CPSC 304 Project Cover Page

Milestone #: 4

Date: Friday Dec 1, 2023

Group Number: 127

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

Description:

The goal of this project was to create a database management system for a community garden. This would help them grow and maintain their plants and animals. Through our final project, a community garden admin would be able to:

- See the map of the entire garden, with the option of clicking on a particular plot and obtaining all the information related to the tasks assigned to the plot. This map rendering simplifies the user experience.
- Different pages for different tasks to aid user understanding and make the GUI user-friendly.
- Create and maintain plot tasks to help grow and maintain plants.
- Check the availability of supplies in each building.
- Find names of buildings with the lowest average count of supplies, out of all the buildings average supply count. This would be an extremely handy tool for a user to keep track of the supplies that need to be ordered.
- Select or project data from any table in the database as required.

Our final scheme has differed from our previous iterations. We decided to:

- Denormalized plot areas as we realized it was redundant.
- Added a new plant table to track individual plants, allowing us to gather harvest data.
- Merged supply and tool information table since they stored the same kind of information and were redundant.
- And finally, added coordinate data for plots to support map rendering.

Scheme and Screenshots:

1. Event (EventID, EventDescription, DT)

EVENTID	EVENTDESCRIPTION	DT
5	Celebrating the Community Gardens 25th Anniversary	07-SEP-23
1	Ribbon Cutting at the Community Garden	07-SEP-89
2	Opening of the Barn Building	01-JAN-16
4	Tommys 7th Birthday Party	23-APR-20
3	Farming Workshop for Beginners	05-NOV-06

2. SupplyInformation (SupplyType, SupplyCost, Instructions)

SUPPLYTYPE	SUPPLYCOST	INSTRUCTIONS
Seeds	850	Store in a cool, dry place
Fertilizer	1499	Follow instructions on the package
Gloves	699	Keeps your hands clean!
Watering Can	2499	Check for leaks and clean regularly
Paddle Hoe	11699	Use a broad, fluid sweeping motion to slice weeds. Clean after use
Dutch Hoe	18999	Draw the tip of the hoe handle down the row to create a shallow furrow for shallow-planted seeds. Clean after use
Shears	1799	Use to cut and shape plants. Careful not to cut any fingers!
Chicken Feed	2499	Put 1 scoop of feed per chicken per day in the feeder.

3. Building (BuildingName, Capacity, DoorCode, Width, Height, xCoord, yCoord)

BUILDINGNAME	CAPACITY	DOOR	WIDTH	HEIGHT	XCOORD	YCOORD
Chicken Coop	20		10	10	10	10
Gazebo	4		3	3	47	47
Barn	100	3759	25	15	35	75
East Shed	50	2744	15	25	10	50
West Shed	50	3644	10	25	85	50

4. CommunityMember (SIN, PersonName)

SIN	PERSONNAME
823709808	Kratika
895565895	Madeleine
475385473	John
818786876	Jennifer
564556334	Allan
888789888	Raghav
887515887	Julie
455334346	Emily
416578443	Will

5. PlantInformation (PlantName, Instructions, PlantType, GrowthDays)

PLANTNAME	INSTRUCTIONS	PLANTTYPE	GROWTHDAYS
Tomato	Water 1 time per day	Vegetable	70
Basil	Water 2 times per week	Herb	60
Lettuce	Water 1 time per day	Vegetable	30
Lavender	Water 1-2 times per week	Flower	90
Cucumber	Water 1 time per day	Vegetable	50
Chives	Water 2 times per week	Herb	30
Bell Pepper	Water 1 time per day	Vegetable	60
Strawberry	Water 1 time per day	Fruit	90
Squash	Water 1 time every 2-3 days	Vegetable	60

6. Plot (<u>PlotID</u>, Width, Height, xCoord, yCoord, **PlantName, SIN**, Price)

PLOTID	WIDTH	HEIGHT	XCOORD	YCOORD	PLANTNAME	SIN	PRICE
1	10	5	15	25	Tomato	823709808	8000
2	10	5	15	35	Basil	895565895	8000
3	5	10	40	20	Strawberry	818786876	10000
4	5	10	60	20	Squash	887515887	5000
5	5	10	50	20	Chives	888789888	12000
6	5	10	70	20			16000

7. Plant (<u>PlantID</u>, **PlotID**, **PlantName**, PlantDate, HarvestDate, HarvestWeight)

PLANTID	PLOTID	PLANTNAME	PLANTDATE	HARVESTDA	HARVESTWEIGHT
1	1	Squash	04-FEB-23	05-APR-23	15
2	1	Bell Pepper	05-APR-23	04-JUN-23	5
3	1	Lettuce	04-JUN-23	04-JUL-23	10
4	1	Lavender	04-JUL-23	02-OCT-23	3
5	1	Strawberry	02-OCT-23		

8. Supply (<u>SupplyID</u>, **SupplyType, BuildingName**, SupplyCount)

SUPPLYID	SUPPLYTYPE	BUILDINGNAME	SUPPLYCOUNT
1	Seeds	Barn	10
2	Fertilizer	Barn	17
3	Gloves	East Shed	15
4	Watering Can	East Shed	4
5	Paddle Hoe	West Shed	1
6	Dutch Hoe	West Shed	1
7	Chicken Feed	Chicken Coop	18
8	Shears	East Shed	2
9	Seeds	West Shed	12
10	Dutch Hoe	Barn	2

