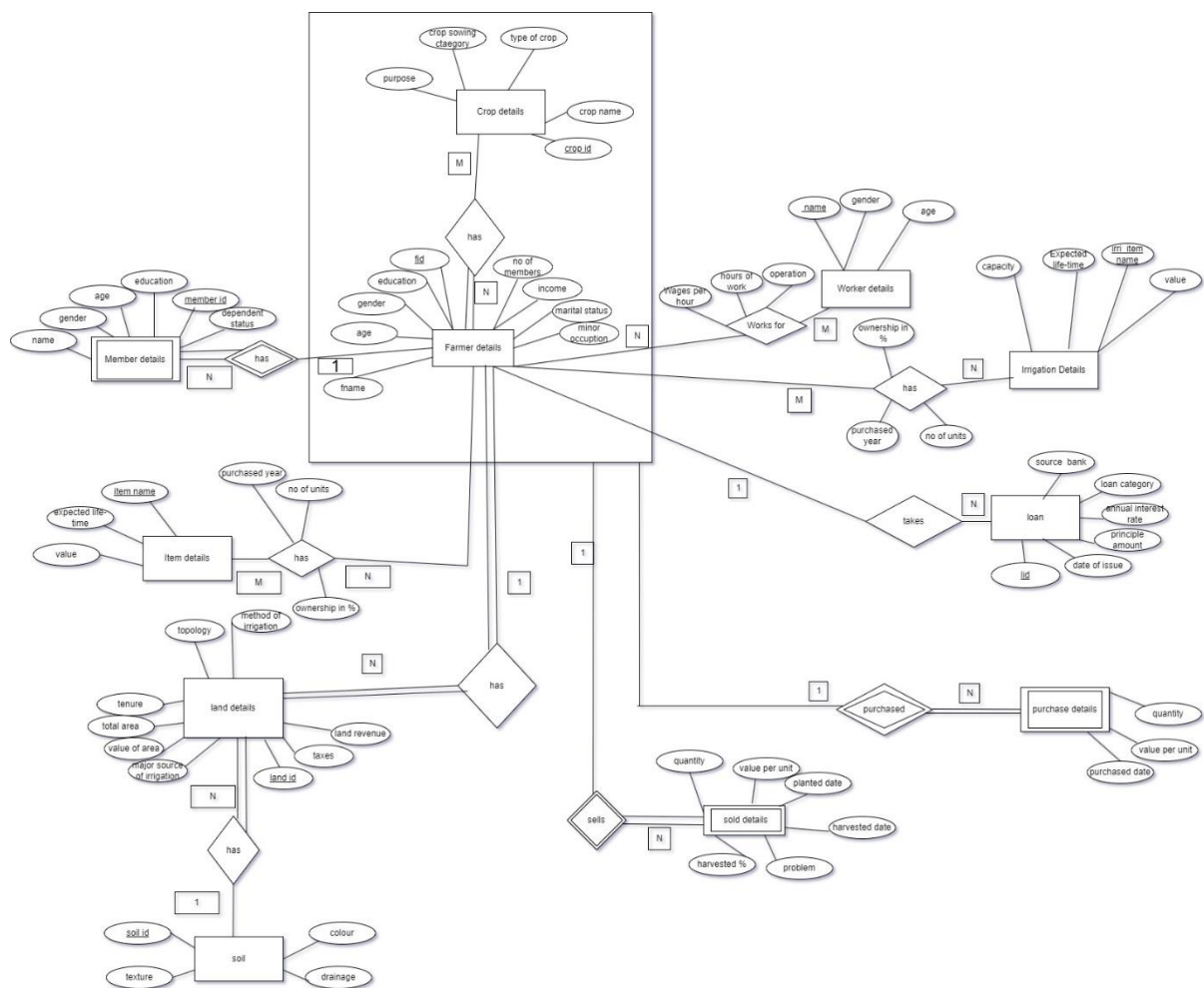


# Database and Management System

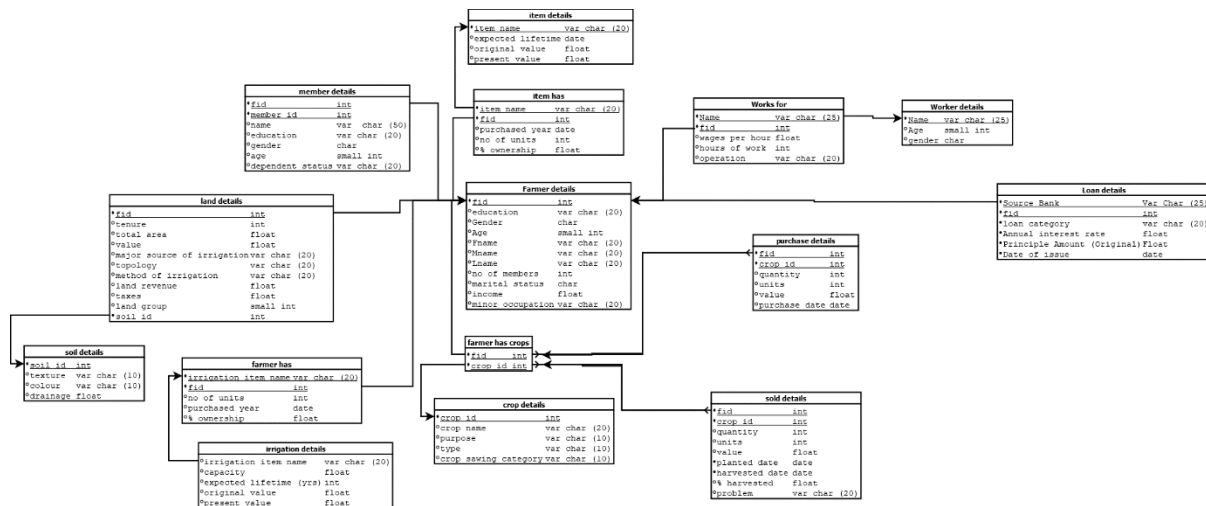
## DATABASE PROJECT

### Database for keeping Farmer Analysis Package

#### ER diagram:



#### Relational Schema:



## Minimal FD SET and BCNF:

### Relation 1:

**Relation:** Item details(item name, expected lifetime, original value, present value)

**Minimal FD set:-**

item name->expected lifetime

item name-> original value

item name-> present value

**Key:** item name

-> Here **relation** Item details(item name, expected lifetime, original value, present value) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 2:

**Relation:** item has(item name, fid, purchased year, no of units, % ownership)

**Minimal FD set:-**

{item name, fid}->purchased year

{item name, fid}-> no of units

{item name, fid}->% ownership

**Key:** {item name, fid}

-> Here **relation** item has(**item name, fid**, purchased year, no of units, % ownership) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 3:

**Relation:** Farmer details(**fid**, education, Gender, Age, Fname, Mname, Lname, no of members, marital status, income, minor occupation )

**Minimal FD set:-**

fid->education

fid->Gender

fid->Age

fid->Fname

fid->Mname

fid->Lname

fid->no of members

fid->marital status

fid->income

fid->minor occupation

**Key:** fid

-> Here **relation** Farmer details (**fid**, education, Gender, Age, Fname, Mname, Lname, no of members, marital status, income, minor occupation ) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 4:

**Relation:** Farmer has crops(**fid**, **crop id**)

**Minimal FD set:-**

{Fid, crop id}-> NULL

**Key:** {fid, crop id}

-> Here **relation** Farmer has crops(**fid**, **crop id**) is in **BCNF**, because the relation which has no functional dependencies is always BCNF.

