

# CPSC 304 Project Cover Page

Milestone # 4: Code Implementation

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Group Number: 7

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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

Link to the repository:

[https://github.students.cs.ubc.ca/CPSC304-2023S-T2/project\\_i0k7n\\_p1l1e\\_r1l7](https://github.students.cs.ubc.ca/CPSC304-2023S-T2/project_i0k7n_p1l1e_r1l7)

SQL Script we used to create all the tables and data in the database can be found here:

[https://github.students.cs.ubc.ca/CPSC304-2023S-T2/project\\_i0k7n\\_p1l1e\\_r1l7o/blob/main/src/sql/scripts/databaseSetup.sql](https://github.students.cs.ubc.ca/CPSC304-2023S-T2/project_i0k7n_p1l1e_r1l7o/blob/main/src/sql/scripts/databaseSetup.sql)

Our final project allows the restaurant manager to manage information used to run a large restaurant with many branches using a GUI. We scaled down our implementation to a few aspects of the overall schema to showcase some of the functionalities of the database through the GUI. We created a GUI where they can view, insert, update, and delete data about their branches, menus, and reservations into the database. We wrote many queries that they can use to filter data such as which branches have the same menu item.

Our schema did not change and is still the same as the one turned in during the previous milestone.

## List of all SQL queries used

\*All the queries implemented is in the DatabaseConnectionHandler.java file under database folder.

### Insert:

- Menu

Before:

Name	Cost	Category
Miso and mango soup	7.89	Main Dish
Chervil and prosciutto salad	6.49	Appetizer
Tangerine and ugli fruit salad	6.99	Appetizer
Haddock and pepper pie	9.99	Main Dish
Courgette and ginger cake	6.49	Dessert

Insert

Insert to Menu

name:

Test Menu

cost:

8.99

category:

Main Dish

Insert

## After

Name	Cost	Category
Test Menu	8.99	Main Dish
Miso and mango soup	7.89	Main Dish
Chervil and prosciutto salad	6.49	Appetizer
Tangerine and ugli fruit salad	6.99	Appetizer
Haddock and pepper pie	9.99	Main Dish
Courgette and ginger cake	6.49	Dessert

## Query:

INSERT INTO menu VALUES (?, ?, ?)

(Implemented in insertMenu() method)

## - Branches

Before:

Branch ID	Address	City	Province
111	792 Montreal Road	Ottawa	Ontario
112	1257 Beaver Creek	Thornhill	Ontario
113	792 Montreal Road	Vancouver	British Columbia
114	1221 Robson Street	Vancouver	British Columbia
115	4795 Robson Street	Vancouver	British Columbia

Insert

Insert to Branch

Location ID:

116

Street Address:

1908 Bernie Avenue

City:

Vancouver

Province:

British Columbia

Insert

After:

Branch ID	Address	City	Province
116	1908 Bernie Avenue	Vancouver	British Columbia
111	792 Montreal Road	Ottawa	Ontario
112	1257 Beaver Creek	Thornhill	Ontario
113	792 Montreal Road	Vancouver	British Columbia
114	1221 Robson Street	Vancouver	British Columbia
115	4795 Robson Street	Vancouver	British Columbia

Query:

INSERT INTO branches VALUES (?, ?, ?, ?)  
(Implemented in insertBranch() method)

## - Reservations

Before:

Reservation ID	Customer ID	Branch ID	Host	Date	Time	Number of Peo...	Reservation Na...
1006	2	112	11	2023-09-02	19:00:00	8	Testtdw ...
1000	1	111	11	2023-08-20	18:20:00	4	John ...
1001	2	113	13	2023-08-10	19:00:00	3	Bob's birthda...
1002	1	111	11	2023-08-11	19:30:00	8	Marketing tea...
1003	4	112	12	2023-08-04	18:00:00	2	Wang's annive...
1004	3	113	13	2023-08-04	18:20:00	3	Tracy ...
1005	2	114	14	2023-08-11	19:00:00	6	Bob's birthda...

Insert

Insert to Reservation

Reservation ID:

1006

Customer ID:

2

Location ID:

113

Employee ID:

13

Date:

2023-08-17

Time:

19:00:00

Number of People:

9

Reservation Name:

Team dinner

Insert

After:

Reservation ID	Customer ID	Branch ID	Host	Date	Time	Number of Peo...	Reservation Na...
1006	2	113	13	2023-08-17	19:00:00	9	Team dinner ...
1000	1	111	11	2023-08-20	18:20:00	4	John ...
1001	2	113	13	2023-08-10	19:00:00	3	Bob's birthda...
1002	1	111	11	2023-08-11	19:30:00	8	Marketing tea...
1003	4	112	12	2023-08-04	18:00:00	2	Wang's annive...
1004	3	113	13	2023-08-04	18:20:00	3	Tracy ...
1005	2	114	14	2023-08-11	19:00:00	6	Bob's birthda...

Query:

INSERT INTO reservations VALUES (?,?,?,?,?,?,?)