9. PlotOwner (**SIN**, PhoneNum, **PlotID**)

SIN	PHONENUM	PLOTID
888789888	2368634471	5
887515887	2366744768	4
895565895	6045698761	2
818786876	2368634471	3
823709808	2368634471	1

10. Gardener (**SIN**, HoursWorked)

SIN	HOURSWORKED
475385473	0
564556334	13
455334346	13
818786876	30
823709808	25

11. PlotTask (TaskNum, PlotID, TaskDescription, Deadline, SIN, Status)

TASKNUM	PLOTID	TASKDESCRIPTION	
DEADLINE	SIN	STATUS	
1	1	Water	
20-OCT-23	475385473	Complete	
1	2	Plant	
19-OCT-23	823709808	Complete	
1	3	Harvest	
19-OCT-23	455334346	Complete	
2	1	Harvest	
25-OCT-23	455334346	Complete	
3	1	Weed	
01-NOV-23	455334346	Complete	

12. Animal (<u>AnimalName</u>, Species, **BuildingName**)

ANIMALNAME	SPECIES	BUILDINGNAME
Fatty	Taby Cat	Barn
Nightmare	Black Cat	
Rufus	Dog	Barn
Zoe	Dog	Barn
Princess Peck	Chicken	Chicken Coop

13. Requires (**TaskNum, PlotID, SupplyType**)

TASKNUM	PLOTID	SUPPLYTYPE
1	1	Watering Can
1	2	Dutch Hoe
1	2	Fertilizer
1	2	Watering Can
1	3	Gloves
1	3	Shears
2	1	Gloves
2	1	Paddle Hoe
2	1	Shears

List of All SQL Queries and Links to find Them

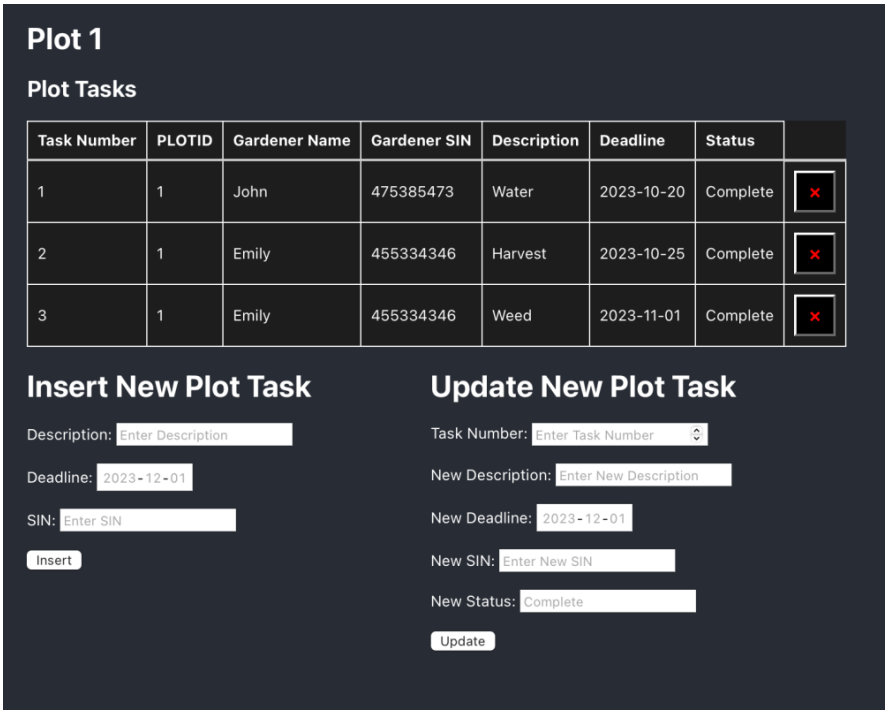
1. Insert: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L97
2. Delete: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L80
3. Update: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L305
4. Selection: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L171
5. Projection: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L159
6. Join: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L117
7. Aggregation with group by: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L235
8. Aggregation with having: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L248
9. Nested aggregation with Group By: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L266

10. Division: https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_c3l3v_d0b3b_e4v4v/blob/master/web/server/appService.js#L286

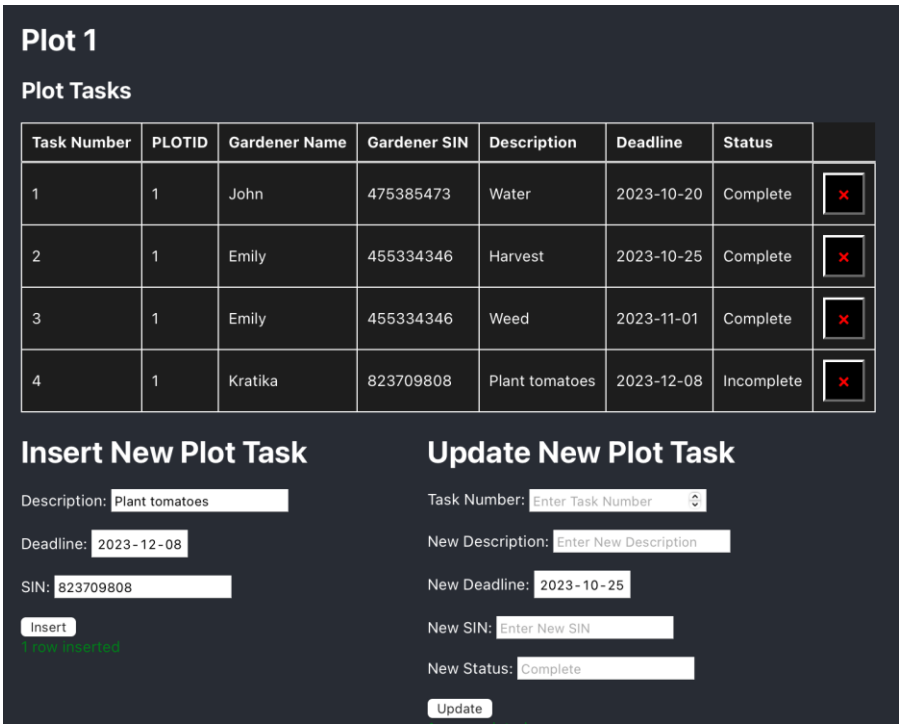
Functionality of the Project Demonstrated

