Restaurant Supply Express! Drone Delivery

CS 4400: Introduction to Database Systems Course Project: Fall 2022 Semester

Version History

| Version | Date | Notes |
|---------|-------------------|--|
| 0 | September 5, 2022 | Initial Release |
| 1 | November 30, 2022 | Provide material for each versions of the EERD |

Main Use Case

The following is a text description of how the system (i.e., the database tables, foreign keys, and related structures) that you've developed will be used. This information will clarify how data flows through the system, and how the views and stored procedures will allow the system operators to observe and modify the state of the system (i.e., database), respectively.

Below is a detailed list of the steps for the main (e.g., "happy path") use case for the system along with the stored procedures, views and functions that are most relevant for that step:

[1] Delivery Services hire Employees to support their operations

```
• [2] add_employee() 
• [11] hire_employee()
```

• [8] add_service()
• [12] fire_employee()

[2] Employees support operations as (Warehouse) Workers, Pilots and/or Managers

• [3] add pilot role() • [23] remove pilot role()

• [4] add_worker_role()

[3] Delivery Services purchase Drones to deliver Ingredients to Restaurants

• [5] add ingredient() • [21] remove_ingredient()

• [7] add_restaurant()

[4] Workers repair, restock and refuel the Drones to be able to deliver Ingredients

[5] Pilots fly Drones – as "singles" or as swarms with many drones – to different Locations

• [14] takeover_drone()
• [19] fly_drone()

• [15] join_swarm()
• (function) fuel_required()

• [16] leave_swarm()

[6] Owners provide funds for one or more Restaurants

• [1] add_owner()
• [10] start_funding()

[7] Managers direct Drones to Locations where Restaurants can purchase Ingredients

• [9] add_location()
• [13] manage_service()

[8] Restaurants purchase Ingredients from Drones at their Location

[20] purchase_ingredient()

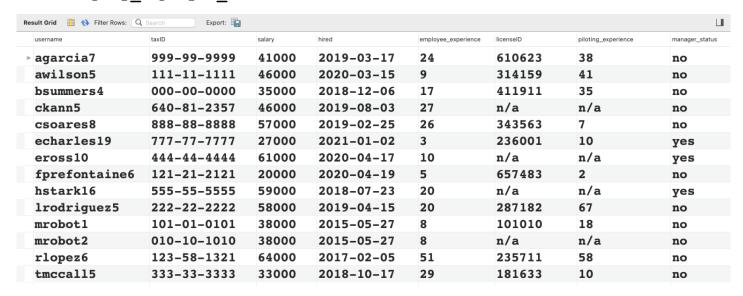
Note: The descriptions for some procedures (as shown in the Stored Procedure Shell) might be different based on the EERD variation, but almost all of them are otherwise the same.

[EERD Version #2: Disjoint between Employees & Owners] Expected Results for the "Global Views" based on the Initial Database State

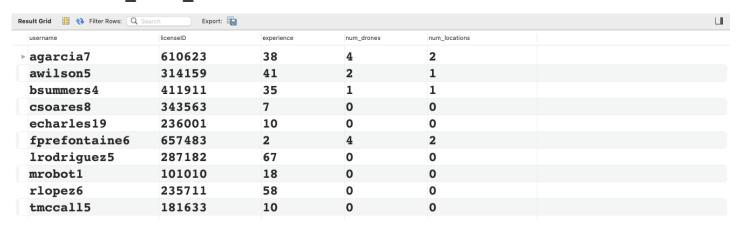
[24] display owner view()

| Result Grid # Filter Rows: Q Search Export: | | | | | | | | |
|---|--------------|-----------|------------------------|-----------------|------------|-------|------|------|
| username | ^ first_name | last_name | address | num_restaurants | num_places | highs | lows | debt |
| cjordan5 | Clark | Jordan | 77 Infinite Stars Road | 0 | 0 | 0 | 0 | 0 |
| jstone5 | Jared | Stone | 101 Five Finger Way | 3 | 2 | 5 | 3 | 50 |
| sprince6 | Sarah | Prince | 22 Peachtree Street | 1 | 1 | 4 | 4 | 10 |

