

# **CPSC 304 Project Cover Page**

Milestone #: 4

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Group Number: 6

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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

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### **Description:**

This project is meant to help the management of a hotpot restaurant by keeping track of its storage and sales. The application has 6 pages in total: 4 main pages navigated by the navigation bar, and two pages live inside other pages. These pages accomplished the following functions:

The sales pages display a table illustrating the information on all the sales recorded in the database. On the Sales page, the user could:

- View the sales records for certain branches by selecting the branch numbers.
- View the least profitable dish item in each branch by clicking “find min profit item.”
- View the date with the most profit by clicking “find max total profit day.”
- Navigate to the Add Sales page by clicking “Add sales”

The Add Sales page lives on the Sales page. On this page, the user could:

- Add a new sales record to the database by providing all the required information.

The Drink Storage page lists all the drink storage in all branches. User could:

- Navigate to the Drinks page by clicking “View drinks.”

The Drinks page shows all the drinks in the selected storage. On this page, the user could:

- Add new drink data to the drinks storage.
- Update existing drink data in the storage without changing the primary key drink\_name.
- Delete existing drink data in the storage.

The Dish Item page contains a table with the information of all the dish items in the storage database. On this page, the user could:

- View the dish item that consists of certain ingredients by checking the ingredient's name and clicking “find.”

The Ingredient page provides a table with the information of all the ingredients in the storage database. On this page, the user could:

- View certain columns separately by checking the corresponding column and clicking “filter.”
- View the branch number for which at least one ingredient has more than 60 units in the storage by clicking “find.”

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The functionality of the application and information kept in this database helps managers to make efficient and reasonable decisions.

### **Schema Change:**

For the schema we used in the final project, we changed the following from the schema we turned in in milestone 2:

- Changed the type of attribute “location” in table “branches” to varchar(50) because varchar(30) is not enough length to store this information.
- Changed the type of attribute “phone\_number” in the table “drinks\_provide”, “ingredient\_provide”, and “suppliers” to varchar(30) because int is not appropriate to store this information.
- Moved the attribute “quantity” from “drinks” to “drinks\_store”
- Moved the attribute “quantity” from “ingredients” to “ingredients\_store”
- Moved the attribute “expired\_date” from “ingredients” to “ingredient\_store”
- Canceled unique of “storage\_manager” in table “Drink\_Storage\_Belonging”, “Ingredients\_Storage\_Belonging”, “Utensils\_Storage\_Belonging” and “Festival\_Decorations\_Storage\_Belonging” due to the reduce of data complexity
- Changed the primary key of tables “Drink\_Storage\_Belonging”, “Ingredients\_Storage\_Belonging”, “Utensils\_Storage\_Belonging” and “Festival\_Decorations\_Storage\_Belonging” to “branch\_number” and “storage\_name” for better referencing.
- Labeled “storage\_name” as a foreign key in the table We changed the primary key in “ingredient\_provide” table “Drink\_Storage\_Belonging”, “Ingredients\_Storage\_Belonging”, “Utensils\_Storage\_Belonging” and “Festival\_Decorations\_Storage\_Belonging” due to data correctness.

### **Schema and Data:**

branches

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Indexes in Table				Index Details
Column	Type	Uniq...	Columns	
branch_number	BTREE	YES	branch_number	Key Name:
location	BTREE	YES	location	Index Type:
branch_number	BTREE	NO	branch_number	Allows NULL:
				Cardinality:
				Comment:
				User Comment:

Columns in table			
Column	Type	Nullable	Indexes
branch_number	int	NO	PRIMARY, branch_number
location	varchar(50)	NO	location
Employee_Count	int	YES	

branch_number	location	Employee_Count
1124	1571 Sandhurst Cir #106F, Scarborough, ON	48
1294	237 Yonge St, Toronto, ON	39
1332	5328 Hwy 7, Markham, ON	40
3243	5890 No. 3 Rd Room 200, Richmond, BC	46
3252	3204 W Broadway, Vancouver, BC	43
8204	1194 Saint-Catherine St W, Montreal, Quebec	45
NUL	NUL	NUL

dish item

drinks

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	drink_name	
Columns in table				
Column	Type	Nullable	Indexes	
◆ drink_name	varchar(30)	NO	PRIMARY	
◆ price	int	NO		
drink_name	price			
bubble tea	5			
green tea latte	5			
iced lemon tea	4			
mango smoothie	6			
watermelon juice	4			
NULL	NULL			

drink provide

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	drink_name, Phone_r	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
Phone_number	BTREE	NO	Phone_number	
Columns in table				
Column	Type	Nullable	Indexes	
drink_name	varchar(30)	NO	PRIMARY	
Phone_number	varchar(30)	NO	PRIMARY, Phone_number	

drink_name	Phone_number
Bubble Tea	1234567890
Green Tea Latte	1234567890
Iced Lemon Tea	1234567890
Mango Smoothie	1234567890
Watermelon Juice	7782267908
NUL	NUL

drink storage belonging

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	branch_number, storage_name	
storage_name	BTREE	NO	storage_name	
<b>Columns in table</b>				
Column	Type	Nullable	Indexes	
branch_number	int	NO	PRIMARY	
storage_name	varchar(30)	NO	PRIMARY, storage_name	
storage_manager	varchar(30)	YES		

branch_number	storage_name	storage_manager	
1124	small drink cabinet	Collin.T	
1294	small drink cabinet	Oscar.M	
1332	small drink cabinet	Nott.F	
3243	medium drink fridge	Dora.Z	
8204	large drink fridge	Kevin.L	
8204	medium drink fridge	Leo.Z	
HULL	HULL	HULL	

