SENECA COLLEGE OF APPLIED ARTS AND TECHNOLOGY

School of Software Design & Data Science

Introduction to Database Systems

DBS211

Group Project

Milestone 1 – Project Idea and Proposal (5%)

Farming Database

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Introduction

Medium and small-scale agriculture faces various challenges, primarily related to management issues that lead to low yields and profitability. The absence of formal education among many farmers is evident in the persistence of outdated practices, inadequate crop rotations, incompatibilities with soil and climate conditions, and a lack of market knowledge, among other challenges affecting the sector. These problems are not exclusive to Canada but are a general rule worldwide, especially in less developed countries. The chosen topic is of great relevance due to its impact on communities, as agriculture is a vital source of food and livelihood for these populations. Given this context, it is considered essential to develop tools that enable more efficient information management, thus improving decision-making, both at a centralized level and for individual farmers.Regarding our background related to the topic, one of the members of our team is an agronomist.

Problem Statement

In the realm of medium and small-scale agriculture, there is a pressing need for improved management and decision-making. Widespread challenges, such as outdated practices, poor crop rotations, climate and soil mismatches, and limited market knowledge, contribute to low yields and profitability, not only in Canada but globally. To address these issues and empower both authorities and individual farmers, a robust database solution is essential for efficient information management, leading to enhanced sustainability and productivity in the agriculture sector.

Solution

Our team will carefully take into account the geographical and meteorological characteristics of each location while developing the database to support the planned software application, ensuring that the information offered is customized to local needs. We will take into consideration the diversity of farms dispersed across large regions that cultivate different crop kinds in different ways, and we will try to figure out which practices work best in each particular scenario. Additionally, we will provide information about the farms' animal rearing operations, equipment, and employers/employees in the agricultural process. The database will also include details of sales, costs, and preferred crops for specific growing seasons. Our database system will offer a comprehensive perspective of agricultural operations by gathering this wide variety of data, facilitating more sustainable and productive agriculture and enabling informed decision-making.

Requirements

Requirements for the Agriculture Management Software and Database:

1. Farm Profile Management: Each farm should have a profile that includes location, size, type of crops, and rearing operations.
2.Weather Data Integration:Integrate real-time weather data to provide forecasts, historical weather patterns alerts for extreme weather events.
3.Inventory and Equipment Management:Maintain inventory records for farm equipment, tools, and supplies.

4.Employee and Labor Tracking:Track information about farm employees, their roles, and working hours.
5.Crop Specific Data: Store data specific to each crop type, including planting and harvest dates, yield per acre, and pest management information.