

# Introduction to Database Systems

## <Farm DBMS>

### < ER Diagram Report>

## Team Number: 2

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## Problem definition:

In the real world, any farm faces a difficulty in managing too much data about the system which controls the farm. So, in our data base system we are interested in creating a data base which manages the whole data in a simple and tidy manner.

This project is a database for a farm, the farm has two lands (sections), land for agriculture, and one for raising different types of animals, the aim of the project is to build a strong database for handling a farm system and help the workers to deal with the jobs and tasks and with the data related to it more easily.

The project includes database for the crew of the farm (Manager, middle manager, mechanical engineers, agricultural engineers, veterinary doctors, Warehouse Supervisor, workers...), along with data bases for the animals, crops, equipment, warehouse, lands, vehicles.

| User  | Functionalities  |
|---|--|
| Farm Manager<br>(Head)                        | Setting budgets and production targets   |
|   | give quick orders to worker's leaders and sub managers   |
|   | Organize the schedule of the workers and their shifts  |
|   | Supervising other staff  |
|   | Organize the trade (imports and exports)   |
| Middle<br>manager                             | quick access to farm manager   |
|   | Check the other crew work and report about the other workers and their evaluation                                      |
|   | give Salaries  |
|   | hiring and firing daily workers  |
|   | Keeping record of warehouse  |
|   | Do statistics of the work  |
|   | Monitoring shipment and provisions.  |
| Agricultural<br>engineer                      | Assign tasks to workers under his command and check the work done  |
|   | evaluate lands and corps status  |
|   | sending reports to the manager   |
| Mechanical<br>Engineer                        | Assign tasks to workers under his command and check the work done  |
|   | Evaluate machines status   |
|   | Sending reports on the work rate to the manager  |
|   | direct communication with agricultural engineer  |
| Veterinary<br>doctors                         | Treat the animals and look after their health  |
|   | Send reports to the manager about the needed equipment or medicine needed  |
|   | Send animals' health data and information  |
| Warehouse and<br>transportation<br>Supervisor | Supervise the warehouse and check the in and out Goods stored in it and the vehicles transporting from and to the farm |
|   | Send the needed data to the farm manager   |
|   | Send reports to the farm manager   |

## Entities of the database

| Entity                | Description   |
|-----------------------|---|
| Farm Manager          | He is a person who is responsible for managing the farm and sitting targets.  |
| Middle manager        | He is a person who is responsible for   |
| Mechanical engineer   | He is a person who is responsible for maintaining the equipment in the farm if any breakdown occurred.  |
| Agricultural engineer | He is a person who is responsible for testing the soil to know its properties, so that he will be able to choose the right seeds to be planted in it, to make a good use of the soil without wasting it. He also determines the suitable season to grow a certain crop. |
| Veterinary doctor     | They are responsible for looking after animals and treating them if they have infection or when they have a disease. So that we can get a product of high quality.  |
| Warehouse             | The place where we will store crops. It will also have refrigerators to store dairy products in low temperature to keep them until they are sold to traders.  |
| Employees             | The daily (or weekly) workers that work in the two sections of the farm.  |
| Farmland              | The place which will be used to plant the crops in different types.   |
| Farmhouse             | The place which will be used to raise farm animals such as(cows, chicken, sheep and goats)  |
| Traders               | People who made deals with the farm whether it was importing or exporting   |

## Relations

1- Works as: Between the Employee entities and all the other jobs entity. It describes which employee works in a certain job

2- Works on: Between each of (Agriculture Engineer, Vet) and (Farm house, Farm land) respectively

3- Supervise: Between all the employees and the middle manager who supervise them

4- Supervised: Between the middle manager and the farm manager who is responsible for supervising the middle manager

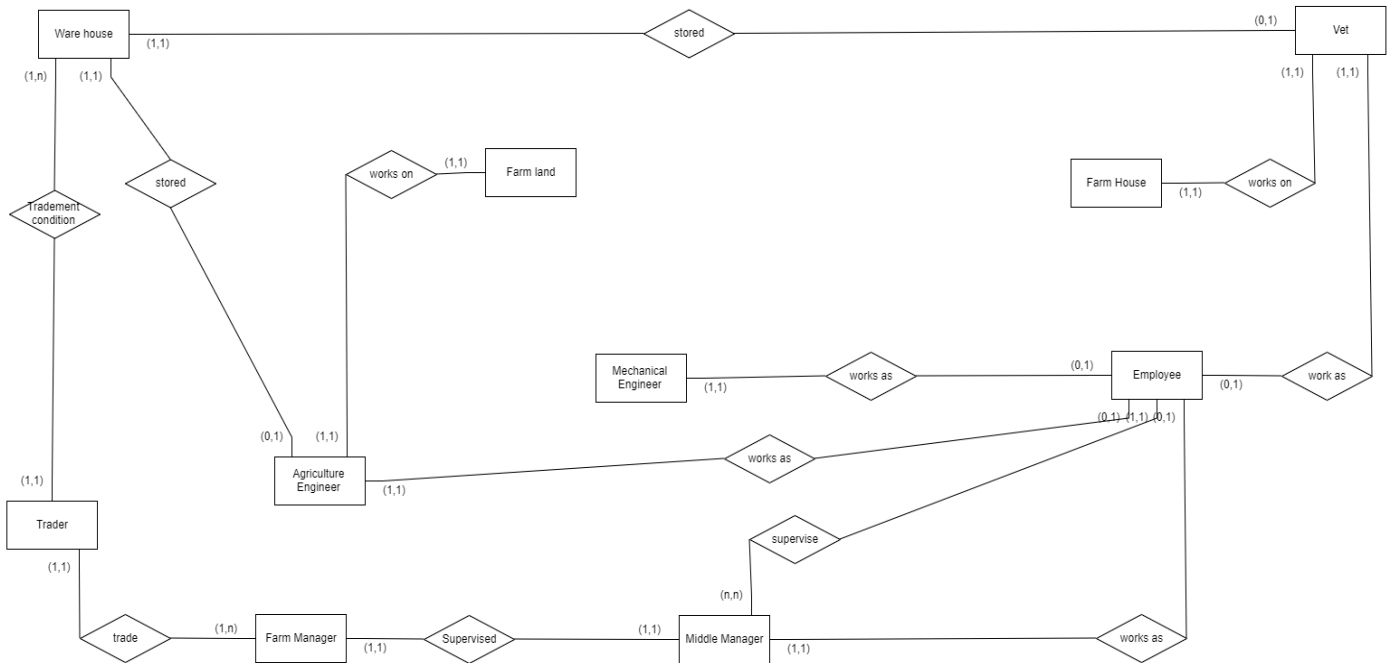
5- Trade: Between the farm manager and the traders

6- Trade condition: Between the Warehouse and the traders which determine whether the goods are imported and reached the ware house or exported and leave the warehouse

7- Stored: Between both the Vet and the Agriculture engineer, this relation determine the products that left the two lands (farm land , and farm house) and reached the ware house to be ready for selling, with determining its quantity.

# ER Diagram

## 1- Entities and the relationships between all of them



## 2-Complete ER Diagram