drink storage condition

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	storage_name	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
Columns in table				
Column	Type	Nullable	Indexes	
storage_name	varchar(30)	NO	PRIMARY	
volume	varchar(10)	NO		
temperature	varchar(10)	NO		

	storage_name	volume	temperature	
	large drink cabinet	20L	room	
	large drink fridge	30L	3C	
	medium drink fridge	25L	3C	
	small drink cabinet	10L	room	
	small drink fridge	15L	3C	
	NULL	NULL	NULL	

drinks store

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	branch_number, storage_name, drink_name	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
storage_name	BTREE	NO	storage_name	
drink_name	BTREE	NO	drink_name	
Columns in table				
Column	Type	Nullable	Indexes	
storage_name	varchar(30)	NO	PRIMARY, storage_name	
branch_number	int	NO	PRIMARY	
drink_name	varchar(30)	NO	PRIMARY, drink_name	
quantity	int	NO		

storage_name	branch_number	drink_name	quantity	
small drink cabinet	1124	watermelon juice	30	
small drink cabinet	1294	watermelon juice	30	
small drink cabinet	1332	watermelon juice	30	
large drink cabinet	3243	green tea latte	90	
large drink fridge	3243	bubble tea	100	
medium drink fridge	3243	green tea latte	80	
medium drink fridge	3243	iced lemon tea	80	
small drink fridge	3243	mango smoothie	120	
small drink cabinet	3252	watermelon juice	110	
large drink fridge	8204	bubble tea	100	
medium drink fridge	8204	iced lemon tea	80	
NONE	NONE	NONE	NONE	

festival decoration

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	decoration_name	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
Columns in table				
Column	Type	Nullable	Indexes	
◆ decoration_name	varchar(30)	NO	PRIMARY	
◆ festival	varchar(30)	YES		
◆ price	int	NO		

decoration_name	festival	price	
Colorful Lanterns	mid-autumn	20	
Festive Banners	lunar new year	18	
Paper Snowflakes	Christmas	10	
Party Streamers	valentines day	12	
Tinsel Garland	Christmas	15	
NUL	NUL	NUL	

festival decoration storage belonging

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	branch_number, storage_name	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
storage_name	BTREE	NO	storage_name	

Columns in table			
Column	Type	Nullable	Indexes
branch_number	int	NO	PRIMARY
storage_name	varchar(30)	NO	PRIMARY, storage_name
storage_manager	varchar(30)	YES	

branch_number	storage_name	storage_manager
1124	valentines day decoration	Nick.R
1294	valentines day decoration	Bill.N
1332	valentines day decoration	Steven.S
3243	valentines day decoration	Morton.W
8204	christmas decoration	Tim.H

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festival decoration storage condition

Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	storage_name	
Columns in table				
Column	Type	Nullable	Indexes	
◆ storage_name	varchar(30)	NO	PRIMARY	
◆ volume	varchar(10)	NO		
◆ temperature	varchar(10)	NO		
storage_name		volume	temperature	
christmas decoration	5L	room		
lunar new year decoration	5L	room		
midautumn decoration	5L	room		
new year decoration	5L	room		
valentines day decoration	5L	room		
NULL	NULL	NULL		

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festival decoration store

Indexes in Table				Index Details
Column	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	branch_number, storage_name, festival_decoration_name	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
storage_name	BTREE	NO	storage_name	
festival_decoration_name	BTREE	NO	festival_decoration_name	

Columns in table				
Column	Type	Nullable	Indexes	
storage_name	varchar(30)	NO	PRIMARY, storage_name	
branch_number	int	NO	PRIMARY	
festival_decoration_name	varchar(30)	NO	PRIMARY, festival_decoration_name	

storage_name	branch_number	festival_decoration_name	
christmas decoration	3243	Paper Snowflakes	
christmas decoration	3252	Tinsel Garland	
lunar new year decoration	3243	Festive Banners	
midautumn decoration	3252	Colorful Lanterns	
valentines day decoration	3243	Party Streamers	
HULL	HULL	HULL	

has sales

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Indexes in Table				Index Details	
Key	Type	Uniq...	Columns	Key Name:	Index Type:
PRIMARY	BTREE	YES	branch_number, sales_item_name		Allows NULL:
branch_number	BTREE	NO	branch_number		Cardinality:
				Comment:	User Comment:
Columns in table					
Column	Type		Nullable	Indexes	
branch_number	int		NO	PRIMARY, branch_number	
sales_item_name	varchar(30)		NO	PRIMARY	
date	date		NO	PRIMARY	
amount	int		YES		
profit	int		YES		
branch_number	sales_item_name	date	amount	profit	
1294	fatty beef	2024-04-11	2	8	
1294	smashed shrimp	2024-02-28	280	840	
1332	fatty beef	2024-02-28	240	1200	
1332	fatty beef	2024-04-28	200	800	
1332	smashed shrimp	2024-04-10	200	800	
1332	smashed shrimp	2024-04-17	12	50	
1332	smashed shrimp	2024-02-18	80	320	
3243	egg fried rice	2024-02-28	86	172	
3243	sour spicy soup	2024-03-28	100	400	
3252	sorted veggies	2024-02-28	277	1385	
8204	sorted veggies	2024-02-28	80	400	
8204	sour spicy soup	2024-02-28	80	400	
NUL	NUL	NUL	NUL	NUL	

ingredients

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
PRIMARY	BTREE	YES	ingredients_name	

