID**, Type, Amount, Beneficiary, Date)
10. CropDisease(**DiseaseID**, Name, Symptoms, Treatment)
11. CropRotation(**RotationID**, CropSequence, Duration, Benefits)
12. Investment(**InvestmentID**, Amount, Purpose, Beneficiary, Date)
13. Weather(**WeatherID**, Date, Temperature, Precipitation, Conditions)
14. SustainablePractice(**PracticeID**, Name, Description, Benefits, ImplementationLevel)

- **Relational Schema**

1. Farmer_Crop(**FarmerID**, **CropID**)
2. Farmer_Tech(**FarmerID**, **TechnologyID**, TimeofUsage)
3. FarmingTool(**ToolID**, Name, Type, Usage, Manufacturer, FarmerID)
4. Irrigation(**IrrigationID**, Type, CoverageArea, Efficiency, InstallationDate, FarmerID)
5. Farmer_Soil(**FarmerID**, **SoilID**)
6. Farmer_Fertilizer(**FarmerID**, **FertilizerID**, Quantity)
7. Farmer_TrainingProgram(**FarmerID**, **ProgramID**)

8. Crop_Fertilizer(CropID, FertilizerID, FertilizerQuantity)
9. Crop_Disease(CropID, DiseaseID)
10. Farmer_Aid(FarmerID, AidID)
11. Farmer_Investment(FarmerID, InvestmentID)
12. Irrigation_Soil(IrrigationID, SoilID)
13. Crop_Soil(CropID, SoilID)
14. Crop_Weather(CropID, WeatherID)
15. Farmer_SustainablePractice(FarmerID, PracticeID)

- **Identify and list all types of dependencies**

Farmer

FarmerID -> {Name, FarmSize, ContactInfo}

FarmerID -> Name

ContactInfo -> Name

Crop

CropID -> {Name, Type, GrowthPeriod, Yield}

CropID -> {Name, Type}

Name -> Type

Technology

TechnologyID -> {Name, Type, Purpose}

TechnologyID -> {Name, Type}

Name -> Type

Soil

SoilID -> {Type, NutrientContent, pHLevel, MoistureLevel}

SoilID -> Type

Type -> {NutrientContent, pHLevel, MoistureLevel}

Fertilizer

FertilizerID -> {Name, Type, NutrientContent, ApplicationMethod}

FertilizerID -> Name

Name -> {Type, NutrientContent}

TrainingProgram

ProgramID -> {Title, Duration, TargetAudience, Content}

ProgramID -> {Title, Duration,
TargetAudience}

Visitor

VisitorID -> {Name, Role, ContactInfo}

VisitorID -> {Name, Role}

ContactInfo -> {Name, Role}

Policy

PolicyID -> {Name, Type, ImplementationDate}

PolicyID -> {Name, Type}

Aid

AidID -> {Type, Amount, Beneficiary, Date}

AidID -> {Type, Amount}

CropDisease

DiseaseID -> {Name, Symptoms, Treatment}

CropRotation

RotationID -> {CropSequence, Duration, Benefits}

Investment

InvestmentID -> {Amount, Purpose, Beneficiary, Date}

Weather

WeatherID -> {Date, Temperature,
Precipitation, Conditions}

SustainablePractice

PracticeID -> {Name, Description, Benefits,
ImplementationLevel}