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()**
- **[8] add_service()**
- **[11] hire_employee()**
- **[12] fire_employee()**

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

- **[3] add_pilot_role()**
- **[4] add_worker_role()**
- **[23] remove_pilot_role()**

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

- **[5] add_ingredient()**
- **[6] add_drone()**
- **[7] add_restaurant()**
- **[21] remove_ingredient()**
- **[22] remove_drone()**

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

- **[17] load_drone()**
- **[18] refuel_drone()**

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

- **[14] takeover_drone()**
- **[15] join_swarm()**
- **[16] leave_swarm()**
- **[19] fly_drone()**
- *(function)* **fuel_required()**

[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: 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()

Result Grid | Filter Rows: Search | Export:

username	taxID	salary	hired	employee_experience	licenseID	piloting_experience	manager_status
agarcia7	999-99-9999	41000	2019-03-17	24	610623	38	no
awilson5	111-11-1111	46000	2020-03-15	9	314159	41	no
bsummers4	000-00-0000	35000	2018-12-06	17	411911	35	no
ckann5	640-81-2357	46000	2019-08-03	27	n/a	n/a	no
csoares8	888-88-8888	57000	2019-02-25	26	343563	7	no
echarles19	777-77-7777	27000	2021-01-02	3	236001	10	yes
eross10	444-44-4444	61000	2020-04-17	10	n/a	n/a	yes
fprefontaine6	121-21-2121	20000	2020-04-19	5	657483	2	no
hstark16	555-55-5555	59000	2018-07-23	20	n/a	n/a	yes
lrodriguez5	222-22-2222	58000	2019-04-15	20	287182	67	no
mrobot1	101-01-0101	38000	2015-05-27	8	101010	18	no
mrobot2	010-10-1010	38000	2015-05-27	8	n/a	n/a	no
rlopez6	123-58-1321	64000	2017-02-05	51	235711	58	no
tmccall5	333-33-3333	33000	2018-10-17	29	181633	10	no

[26] display_pilot_view()

Result Grid | Filter Rows: Search | Export:

username	licenseID	experience	num_drones	num_locations
agarcia7	610623	38	4	2
awilson5	314159	41	2	1
bsummers4	411911	35	1	1
csoares8	343563	7	0	0
echarles19	236001	10	0	0
fprefontaine6	657483	2	4	2
lrodriguez5	287182	67	0	0
mrobot1	101010	18	0	0
rlopez6	235711	58	0	0
tmccall5	181633	10	0	0

[27] display_location_view()

Result Grid | Filter Rows: Search | Export:

label	x_coord	y_coord	num_restaurants	num_delivery_services	num_drones
airport	-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()

Result Grid Filter Rows: Search Export:

ingredient_name	location	amount_available	low_price	high_price
caviar	avalon	2	28	28
caviar	buckhead	1	30	30
prosciutto	airport	5	20	20
prosciutto	southside	4	18	18
saffron	airport	3	23	23
saffron	buckhead	3	19	19
saffron	southside	6	27	27
truffles	airport	7	14	14
truffles	avalon	2	15	15
truffles	buckhead	4	17	17

[29] display_service_view()

Result Grid Filter Rows: Search Export:

id	long_name	home_base	manager	revenue	ingredients_carried	cost_carried	weight_carried
hf	Herban Feast	southside	hstark16	140	4	389	68
osf	On Safari Foods	southside	eross10	0	3	267	60
rr	Ravishing Radish	avalon	echarles19	150	2	86	16

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

[24] display_owner_view()

Result Grid Filter Rows: 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
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sprince6	333-44-5555	61000	2022-11-29	38	n/a	n/a	no
tmccall5	333-33-3333	33000	2018-10-17	29	n/a	n/a	no

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fprefontaine6	657483	2	4	2
lrodriguez5	287182	67	0	0
mrobot1	101010	18	0	0
rlopez6	235711	58	0	0

[27] display_location_view()

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midtown	1	4	2	0	0
plaza	5	12	3	0	0
southside	3	-6	1	2	2

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saffron	buckhead	3	19	19
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