## Columns in table

Column	Type	Nullable	Indexes
◆ ingredients_name	varchar(30)	NO	PRIMARY
◆ price	int	NO	
◆ category	varchar(30)	NO	

ingredients_na...	price	category	
beef slices	40	halal	
carrots	3	vegetarian/halal	
chili powder	8	vegetarian/halal	
eggs	6	vegetarian/halal	
rice	10	vegetarian/halal	
shrimp	12	vegetarian/halal	
soy sauce	7	vegetarian/halal	

ingredients provide

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Indexes in Table				Index Details
Column	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	ingredients_name, Ph	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
Phone_number	BTREE	NO	Phone_number	
Columns in table				
Column	Type	Nullable	Indexes	
◆ ingredients_name	varchar(30)	NO	PRIMARY	
◆ Phone_number	varchar(30)	NO	PRIMARY, Phone_number	

ingredients_na...	Phone_number
Beef Slices	6043660789
Chili Powder	6043660789
Shrimp	6043660789
Soy Sauce	6043660789
Carrots	7785387823
eggs	7785387823
rice	7785387823
NULL	NULL

ingredients storage belonging

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Indexes in Table				Index Details
Column	Type	Nullable	Indexes	
branch_number	int	NO	PRIMARY	Key Name:
storage_name	varchar(30)	NO	PRIMARY, storage_name	Index Type:
storage_manager	varchar(30)	YES		Allows NULL:
				Cardinality:
				Comment:
				User Comment:

Columns in table		
branch_number	storage_name	storage_manager
1124	vegetable fridge	Daniel.A
1294	protein freezer	Daniel.L
1294	vegetable fridge	Rachel.Y
1332	protein freezer	Anna.C
1332	vegetable fridge	John.S
3243	vegetable fridge	Angle.S
8204	pre-made food fridge	Mark.D
8204	spice rack	Erica.P
NUL	NUL	NUL

ingredients storage condition

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Indexes in Table				Index Details
Column	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	storage_name	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
Columns in table				
Column	Type	Nullable	Indexes	
◆ storage_name	varchar(30)	NO	PRIMARY	
◆ volume	varchar(10)	NO		
◆ temperature	varchar(10)	NO		
storage_name		volume	temperature	
pre-made food fridge	45L	-12C		
protein freezer	80L	-12C		
sauce cupboard	5L	3C		
seafood cooler	50L	-12C		
spice rack	3L	room		
vegetable fridge	40L	3C		
HULL	NUL	NUL		

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ingredients store

Indexes in Table				Index Details	
Column	Type	Uniq...	Columns	Key Name:	Index Type:
storage_name	BTREE	YES	branch_number, storage_name		Allows NULL:
ingredients_name	BTREE	NO	storage_name		Cardinality:
			ingredients_name		Comment:
					User Comment:
Columns in table					
Column	Type	Nullable	Indexes		
storage_name	varchar(30)	NO	PRIMARY, storage_name		
branch_number	int	NO	PRIMARY		
ingredients_name	varchar(30)	NO	PRIMARY, ingredients_name		
quantity	int	NO			
expired_date	date	NO			

storage_name	branch_number	ingredients_na...	quantity	expired_date	
protein freezer	3243	eggs	93	2024-04-01	
spice rack	3243	Chili Powder	10	2025-10-10	
vegetable fridge	3243	Carrots	4	2024-03-02	
vegetable fridge	3243	rice	30	2024-12-03	
protein freezer	3252	Beef Slices	40	2024-02-29	
sauce cupboard	3252	Soy Sauce	13	2024-05-01	
seafood cooler	3252	Shrimp	15	2024-03-15	
NUL	NUL	NUL	NUL	NUL	

process

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	ingredients_name, item_name	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
item_name	BTREE	NO	item_name	
Columns in table				
Column	Type	Nullable	Indexes	
◆ ingredients_name	varchar(30)	NO	PRIMARY	
◆ item_name	varchar(30)	NO	PRIMARY, item_name	
Data View				
ingredients_na...	item_name			
carrots	egg fried rice			
eggs	egg fried rice			
rice	egg fried rice			
soy sauce	egg fried rice			
beef slices	fatty beef			
shrimp	smashed shrimp			
carrots	sorted veggies			
carrots	sour spicy soup			
chili powder	sour spicy soup			
eggs	sour spicy soup			
NONE	NONE			

protection for children

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Indexes in Table				Index Details
Column	Type	Uniq...	Columns	
◆ PRIMARY	BTREE	YES	material	
Columns in table				
Column	Type	Nullable	Indexes	
◆ material	varchar(30)	NO	PRIMARY	
◆ child_friendly	tinyint(1)	YES		
supplier				
material	child_frien...			
bamboo	1			
ceramic	0			
glass	0			
plastic	0			
plastic and fibre	0			
stainless steel	1			
NUL	NUL			

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Indexes in Table				Index Details
Column	Type	Nullable	Indexes	
phone_number	varchar(30)	NO	PRIMARY	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
company_name	varchar(30)	NO	company_name	
type	varchar(30)	YES		

phone_number	shipment_time	company_name	type	
1234567890	3	ABC Suppliers	Food and Beverages	
4443332222	3	RST Exports	Festival Items	
5551112222	5	PQR Imports	Utensils	
6043660789	4	LMN Supplies	Ingredients	
7782267908	3	Simons Fresh Juice	Food and Beverages	
7785387823	3	The Original Farm Goods	Ingredients	
9876543210	2	XYZ Distributors	Decorations	
HULL	HULL	HULL	HULL	

utensils information

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Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	utensils_name	
material	BTREE	NO	material	