1. Insert Operation

Before:

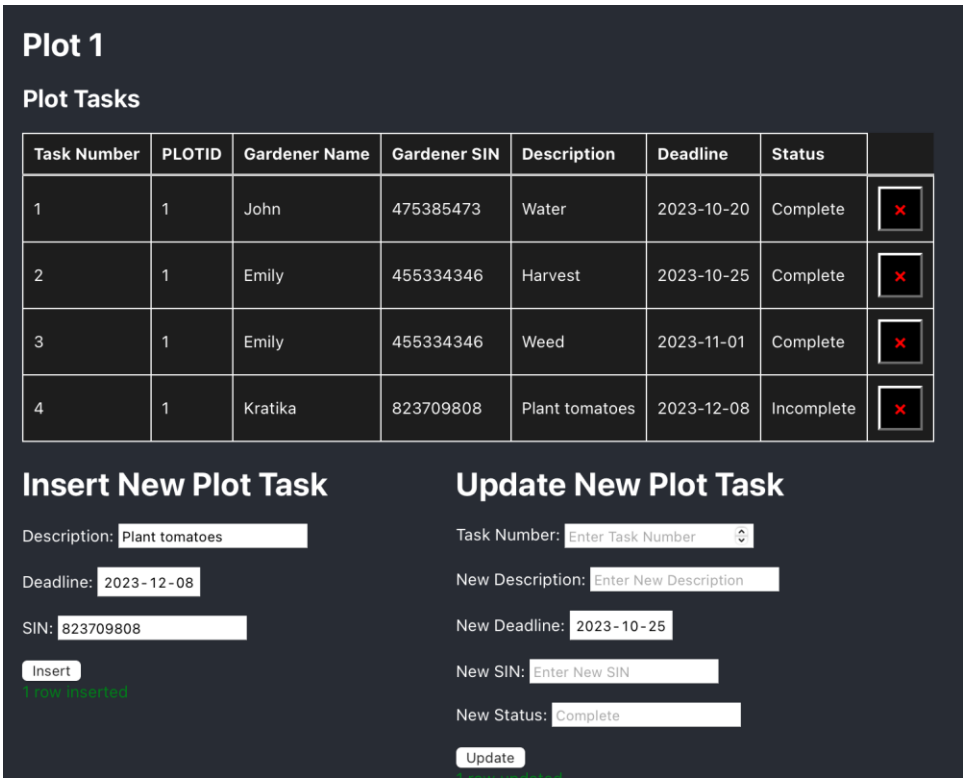


After:

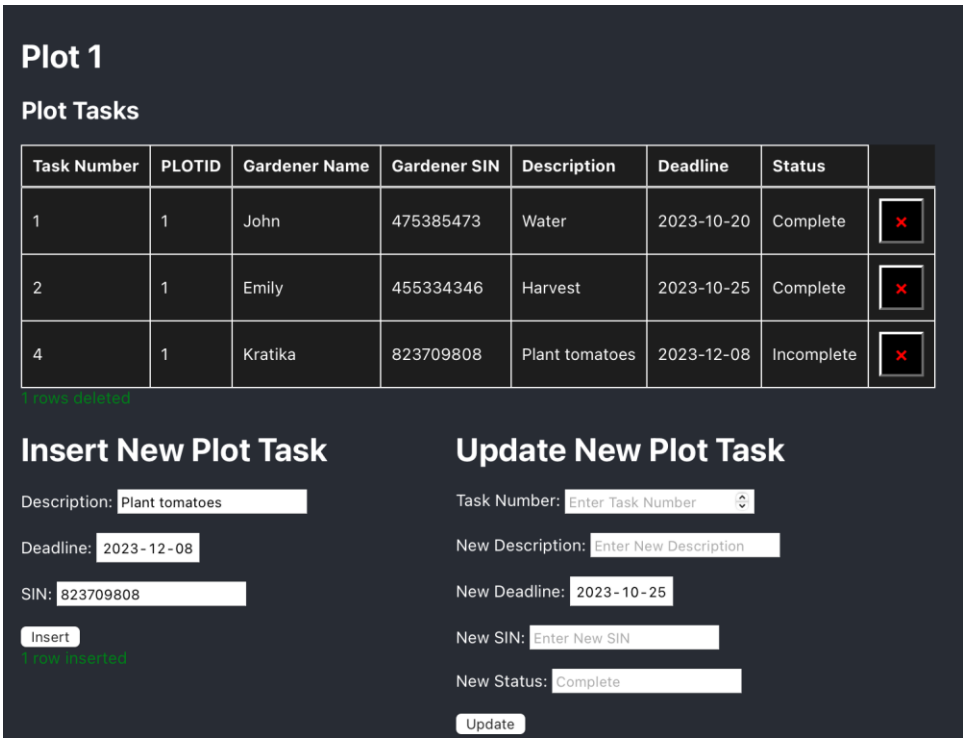


2. Delete Operation

Before:

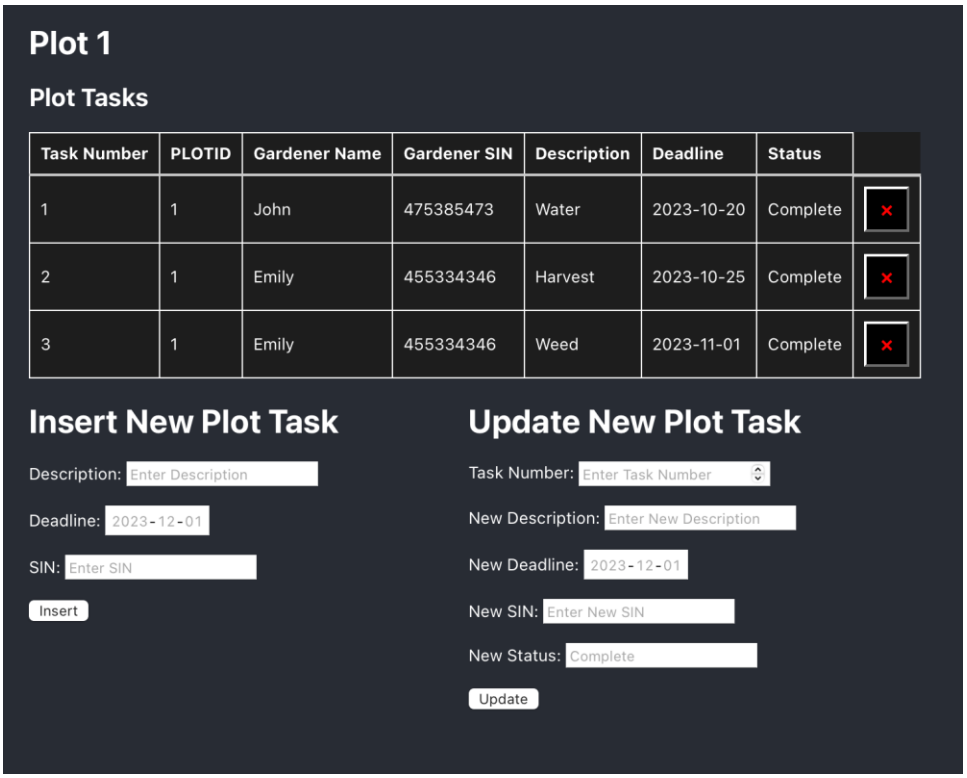


After:

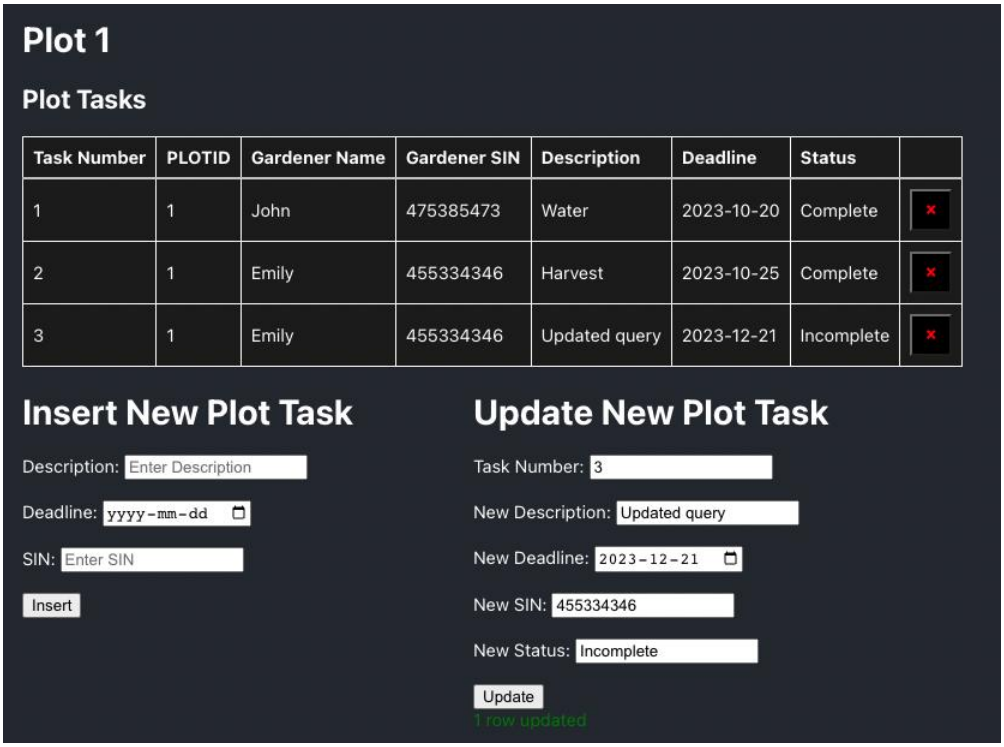


3. Update

Before:

