

W4111.001-Introduction to Databases
Spring 2021
Databases Project Part 2 submission
Due February 27 at 11:59 PM
Group number 31

Group Members

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Google Cloud Credentials

project name – cs4111-001-team31
project id – cs4111-001-team31
project number – 434243893406
<md3420@cs4111-instance-team3> VM instance

UNI tagged to the postgresql database is **md3420**

- In the database tagged by the above uni, we have populated all of our tables and have inputted all of our datasets
- This is the command I type to access the db from our vm instance:

```
psql -U md3420 -h 34.73.36.248 -d project1
```

Note: revised ER diagram and SQL schema tables are also to be submitted.

Sample Queries:

-- labor expenses

```
select l.transaction_type, l.transaction_id, lt.hours_worked * e.hourly_salary as money_owed  
from labor_expenses l  
join employee e on e.employee_id = l.employee_id  
join labor_transaction lt on lt.transaction_id = l.transaction_id;
```

- this above query allows to determine how much money an employee made on a given day (figure 1).

-- food expenses

```
select ie.transaction_type, ie.transaction_id, sum(it.number_of_items * f.ingredient_price) as  
total_price  
from ingredient_expenses ie  
join farmers f on f.farmer_id = ie.farmer_id and f.ingredient = ie.ingredient  
join ingredient_transaction it on it.transaction_id = ie.transaction_id  
group by ie.transaction_type, ie.transaction_id;
```

- this above query allows us to determine how much our ingredient expenses are (figure 2).

```
-- revenue generated
select fs.transaction_type, fs.transaction_id, sum(ot.number_of_items * m.price) as total_price
from food_sales fs
join orders o on o.transaction_id = fs.transaction_id and o.timestamp = fs.timestamp
join order_transaction ot on ot.timestamp = o.timestamp and ot.transaction_id =
o.transaction_id
join menu_items m on m.recipe_name = o.recipe_name
group by fs.transaction_type, fs.transaction_id;
```

- this above query allows us to determine how much revenue we have drawn in on a transaction (figure 3). In our model, we itemize all of the goods purchased, and then at the end we will group them all together so that we can sum a total for the whole bill. For reference see the next query.
- Furthermore, the final goal will be to calculate our total net worth as a business, but we haven't gotten that far with the queries yet. That requires more advanced techniques to present the result in a good fashion.

```
-- get the itemized order
select o.*, m.price, ot.number_of_items, m.price * ot.number_of_items as total_price from
orders o
join menu_items m on m.recipe_name = o.recipe_name
join order_transaction ot on ot.transaction_id = o.transaction_id and ot.timestamp =
o.timestamp;
```

- here for a given customer, transaction, and timestamp, we can see what the person ordered, how many of the given item he ordered as well as the total price (figure 4).

```
-- at what time are we the busiest?
select extract(hour from timestamp) as order_hour, count(*)
from orders
group by order_hour
order by count(*) desc;
```

- lastly, this was a fun query which allows us to see at what time our restaurant is the busiest. This will allow us to staff our restaurant accordingly (figure 5). FYI 9 am is our busiest time of the day by far.

Figure 1

transaction_type	transaction_id	money_owed
labor	187691	85.0000
labor	187692	68.0000
labor	187693	102.0000
labor	187694	120.0000
labor	187695	51.0000
labor	187696	123.0000
labor	187697	85.0000
labor	187698	85.0000
labor	187699	85.0000
labor	187700	68.0000
labor	187701	85.0000
labor	187702	85.0000
labor	187703	68.0000
labor	187704	85.0000
labor	187706	99.0000
labor	187707	123.0000
labor	187708	120.0000

(17 rows)

Figure 2

transaction_type	transaction_id	total_price
food_expenses	ing_205475	30.70
food_expenses	ing_205486	70.30
food_expenses	ing_205478	7.18
food_expenses	ing_205477	42.36
food_expenses	ing_205487	54.24
food_expenses	ing_205476	22.74
food_expenses	ing_205480	29.61
food_expenses	ing_205479	72.60
food_expenses	ing_205485	6.56
food_expenses	ing_205489	12.40
food_expenses	ing_205481	8.13
food_expenses	ing_205493	32.06
food_expenses	ing_205483	35.65
food_expenses	ing_205484	10.20
food_expenses	ing_205492	95.20
food_expenses	ing_205482	52.00
food_expenses	ing_205490	96.95
food_expenses	ing_205491	48.72
food_expenses	ing_205488	27.60

