



IT314 Software Engineering

Group 25

Name	Student Id
TEJABWALA MOHAMMAD JABIRBHAI	202001406
PRARTHEE BHAVINBHAI DESAI	202001257
AASTHA JAGDISH SHETTY	202001260
PATEL NISARG NAGINBHAI	202001436
DETROJA ARTH JITESHBHAI	202001274
BHUVA MEHULKUMAR VISABHAI	202001437
RUSHABH MAHESH PATEL	202001419
JAIMIN RATHWA (GR)	202001423
GANVIT GAURANG SHANKARBHAI	202001247
DAMOR ANIRUDDH RATANBHAI	202001255

Warehouse management for food and other goods

Problem Statement

Design a system for warehouses & farmers. Warehouses are places where farmers can store their Goods, and send them to market when it's needed. System should be able to keep track of goods storage processes, crop storage life, storage capacity of a warehouse, its location and other details. Based on these details, a farmer should be able to find his nearby warehouses. Future storage details should be available so the farmer can reserve space for his crops in advance. Farmers should be able to decide what kind of vegetable to grow in advance based on goods already stored and future reservations and crop eviction rates of nearby warehouses.

Why this project?

According to the Food and Agricultural Organisation of India (FAO) around 40% of the food being wasted annually is due to lack of proper storage facilities. This number keeps on increasing and something needs to be done to control this. This loss costs huge on the farmers or in general the producer's end. So we can develop a system that is a one stop solution for all the storage and management related services of the crops.

Features of the project solution:

- Authorized access
- Advanced reservation for goods' storage
- Track of storage process
- Tracking storage life of goods
- Stores the necessary details of the warehouse - location, capacity, etc.
- Finds the crop eviction rate for nearby warehouse

Functional Requirements

1. Warehouse Management System (WMS)

- Store warehouse details, including name, location, storage capacity, type of goods stored, etc.
- Keep track of warehouse storage capacity and availability in real-time
- Update the status of each warehouse in real-time as crops are stored or removed
- Generate reports on warehouse usage over time, including which crops are stored and when.
- Provide a reservation system for farmers to book storage space in advance
- Store information about the types of crops stored in each warehouse and their storage life

2. Farmer Management System (FMS)

- Store farmer details, including name, location, type of crops they grow, etc.
- Keep track of the crops each farmer has stored and their storage life
- Provide recommendations to farmers on which crops to grow based on the storage capacity and availability of nearby warehouses
- Allow farmers to search for nearby warehouses based on their location and the type of crops they need to store
- Provide farmers with information about the eviction rate of each warehouse
- Store information about future reservations made by farmers

3. Integration of WMS and FMS

- Provide farmers with real-time information about the storage capacity and availability of each warehouse
- Allow seamless communication between the WMS and FMS
- Enable farmers to make reservations for storage space directly from the FMS
- Automatically update the status of each warehouse in the WMS as reservations are made and crops are stored
- Store information about the types of crops stored in each warehouse and their storage life