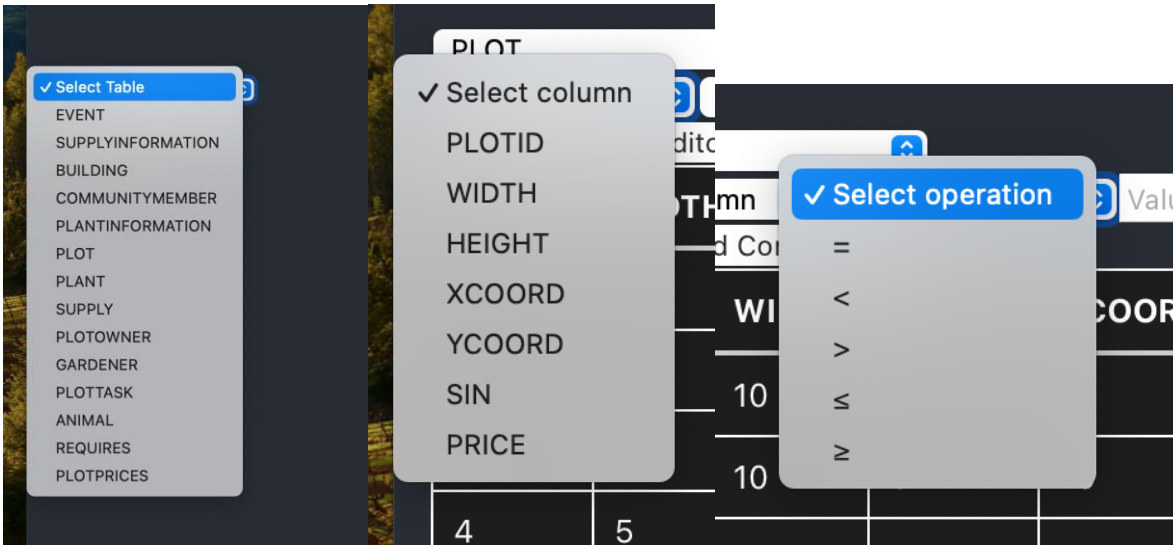


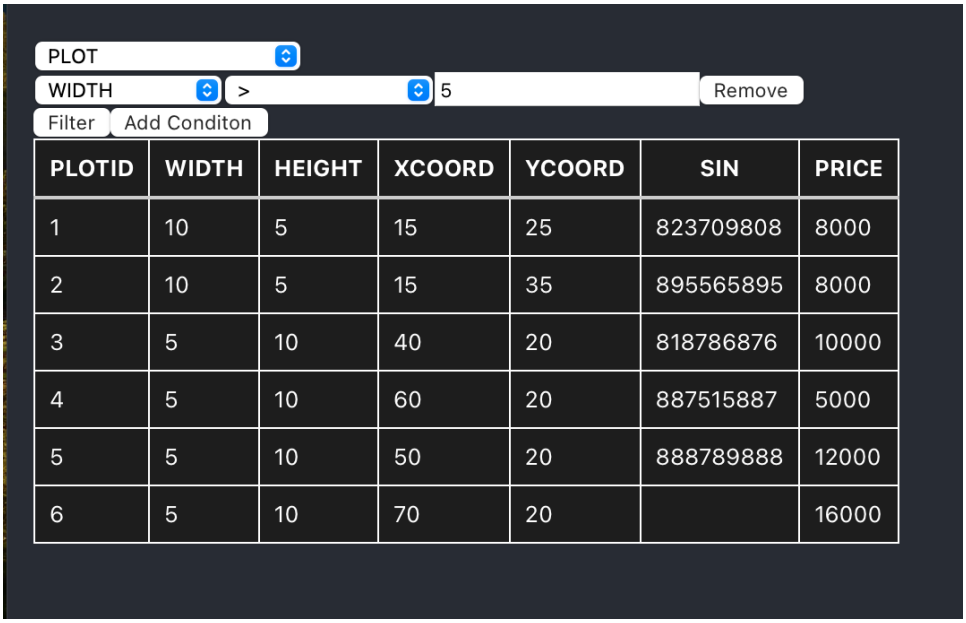
After:



4. Selection

Before:



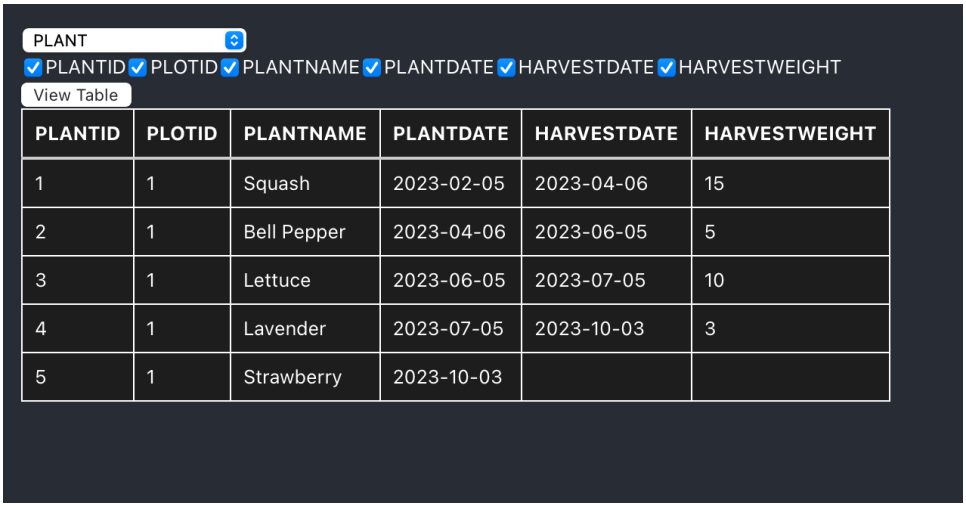


PLOTID	WIDTH	HEIGHT	XCOORD	YCOORD	SIN	PRICE
1	10	5	15	25	823709808	8000
2	10	5	15	35	895565895	8000
3	5	10	40	20	818786876	10000
4	5	10	60	20	887515887	5000
5	5	10	50	20	888789888	12000
6	5	10	70	20		16000

After:

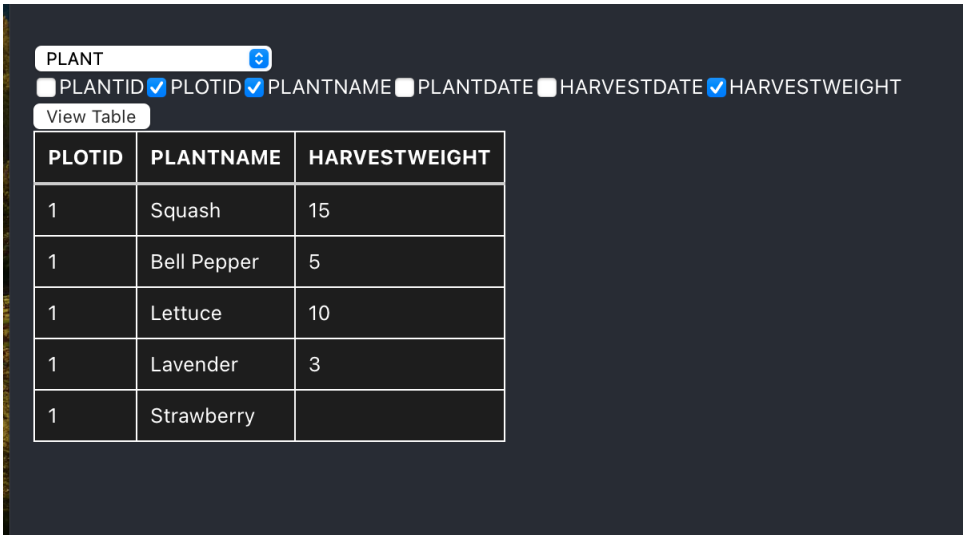
5. Projection

Before: (drop down menu same as in selection)



PLANTID	PLOTID	PLANTNAME	PLANTDATE	HARVESTDATE	HARVESTWEIGHT
1	1	Squash	2023-02-05	2023-04-06	15
2	1	Bell Pepper	2023-04-06	2023-06-05	5
3	1	Lettuce	2023-06-05	2023-07-05	10
4	1	Lavender	2023-07-05	2023-10-03	3
5	1	Strawberry	2023-10-03		

After:

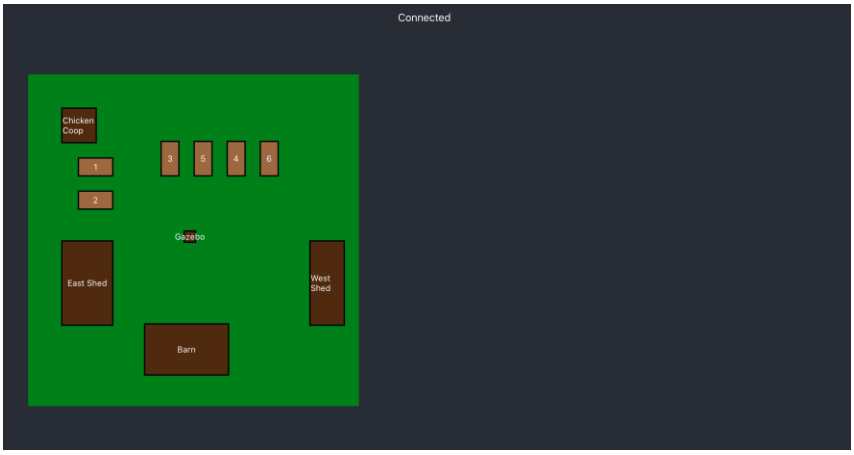


PLOTID	PLANTNAME	HARVESTWEIGHT
1	Squash	15
1	Bell Pepper	5
1	Lettuce	10
1	Lavender	3
1	Strawberry	