Columns in table			
Column	Type	Nullable	Indexes
utensils_name	varchar(30)	NO	PRIMARY
material	varchar(30)	NO	material
price	int	NO	

utensils_name	material	price	
forks	stainless steel	1	
hotpot	stainless steel	12	
large white plates	ceramic	7	
mop	plastic and fibre	5	
small dishes	ceramic	3	
NULL	NULL	NULL	

utensils storage belonging

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Indexes in Table				Index Details	
Key	Type	Uniq...	Columns	Key Name:	Index Type:
PRIMARY	BTREE	YES	branch_number, stor		Allows NULL:
			storage_name		Cardinality:
Columns in table					
Column	Type	Nullable	Indexes		
◆ branch_number	int	NO	PRIMARY		
◆ storage_name	varchar(30)	NO	PRIMARY, storage_name		
◆ storage_manager	varchar(30)	YES			
Result Grid					
branch_number	storage_name	storage_manager			
1294	cleaning tools storage	Amber.D			
1332	pot and wok cabinet	Sophia.S			
3243	tableware cabinet	Jerry.F			
3252	large plate cabinet	Michael.L			
8204	small plate cabinet	Lucas.L			
NULL	NULL	NULL			

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utensils storage condition

Indexes in Table				Index Details
Key	Type	Uniq...	Columns	
PRIMARY	BTREE	YES	storage_name	
Columns in table				
Column	Type	Nullable	Indexes	
◆ storage_name	varchar(30)	NO	PRIMARY	
◆ volume	varchar(10)	NO		
◆ temperature	varchar(10)	NO		

	storage_name	volume	temperature	
	cleaning tools storage	50L	room	
	large plate cabinet	20L	room	
	pot and wok cabinet	10L	room	
	small plate cabinet	10L	room	
	tableware cabinet	5L	room	
	NUL	NUL	NUL	

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utensil store

Indexes in Table				Index Details
Key	Type	Uniq...	Columns	Key Name: Index Type: Allows NULL: Cardinality: Comment: User Comment:
PRIMARY	BTREE	YES	branch_number, storage_name	
storage_name	BTREE	NO	storage_name	
Utensils_name	BTREE	NO	Utensils_name	

Columns in table				
Column	Type	Nullable	Indexes	
storage_name	varchar(30)	NO	PRIMARY, storage_name	
branch_number	int	NO	PRIMARY	
Utensils_name	varchar(30)	NO	PRIMARY, Utensils_name	

Result Grid			
storage_name		branch_number	Utensils_name
cleaning tools storage	3252	mop	
large plate cabinet	3252	large white plates	
pot and wok cabinet	3243	hotpot	
small plate cabinet	3252	small dishes	
tableware cabinet	3243	forks	
NULL	NULL	NULL	

## SQL query:

The full SQL query implementation for building the database is stored in the file named “database script” in the root of the project repository. Other queries used is listed below:

- **division:**

```
SELECT * FROM dish_items  
(/Backend/routes/dish_items.js, line 7)  
SELECT DISTINCT item_name, category, price  
FROM dish_items  
WHERE NOT EXISTS (  
    SELECT *
```

```
FROM (
    SELECT ingredients_name
    FROM ingredients
    WHERE ingredients_name IN (?)
) AS subquery
WHERE NOT EXISTS
(SELECT p.ingredients_name
FROM process p
WHERE p.item_name = dish_items.item_name
AND subquery.ingredients_name = p.ingredients_name)
)
(/Backend/routes/dish_items.js, line 18)
```

- **JOIN:**

```
SELECT dsb.*, dsc.temperature,dsc.volume
FROM drink_storage_belonging dsb, drink_storage_condition dsc
WHERE dsb.storage_name = dsc.storage_name
(/Backend/routes/drinkStorage.js, line 8)
```

```
SELECT * FROM ingredients i, ingredient_store store
WHERE i.ingredients_name = store.ingredients_name
(/Backend/routes/ingredients.js, line 7)
```

- **DELETE:**

```
SELECT * FROM drinks d, drink_store ds WHERE d.drink_name = ds.drink_name AND
branch_number = ? AND storage_name = ?
(/Backend/routes/drinks.js, line 10)
DELETE FROM drinks WHERE drink_name = ?
(/Backend/routes/drinks.js, line 27)
```

- **INSERT:**

```
SELECT * FROM drinks WHERE drink_name = ?
(/Backend/routes/drinks.js, line 46)
INSERT INTO drink_store (storage_name, branch_number, drink_name, quantity)
VALUES (?, ?, ?, ?)
(/Backend/routes/drinks.js, line 54)
INSERT INTO drinks (drink_name, price) VALUES (?, ?)
(/Backend/routes/drinks.js, line 69)
INSERT INTO drink_store (storage_name, branch_number, drink_name, quantity)
VALUES (?, ?, ?, ?)
(/Backend/routes/drinks.js, line 79)
```

```
SELECT * FROM has_sales
```

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```
(/Backend/routes/sales.js, line 7)
INSERT INTO has_sales (`date`,sales_item_name,amount,profit,branch_number)
VALUES(?)
(/Backend/routes/sales.js, line 16)
```

- **projection:**

```
SELECT ${columns} FROM ingredients i, ingredient_store store
WHERE i.ingredients_name = store.ingredients_name
(Backend\routes\ingredients.js, line 17)
```

- **UPDATE:**

```
UPDATE drinks SET price = ? WHERE drink_name = ?
(/Backend/routes/drinks.js, line 102)
UPDATE drink_store SET quantity = ? WHERE drink_name = ? AND storage_name = ?
AND branch_number = ?
(/Backend/routes/drinks.js, line 104)
```

- **Aggregation with having:**