[25] display employee view()



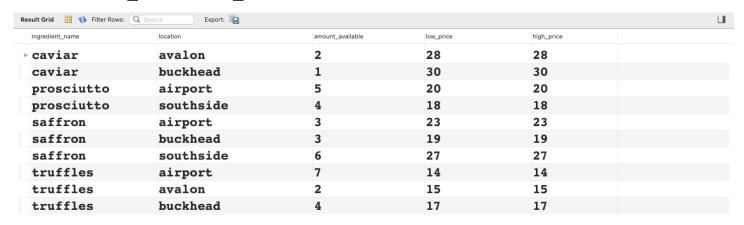
[26] display_pilot_view()



[27] display_location_view()

| Result Grid Note: Filter Rows: Q Search Export: | | | | | | |
|---|---------|---------|-----------------|-----------------------|------------|--|
| label | x_coord | y_coord | num_restaurants | num_delivery_services | num_drones | |
| <pre>▶ airport</pre> | -2 | -9 | 0 | 0 | 2 | |
| avalon | 2 | 16 | 1 | 1 | 2 | |
| buckhead | 3 | 8 | 2 | 0 | 3 | |
| highpoint | 7 | 0 | 0 | 0 | 2 | |
| mercedes | 1 | 1 | 1 | 0 | 0 | |
| midtown | 1 | 4 | 2 | 0 | 0 | |
| plaza | 5 | 12 | 3 | 0 | 0 | |
| southside | 3 | -6 | 1 | 2 | 2 | |
| | | | | | | |

[28] display ingredient view()

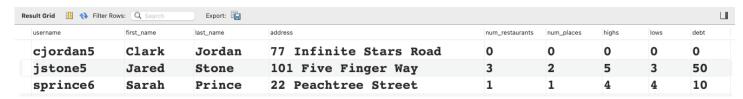


[29] display_service_view()

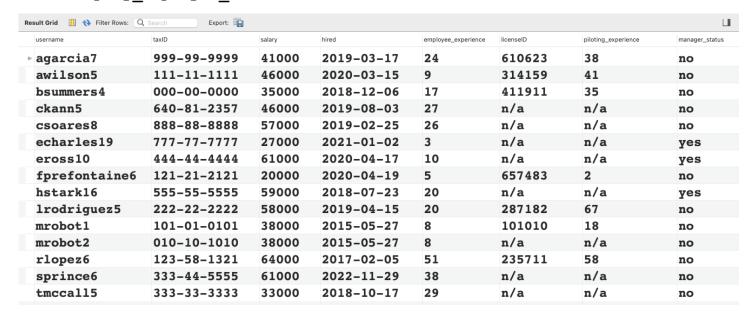


[EERD Version #5: Disjoint between Pilots & Workers] Expected Results for the "Global Views" based on the Initial Database State

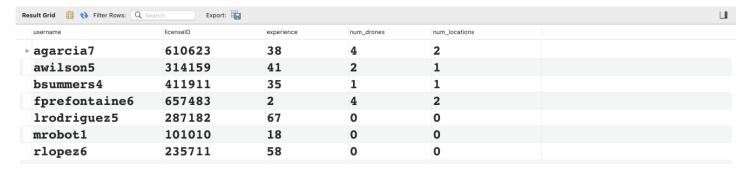
[24] display_owner_view()



[25] display employee view()



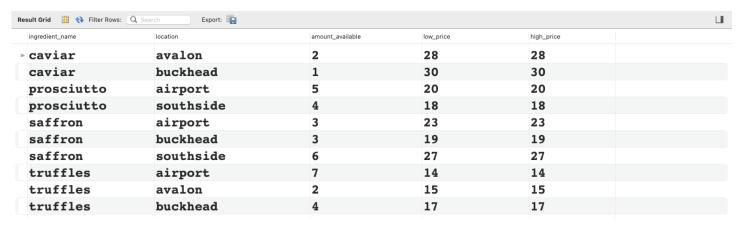
[26] display pilot view()



[27] display location view()



[28] display_ingredient_view()



[29] display service view()