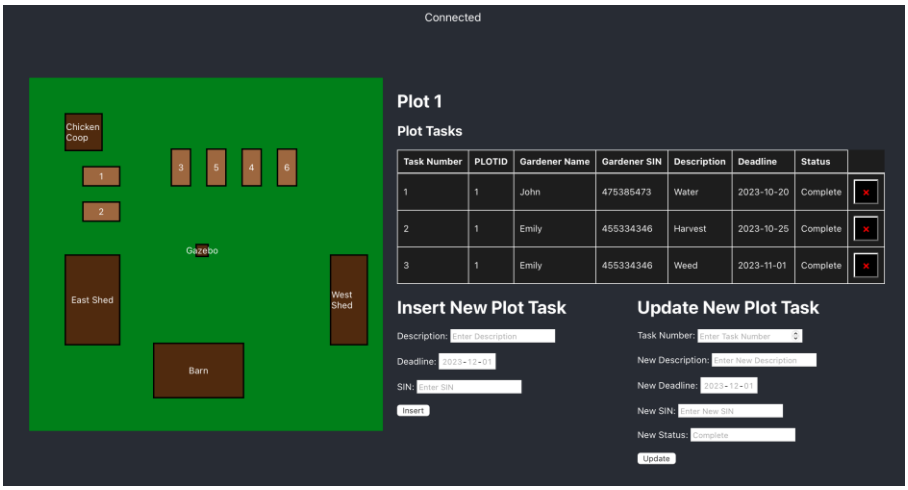
6. Join

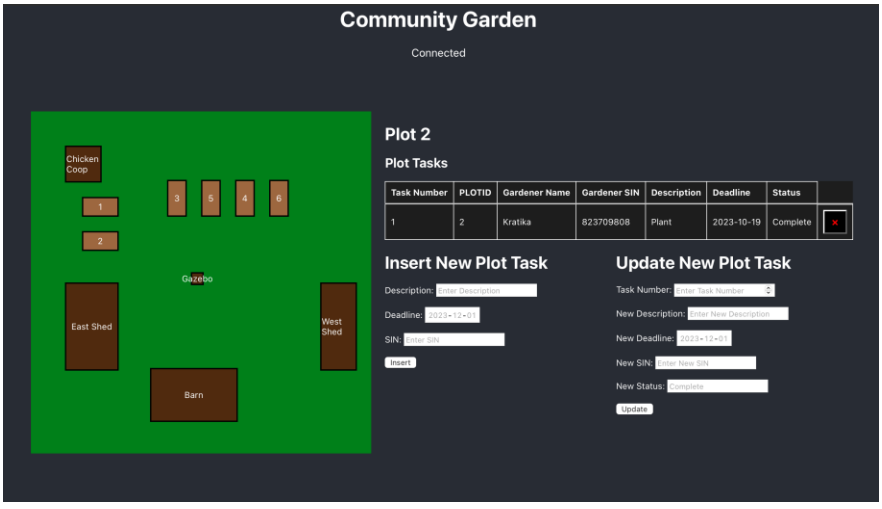
The “WHERE” clause is the user's ability to specify PlotID by clicking on a plot.

Before:



After:

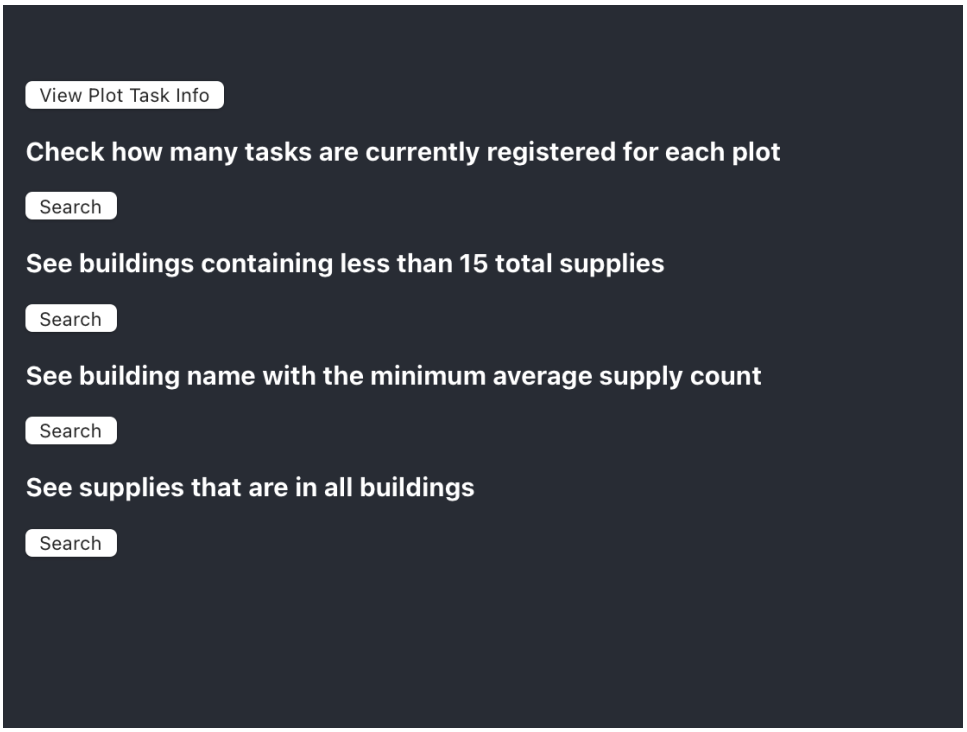




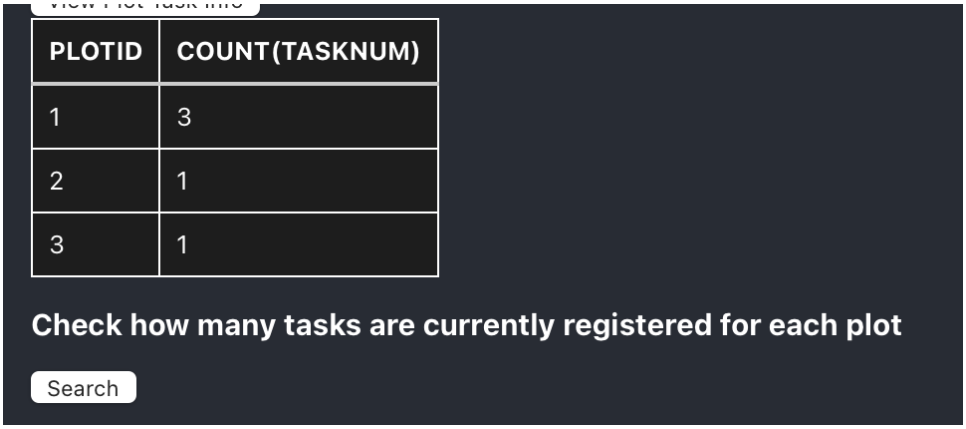
7. Aggregation Group By

Before:

Group by plotID

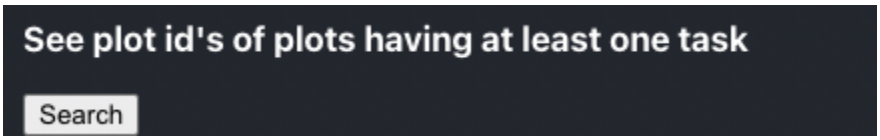


After:

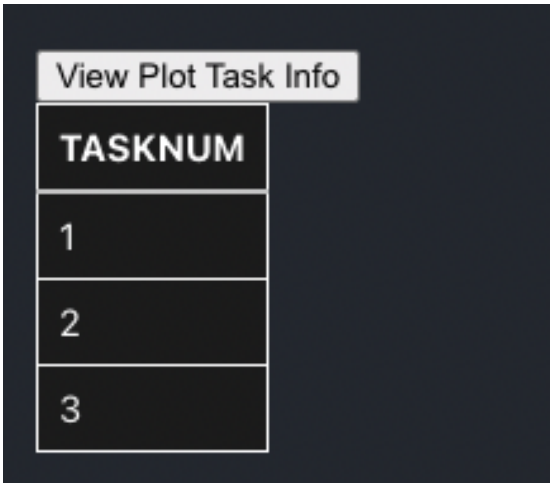


8. Aggregation Having

Before:



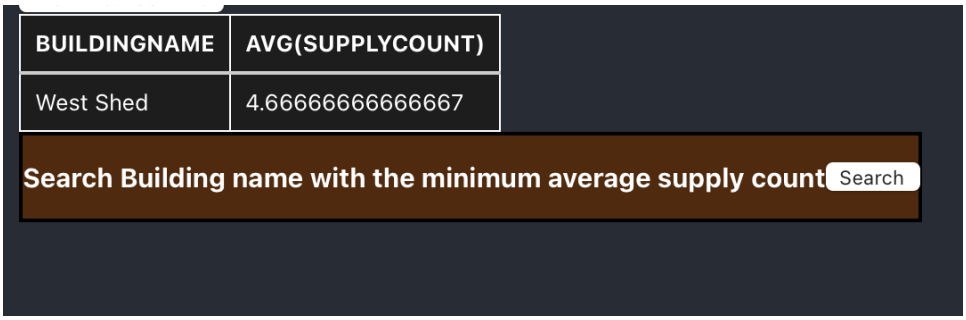
After:



9. Nested Aggregation Group By

Find the name of the building with the lowest average count of supplies available, out of all the buildings average supply count

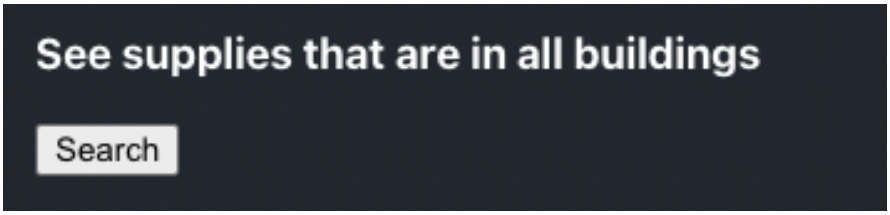
Before:



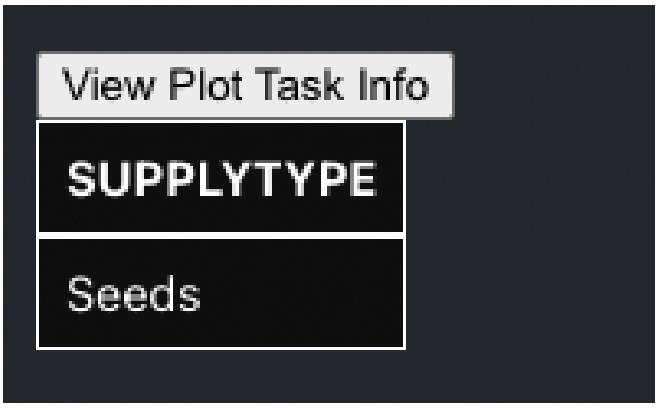
After:

10. Division

Before:


See supplies that are in all buildings
Search

After:


View Plot Task Info
SUPPLYTYPE
Seeds