```
SELECT branch_number FROM ingredients i, ingredient_store store
WHERE i.ingredients_name = store.ingredients_name
GROUP BY branch_number
HAVING MAX(quantity) > 50
(Backend/routes/ingredients.js, line 26)
```

- **SELECTION:**

```
SELECT * FROM has_sales WHERE (branch_number) IN (?)
(/Backend/routes/sales.js, line 34)
```

- **Aggregation with Group By:**

```
SELECT * FROM has_sales
WHERE (branch_number, profit) IN
(SELECT branch_number, MIN(profit)
FROM has_sales
GROUP BY branch_number)
(Backend/routes/sales.js, line 44)
```

- **Nested Aggregation with Group By:**

```
SELECT *
FROM (
    SELECT date, SUM(amount) AS amount, SUM(profit) AS profit, branch_number
    FROM has_sales
    GROUP BY date, branch_number
) AS TP
```

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```
WHERE (branch_number, profit) IN (
    SELECT branch_number, MAX(totalProfit)
    FROM (
        SELECT SUM(profit) AS totalProfit, branch_number
        FROM has_sales
        GROUP BY date, branch_number
    ) AS maxTotalProfitPerBranch
    GROUP BY branch_number
)
(/Backend/routes/sales.js, line 56)
```

### Functionality:

SALES PAGE:

before:

Date	Item Name	Amount	Profit	Branch Number
2024-04-11	fatty beef	2	8	1294
2024-02-28	smashed shrimp	280	840	1294
2024-02-28	fatty beef	240	1200	1332
2024-04-28	fatty beef	200	800	1332
2024-04-10	smashed shrimp	200	800	1332
2024-04-17	smashed shrimp	12	50	1332
2024-02-18	smashed shrimp	80	320	1332
2024-02-28	egg fried rice	86	172	3243
2024-03-28	sour spicy soup	100	400	3243
2024-02-28	sorted veggies	277	1385	3252
2024-02-28	sorted veggies	80	400	8204
2024-02-28	sour spicy soup	80	400	8204

INSERT during

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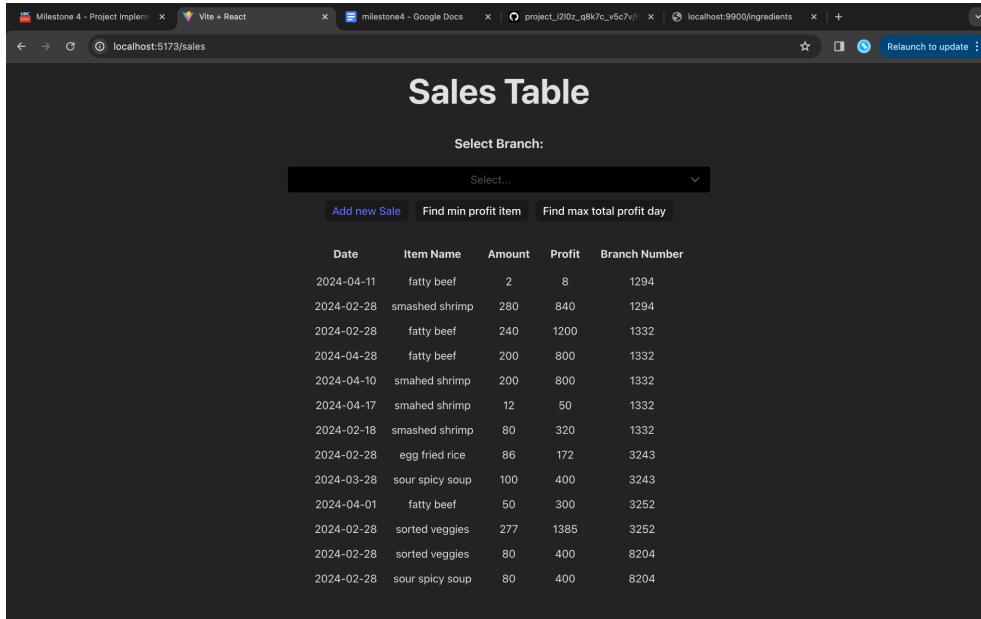
A screenshot of a web browser window showing a dark-themed user interface for adding new sales. The page title is "Add new sales". At the top, there is a navigation bar with tabs: Sales, Drink Storage, Dish Items, and Ingredients. Below the navigation bar, there are four input fields: a date input field containing "yyyy-mm-dd", a text input field labeled "Item Name" containing "fatty beef", a text input field labeled "Amount" containing "50", and a text input field labeled "Profit" containing "300". Below these fields is a dropdown menu labeled "Select Branch" with the value "3252". At the bottom of the form is a large blue "Add" button.

A screenshot of the same web browser window after the "Add" button was clicked. A modal dialog box appears in the center of the screen with the text "localhost:5173 says" and "Sales successfully added!". There is an "OK" button at the bottom right of the modal. The background of the main form has changed to a light gray color, indicating it is no longer active. The input fields and dropdown menu from the previous screenshot are still visible but appear to be disabled or grayed out.