(19 rows)

Figure 3

transaction_type	transaction_id	total_price
revenue	45000	31.75
revenue	45001	73.00
revenue	45002	77.00
revenue	45003	31.50
revenue	45004	29.00
revenue	45005	21.00
revenue	45006	66.00
revenue	45007	33.00
revenue	45008	46.00
revenue	45009	54.75
revenue	45010	5.00
revenue	45011	21.25

(12 rows)

Figure 4

customer_id	transaction_id	timestamp	recipe_name	price	number_of_items	total_price
5489501742	45000	2021-02-02 10:04:23	Buttermilk Biscuit	5.00	2	10.00
5489501742	45000	2021-02-02 10:05:23	Soft Scrambled Eggs	17.00	1	17.00
5489501742	45000	2021-02-02 10:06:23	Orange Juice	4.75	1	4.75
3921569919	45001	2021-02-02 09:50:36	Simple Green Salad	6.00	3	18.00
3921569919	45001	2021-02-02 09:51:36	Custard French Toast	15.00	2	30.00
3921569919	45001	2021-02-02 09:52:36	House Made Granola	11.00	1	11.00
3921569919	45001	2021-02-02 09:53:36	Fried Egg Sandwich	14.00	1	14.00
6871478682	45002	2021-02-02 08:14:55	The Plow	19.00	1	19.00
6871478682	45002	2021-02-02 08:15:55	Market Fruit	9.00	2	18.00
6871478682	45002	2021-02-02 08:16:55	Grilled Cheese	16.00	1	16.00
6871478682	45002	2021-02-02 08:17:55	Cold-Smoked Salmon Toast	24.00	1	24.00
903098016	45003	2021-02-02 08:18:55	Chicory Salad	14.50	1	14.50
903098016	45003	2021-02-03 08:24:47	Plow Burger	17.00	1	17.00
5775628707	45004	2021-02-03 09:54:52	One Pancake	6.00	2	12.00
5775628707	45004	2021-02-03 09:55:52	Chicken Apple Sausage	7.00	1	7.00
5775628707	45004	2021-02-03 09:56:52	Buttermilk Biscuit	5.00	2	10.00
1724244169	45005	2021-02-03 09:31:27	Chia Bowl	11.00	1	11.00
1724244169	45005	2021-02-03 09:32:27	Buttermilk Biscuit	5.00	2	10.00
5330362158	45006	2021-02-04 09:27:18	Lemon Ricotta Pancakes	17.00	1	17.00
5330362158	45006	2021-02-04 09:28:18	Two Pastured Eggs	6.00	1	6.00
5330362158	45006	2021-02-04 09:29:18	Soft Scrambled Eggs	17.00	1	17.00
5330362158	45006	2021-02-04 09:30:18	Dungeness Crab Scramble	26.00	1	26.00
5092005176	45007	2021-02-04 10:33:41	House Made Granola	11.00	1	11.00
5092005176	45007	2021-02-04 10:34:41	Mimosa	11.00	2	22.00
4333005231	45008	2021-02-04 12:42:09	Grapefruit Mimosa	11.50	4	46.00
1861769465	45009	2021-02-04 08:16:31	Iced Tea	3.75	3	11.25
1861769465	45009	2021-02-04 08:17:31	Chicory Salad	14.50	3	43.50
9843832570	45010	2021-02-04 12:19:12	Breakaway Cold-Brewed Iced Matcha	5.00	1	5.00
9837727207	45011	2021-02-04 11:16:05	Two Egg Breakfast	17.50	1	17.50
9837727207	45011	2021-02-04 11:17:05	Five Mountains Organic Tea	3.75	1	3.75

(30 rows)

Figure 5

order_hour	count
9	13
8	8
10	5
12	2
11	2

(5 rows)