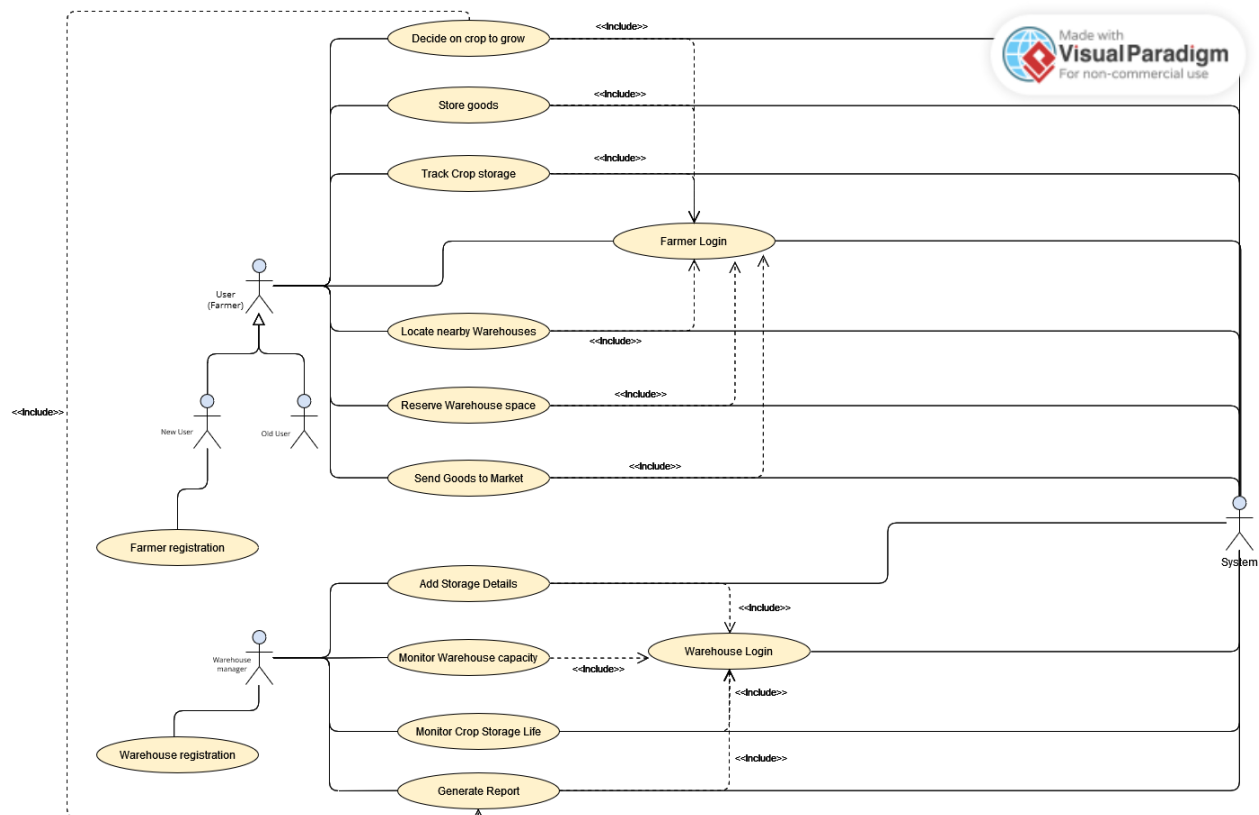
Non-Functional Requirements

1. The system should have a user-friendly interface, with clear and concise instructions, and intuitive navigation.
2. The system should be secure and protect sensitive information, such as farmer and warehouse details, from unauthorized access.
3. The system should be scalable to accommodate future growth and increased usage, including the ability to store and manage more warehouses and farmers.
4. The system should provide fast and responsive real-time updates to farmers about the storage capacity and availability of nearby warehouses.
5. The system should be highly available and reliable, ensuring that farmers have access to the information they need when they need it.
6. The system should be compatible with different platforms and devices, such as laptops, smartphones, and tablets, and should be accessible through a web browser.
7. The system should provide reports on the usage of each warehouse over time, including which crops are stored and when, and the eviction rate of each warehouse.
8. The system should have a robust data backup and recovery system to ensure that data is protected in case of a system failure.
9. The system should have error handling mechanisms in place to ensure that errors and exceptions are handled gracefully and do not impact the operation of the system.

Tools

- HTML
- CSS
- Django
- PostgreSQL
- Javascript
- Azure

Use Case Diagram



Process Model

Agile software development is a model that emphasizes collaboration, flexibility, and rapid iteration. It's well suited to the problem statement of designing a system for warehouses and farmers, as the requirements may change and evolve as the development progresses. Here's how the agile model can be used for this problem statement:

- Requirements Gathering: The development team will work closely with stakeholders, such as farmers and warehouse managers, to gather requirements and understand the needs of the system. This may involve conducting user interviews, creating prototypes, and conducting user testing.
- Sprint Planning: The development team will break down the requirements into small, manageable tasks and prioritize them based on importance and dependencies. These tasks will be organized into sprints, or short development cycles, that typically last two to four weeks.

- Development and Testing: During each sprint, the development team will work on completing the tasks assigned to them. This may involve writing code, conducting unit tests, and performing integration testing. The development team will also regularly conduct code reviews to ensure the quality of the code and catch any potential issues early on.
- Sprint Review: At the end of each sprint, the development team will present their progress to stakeholders and receive feedback. This is an opportunity for stakeholders to provide feedback and suggest any changes that need to be made.
- Sprint Retrospective: After the sprint review, the development team will reflect on the sprint and identify areas for improvement. This may involve changes to processes, tools, or the development team's composition.
- Repeat: The process will repeat, with the development team using the feedback and insights from the sprint review to make improvements and move forward. This iteration continues until the system is fully developed and meets the requirements of the stakeholders.

The agile model allows for frequent feedback and iteration, making it ideal for the problem statement of designing a system for warehouses and farmers. By breaking down the development into small sprints and working closely with stakeholders, the development team can ensure that the system is developed to meet the needs of the users and is delivered in a timely and efficient manner.