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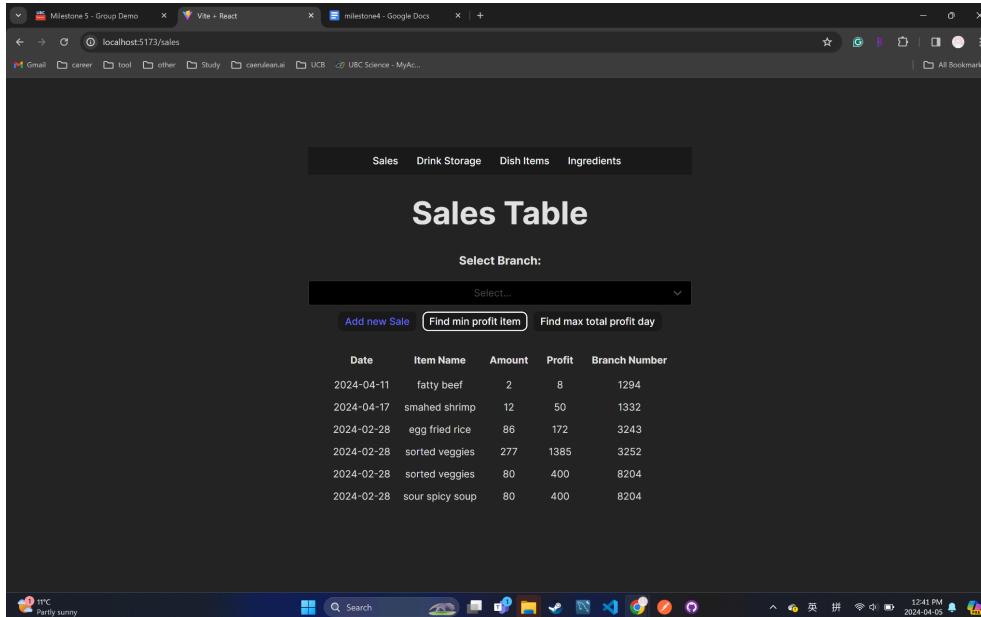
INSERT after



A screenshot of a web browser window titled "Sales Table". The page has a dark background. At the top, it says "Select Branch:" followed by a dropdown menu with "Select..." and three buttons: "Add new Sale", "Find min profit item", and "Find max total profit day". Below this is a table with the following data:

Date	Item Name	Amount	Profit	Branch Number
2024-04-11	fatty beef	2	8	1294
2024-02-28	smashed shrimp	280	840	1294
2024-02-28	fatty beef	240	1200	1332
2024-04-28	fatty beef	200	800	1332
2024-04-10	smashed shrimp	200	800	1332
2024-04-17	smashed shrimp	12	50	1332
2024-02-18	smashed shrimp	80	320	1332
2024-02-28	egg fried rice	86	172	3243
2024-03-28	sour spicy soup	100	400	3243
2024-04-01	fatty beef	50	300	3252
2024-02-28	sorted veggies	277	1385	3252
2024-02-28	sorted veggies	80	400	8204
2024-02-28	sour spicy soup	80	400	8204

Aggregation with Group By after



A screenshot of a web browser window titled "Sales Table". The page has a dark background. At the top, it says "Select Branch:" followed by a dropdown menu with "Select..." and three buttons: "Add new Sale", "Find min profit item", and "Find max total profit day". Below this is a table with the following data:

Date	Item Name	Amount	Profit	Branch Number
2024-04-11	fatty beef	2	8	1294
2024-04-17	smashed shrimp	12	50	1332
2024-02-28	egg fried rice	86	172	3243
2024-02-28	sorted veggies	277	1385	3252
2024-02-28	sorted veggies	80	400	8204
2024-02-28	sour spicy soup	80	400	8204

Nested Aggregation with Group By after

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A screenshot of a web browser window titled "localhost:5173/sales". The page has a dark theme with white text. At the top, there is a navigation bar with tabs: Sales, Drink Storage, Dish Items, and Ingredients. Below the navigation bar, the title "Sales Table" is displayed. Underneath the title, there is a heading "Select Branch:" followed by a dropdown menu with the placeholder "Select...". Below the dropdown are three buttons: "Add new Sale", "Find min profit item", and "Find max total profit day". A table follows, with columns: Date, Item Name, Amount, Profit, and Branch Number. The data in the table is as follows:

Date	Item Name	Amount	Profit	Branch Number
2024-02-28	total	280	840	1294
2024-02-28	total	240	1200	1332
2024-03-28	total	100	400	3243
2024-02-28	total	277	1385	3252
2024-02-28	total	160	800	8204

The browser's address bar shows "localhost:5173/sales". The taskbar at the bottom of the screen includes icons for File Explorer, Microsoft Edge, and other applications.

**SELECT during**

A screenshot of a web browser window titled "localhost:5173/sales". The interface is identical to the previous screenshot, featuring a dark theme with white text, a navigation bar, and a "Sales Table" title. The "Select Branch:" dropdown is open, showing a list of branch numbers: 3252, 8204, 1332, 1294, 8204, 1332, and 3243. The branch number 3252 is highlighted with a blue selection bar. Below the dropdown, a table displays sales data for branch 3252. The data is as follows:

Date	Item Name	Amount	Profit	Branch Number
2024-02-28	sorted veggies	80	400	8204
2024-02-28	sour spicy soup	80	400	8204

The browser's address bar shows "localhost:5173/sales". The taskbar at the bottom of the screen includes icons for File Explorer, Microsoft Edge, and other applications.

