Team: Goal Diggers
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Project: Plant Health Database

Business Problem

Currently there are no databases that contain sufficient and detailed information on plant diseases, bacterial and fungal infections, mineral deficiencies in plants, and overall health of plants. Dozens of books have been made going through countless numbers of different strategies to attempt to detect these fatal contagions. Researchers need access to a backlog that will make solving plant diseases, deficiencies, and overall complications easier.
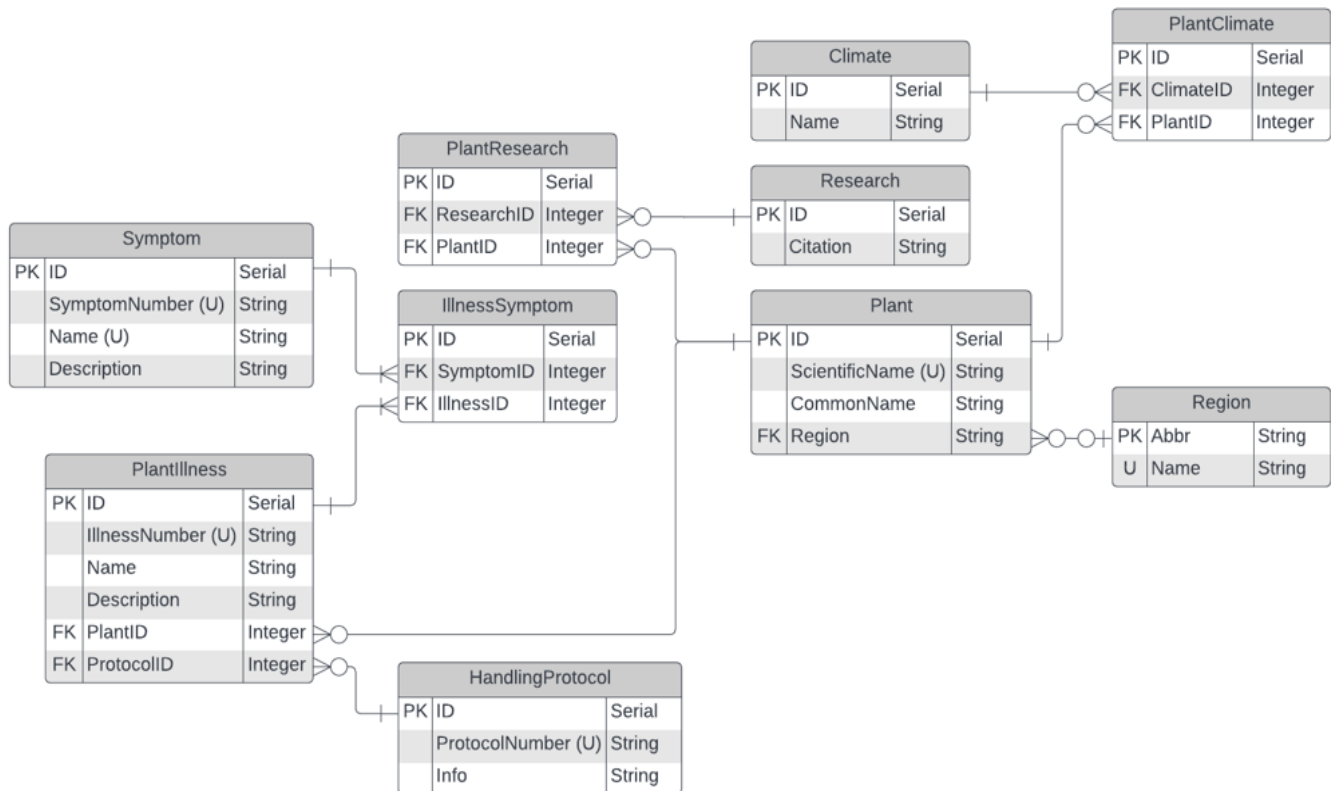
High-level Interface

We will provide a web application which will allow a researcher to view aggregated data about plant health and plant illnesses through a user interface.

User interactions:
1. View catalog of plants that can be filtered by region
2. View past research that has been conducted along with appropriate documentation
3. View the climate in which a plant is grown
4. View symptoms chart for specific plant illnesses
5. View protocols for handling plants with specific illness
6. View possible plant illnesses the given plant can have
7. View possible plant illnesses related to the provided symptom
8. Add a new plant record which includes adding the scientific name, common name and the region in which that plant is grown
9. Update a pre-existing plant record which includes updating the the common name or the region of the given plant scientific name

Schema Design

Symptom
PK	ID	Serial
	SymptomNumber (U)	String
	Name (U)	String
	Description	String

PlantResearch
PK	ID	Serial
FK	ResearchID	Integer
FK	PlantID	Integer

IllnessSymptom
PK	ID	Serial
FK	SymptomID	Integer
FK	IllnessID	Integer

Climate
PK	ID	Serial
	Name	String

PlantClimate
PK	ID	Serial
FK	ClimateID	Integer
FK	PlantID	Integer

Research
PK	ID	Serial
	Citation	String

Plant
PK	ID	Serial
	ScientificName (U)	String
	CommonName	String
FK	Region	String

Region
PK	Abbr	String
U	Name	String

PlantIllness
PK	ID	Serial
	IllnessNumber (U)	String
	Name	String
	Description	String
FK	PlantID	Integer
FK	ProtocolID	Integer

HandlingProtocol
PK	ID	Serial
	ProtocolNumber (U)	String
	Info	String

API and User Interface Design

#	Interaction	Expected Result
1	User opens plant catalog page	A database query aggregates all of the plants with their regions, and the UI presents this in a table to the user.
2	User filters plant list for a specific region	A database query aggregates all of the plants with their regions, filters for the region selected, and the UI presents this in a table to the user.
3	User opens plant page	A database query retrieves a plant record, including past research that has been done related to the plant, along with the plant's climate and region. This information will be shown under the information tab on the plant page, which is selected by default.

#	Interaction	Expected Result
4	User selects illnesses tab on plant page	A database query retrieves the plant's illnesses, and the UI presents this information in a table to the user.
5	User selects symptom tab on the plant page	A database query retrieves all the symptoms related to the plant illnesses for a given plant and the UI presents this information in a table to the user.
6	User selects an illness from the PlantIllness table	A database query retrieves handling protocols for the plant illness, and the UI presents this information to the user on the appropriate illness page.
7	User updates the Plant information	Error message is displayed if the update was unsuccessful, Update Successful message otherwise
8	User adds to a new plant record to plant catalog	Database will receive information regarding a new plant to be added to catalog and will send notification when information is received and implemented into the database successfully. Any missing information will display an error message to the user.
9	User selects a symptom from the symptom table	A database query retrieves all the plant illnesses related to the symptom and the UI presents that information in a table.