### Relation 5:

**Relation:** crop details(**crop id**, crop name, purpose, type, crop sowing category)

**Minimal FD set:-**

Crop id->crop name

Crop id->purpose

Crop id-> type

Crop id-> crop sowing category

Crop id->purpose

Crop id->type

Crop id->category

**Key:** crop id

-> Here **relation** crop details(**crop id**, crop name, purpose, type, crop sowing category) is in **BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 6:

**Relation:** Member details(**fid**, **member id**, name, education, gender, age, dependent status)

**Minimal FD set:-**

{fid, member id}->name

{fid, member id}->education

{fid, member id}->gender

{fid, member id}->age

{fid, member id}->dependent status

**Key:** {fid, member id}

-> Here **relation** Member details(fid, member id, name, education, gender, age, dependent status) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

## Relation 7:

**Relation:** Land details(soil id, **fid**, tenure, total area, value, major source of irrigation, topology, method of irrigation, land revenue, taxes, land group)

**Minimal FD set:-**

{fid}->tenure

{fid}->total area

{fid}->value

{fid}->major source of irrigation

{fid}->topology

{fid}->method of irrigation

{fid}->land revenue

{fid}->taxes

{fid}->land group

**Key:** {fid}

-> Here **relation** Land details(soil id, **fid**, tenure, total area, value, major source of irrigation, topology, method of irrigation, land revenue, taxes, land group) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 8:

**Relation:** Soil detail(**soil id**, texture, colour, drainage)

**Minimal FD set:-**

Soil id->texture

Soil id->colour

Soil id->drainage

**Key:** soil id

-> Here **relation** Soil detail(**soil id**, texture, colour, drainage) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 9:

**Relation:** Irrigation details(**irrigation item name**, capacity, expected lifetime, original value, present value)

**Minimal FD set:-**

irrigation item name-> capacity

irrigation item name-> expected lifetime

irrigation item name-> original value

irrigation item name -> present value

**Key:** {irrigation item name}

-> Here **relation** Irrigation details(**irrigation item name**, capacity, expected lifetime, original value, present value) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 10:

**Relation:** farmer has(**item name**, **fid**, no of units, purchased year, % ownership)

**Minimal FD set:-**

{fid,itemname}->no of units

{fid,itemname}->purchased year

{fid,itemname}->% ownership

**Key:** {fid, item name}

-> Here **relation** farmer has(**fid, item name**, no of units, capacity, purchased year, expected lifetime, original value, present value, % ownership) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 11:

**Relation:** works for(**Name, fid**, wages per hour, hours of work, operation)

**Minimal FD set:-**

{Name,fid}->wages per hour

{Name,fid}->hours of work

{Name,fid}->operation

**Key:** {Name, fid}

-> Here **relation** works for(**Name, fid**, wages per hour, hours of work, operation) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 12:

**Relation:** Worker details(**Name**, Age, gender)

**Minimal FD set:-**

Name->Age

Name->gender

**Key:** Name

-> Here **relation** Worker details(**Name**, Age, gender) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 13:

**Relation:** Purchased details(**fid, crop id**, quantity, units, value, purchase date)

**Minimal FD set:-**

{fid,crop id}->quantity

{fid,crop id}->units

{fid,crop id}->value

{fid,crop id}->purchase date

**Key:** {fid, crop id}

-> Here **relation** Purchased details(**fid, crop id**, quantity, units, value, purchase date) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### Relation 14:

**Relation:** Sold details(**fid, crop id**, quantity, units, value, planted date, harvested date, % harvested, problem)

**Minimal FD set:-**

{fid,crop id}->quantity

{fid,crop id}->units

{fid,crop id}->value

{fid,crop id}->planted date

{fid,crop id}->harvested date

{fid,crop id}->% harvested

{fid,crop id}->problem



**Key:** {fid, crop id}

-> Here **relation** Sold details(**fid,crop id**,quantity,units,value,planted date,harvested date,% harvested,problem) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

### **Relation 15:**

**Relation:** Loan details(**source bank, fid**, loan category, Annual interest rate, Principle Amount(original),Date of issue)

**Minimal FD set:-**

{source bank,fid}->loan category

{source bank, fid}-> Annual interest rate

{source bank,fid}-> Principle Amount(original)

{source bank,fid}-> Date of issue

**Key:** { source bank, fid}

-> Here **relation** Loan details(**source bank, fid**, loan category, Annual interest rate,Principle Amount(original),Date of issue) **is in BCNF**, because determinant of every functional dependencies that holds on relation is the key of the relation.

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