**SELECT after**

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The screenshot shows a dark-themed web application interface. At the top, there is a navigation bar with tabs: "Sales", "Drink Storage", "Dish Items", and "Ingredients". Below the navigation bar, the title "Sales Table" is displayed in large, bold, white font. Underneath the title, a sub-header "Select Branch:" is shown, followed by a dropdown menu set to "3252, 8204, 1332". Below the dropdown are three buttons: "Add new Sale", "Find min profit item", and "Find max total profit day". The main content area displays a table with the following data:

Date	Item Name	Amount	Profit	Branch Number
2024-02-28	fatty beef	240	1200	1332
2024-04-28	fatty beef	200	800	1332
2024-04-10	smahed shrimp	200	800	1332
2024-04-17	smahed shrimp	12	50	1332
2024-02-18	smashed shrimp	80	320	1332
2024-02-28	sorted veggies	277	1385	3252
2024-02-28	sorted veggies	80	400	8204
2024-02-28	sour spicy soup	80	400	8204

DRINK PAGE:

JOIN:

The screenshot shows a dark-themed web application interface. At the top, there is a navigation bar with tabs: "Sales", "Drink Storage", "Dish Items", and "Ingredients". Below the navigation bar, the title "Drinks List" is displayed in large, bold, white font. Underneath the title, there is a form with input fields for "Name", "Price", and "Quantity", followed by a "Add Drink" button. Below the form, a table displays the following data:

Name	Price	Quantity	Actions
watermelon juice	4	30	Edit Delete

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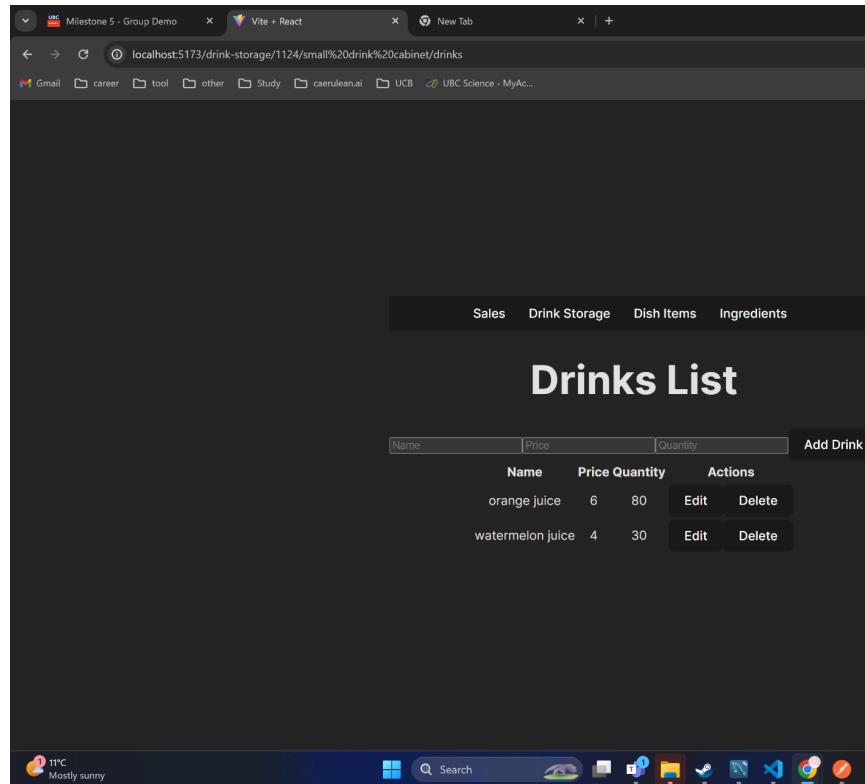
- **INSERT:**

The screenshot shows a web application interface for managing drink storage. At the top, there's a navigation bar with tabs: Sales, Drink Storage, Dish Items, and Ingredients. Below the navigation bar is a title "Drinks List". Underneath the title is a search bar containing "orange juice" and a dropdown menu set to "6". To the right of the search bar is a button labeled "Add Drink". Below the search bar is a table with three columns: Name, Price, and Quantity. The table contains two rows: "orange juice" with Price 6 and Quantity 6, and "watermelon juice" with Price 4 and Quantity 30. To the right of the table are "Edit" and "Delete" buttons. A modal dialog box is overlaid on the page, displaying the message "localhost:5173 says drinks successfully added!" with an "OK" button. The background of the application is dark.

Name	Price	Quantity	Actions
orange juice	6	80	<a href="#">Edit</a> <a href="#">Delete</a>
watermelon juice	4	30	<a href="#">Edit</a> <a href="#">Delete</a>

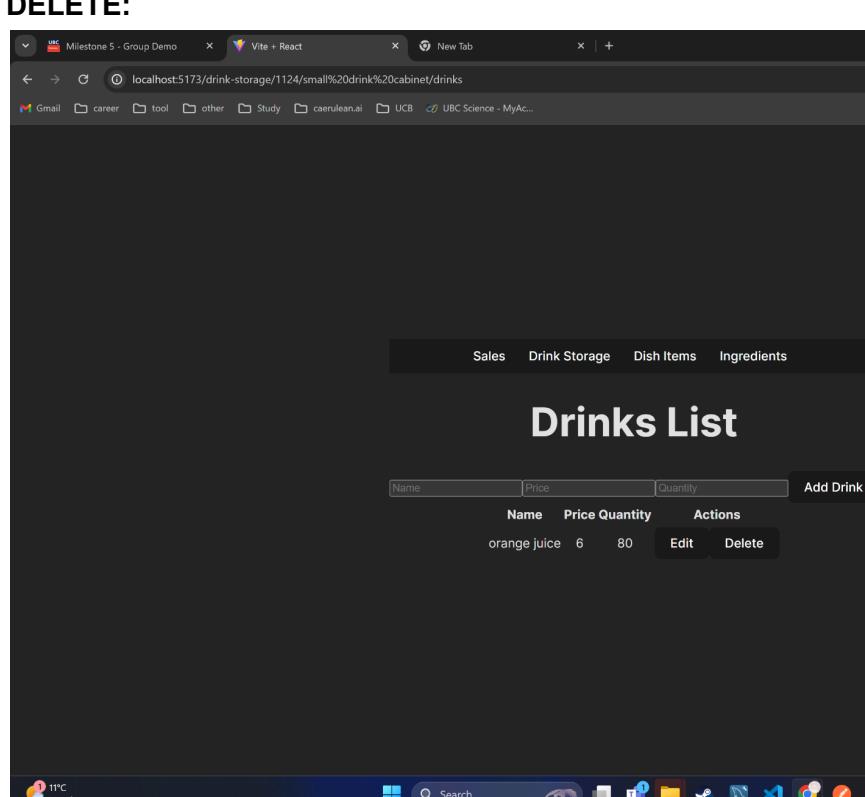
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Name	Price	Quantity	Actions	
Name	Price	Quantity	Actions	
orange juice	6	80	Edit	Delete
watermelon juice	4	30	Edit	Delete

- **DELETE:**



Name	Price	Quantity	Actions	
Name	Price	Quantity	Actions	
orange juice	6	80	Edit	Delete

- **UPDATE:**

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The image displays two side-by-side screenshots of a web-based application interface, likely a dashboard for managing inventory or sales data. Both screenshots show a dark-themed header with navigation links: Sales, Drink Storage, Dish Items, and Ingredients. Below the header is a section titled "Drinks List". A search bar at the top of this section contains the text "orange juice" and includes dropdown menus for "Name" and "Quantity". To the right of the search bar is a button labeled "Update Drink". Below the search bar is a table with three columns: Name, Price, and Quantity. A single row is visible in the table, showing "orange juice" with a price of 6 and a quantity of 80. To the right of this row are two buttons: "Edit" and "Delete". The bottom of each screenshot shows a Windows taskbar with various icons and system status indicators.

**INGREDIENT PAGE:**

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before:

A screenshot of a web browser window titled "localhost:5173/ingredients". The page features a navigation bar with links to Sales, Drink Storage, Dish Items, and Ingredients. Below the navigation bar is a title "Ingredient Table". To the right of the title is a filter section containing checkboxes for "Ingredient Name", "Expired Date", "Price", "Category", and "Quantity", followed by a "Filter" button. A table below the filter shows ingredient data with columns: Ingredient Name, Expired Date, Price, Category, and Quantity. The data includes items like Beef Slices, Carrots, Chili Powder, eggs, rice, Shrimp, and Soy Sauce. At the bottom of the table is a note: "Find the branch(es) with more than 60 units of one ingredient in the storage" and a "Find" button. The browser's address bar shows the URL "localhost:5173/ingredients". The taskbar at the bottom of the screen displays various icons and the system tray shows the date and time as 12:56 PM, 2024-04-05.

- PROJECTION:

A screenshot of the same web browser window as the previous one, but with a different set of filters selected. The "Expired Date" and "Category" checkboxes are now checked, while "Ingredient Name", "Price", and "Quantity" are unchecked. The table below shows a reduced set of ingredients: Beef Slices, Carrots, Chili Powder, eggs, rice, Shrimp, and Soy Sauce. The "Find" button and the note at the bottom of the table remain the same. The browser's address bar and the taskbar at the bottom of the screen are identical to the first screenshot, showing the URL "localhost:5173/ingredients" and the date and time as 12:57 PM, 2024-04-05.

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- Aggregation with having:

The screenshot shows a web browser window with three tabs: "Milestone 5 - Group Demo", "Vite + React", and "New Tab". The main content area displays a dark-themed web application titled "Ingredient Table". At the top, there is a navigation bar with links: Sales, Drink Storage, Dish Items, and Ingredients. Below the navigation bar, there is a filter section with checkboxes for "Ingredient Name", "Expired Date", "Price", "Category", and "Quantity", followed by a "Filter" button. A table below the filter section has columns: Ingredient Name, Expired Date, Price, Category, and Quantity. The table contains the following data:

Ingredient Name	Expired Date	Price	Category	Quantity
	2024-02-29		halal	
	2024-03-02		vegetarian/halal	
	2025-10-10		vegetarian/halal	
	2024-04-01		vegetarian/halal	
	2024-12-03		vegetarian/halal	
	2024-03-15		vegetarian/halal	
	2024-05-01		vegetarian/halal	

Below the table, a message says "Find the branch(es) with more than 60 units of one ingredient in the storage". A "Find" button is present. To the right, it says "Branch number(s): 3243". The bottom of the screen shows a Windows taskbar with various icons and system status.

## DISH ITEMS PAGE:

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before:

The screenshot shows a dark-themed web application interface. At the top, there is a navigation bar with tabs: "Sales", "Drink Storage", "Dish Items", and "Ingredients". Below the navigation bar is a section titled "Dish Item Table" with a subtitle "Filter dish items with ingredients:". There is a "Find" button below the filter options. A table displays dish items with columns for "Item Name", "Price", and "Category". The items listed are: egg fried rice (5, cooked), fatty beef (11, cooked), smashed shrimp (11, cooked), sorted veggies (8, raw), and sour spicy soup (6, cooked).

- **DIVISION:**

The screenshot shows the same web application interface, but it has been styled with a light theme. The background is white, and the text colors are darker. The navigation bar, table headers, and filter section all reflect the new styling. The table now shows only one item: egg fried rice (5, cooked). The filter section shows that "Carrots" and "Rice" are selected.