(Implemented in insertReservation() method)

## Delete:

- Menu

Before:

Restaurant Management		
Name	Cost	Category
Test Menu	8.99	Main Dish
Miso and mango soup	7.89	Main Dish
Chervil and prosciutto salad	6.49	Appetizer
Tangerine and ugli fruit salad	6.99	Appetizer
Haddock and pepper pie	9.99	Main Dish
Courgette and ginger cake	6.49	Dessert

Select  
Insert  
Update  
Delete

After:

Restaurant Management		
Name	Cost	Category
Miso and mango soup	7.89	Main Dish
Chervil and prosciutto salad	6.49	Appetizer
Tangerine and ugli fruit salad	6.99	Appetizer
Haddock and pepper pie	9.99	Main Dish
Courgette and ginger cake	6.49	Dessert

Select  
Insert  
Update  
Delete

Query:

```
DELETE FROM Menu WHERE name = ?  
(Implemented in deleteMenu() method)
```

- Branches

Before:

Branch ID	Address	City	Province
116	1908 Bernie Avenue	Vancouver	British Columbia
111	792 Montreal Road	Ottawa	Ontario
112	1257 Beaver Creek	Thornhill	Ontario
113	792 Montreal Road	Vancouver	British Columbia
114	1221 Robson Street	Vancouver	British Columbia
115	4795 Robson Street	Vancouver	British Columbia

After:

Branch ID	Address	City	Province
111	792 Montreal Road	Ottawa	Ontario
112	1257 Beaver Creek	Thornhill	Ontario
113	792 Montreal Road	Vancouver	British Columbia
114	1221 Robson Street	Vancouver	British Columbia
115	4795 Robson Street	Vancouver	British Columbia

Query:

DELETE FROM Branches WHERE locID = ?  
(Implemented in deleteBranch() method)

- Reservations

Before:

Reservation ID	Customer ID	Branch ID	Host	Date	Time	Number of Peo...	Reservation Na...
1006	2	113	13	2023-08-17	19:00:00	9	Team dinner ...
1000	1	111	11	2023-08-20	18:20:00	4	John ...
1001	2	113	13	2023-08-10	19:00:00	3	Bob's birthda...
1002	1	111	11	2023-08-11	19:30:00	8	Marketing tea...
1003	4	112	12	2023-08-04	18:00:00	2	Wang's annive...
1004	3	113	13	2023-08-04	18:20:00	3	Tracy ...
1005	2	114	14	2023-08-11	19:00:00	6	Bob's birthda...

After:

Reservation ID	Customer ID	Branch ID	Host	Date	Time	Number of Peo...	Reservation Na...
1000	1	111	11	2023-08-20	18:20:00	4	John ...
1001	2	113	13	2023-08-10	19:00:00	3	Bob's birthda...
1002	1	111	11	2023-08-11	19:30:00	8	Marketing tea...
1003	4	112	12	2023-08-04	18:00:00	2	Wang's annive...
1004	3	113	13	2023-08-04	18:20:00	3	Tracy ...
1005	2	114	14	2023-08-11	19:00:00	6	Bob's birthda...

Query:

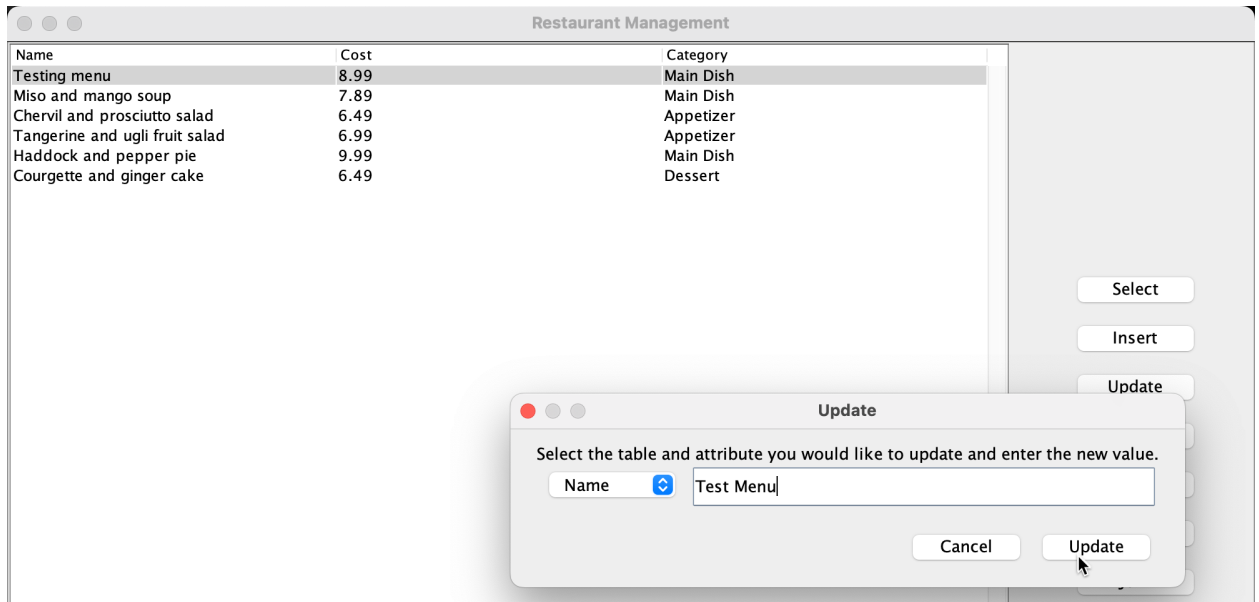
DELETE FROM Reservations WHERE rID = ?  
(Implemented in deleteReservation() method)

Update:

- Menu

Before:





After:

Name	Cost	Category
Test Menu	8.99	Main Dish
Miso and mango soup	7.89	Main Dish
Chervil and prosciutto salad	6.49	Appetizer
Tangerine and ugli fruit salad	6.99	Appetizer
Haddock and pepper pie	9.99	Main Dish
Courgette and ginger cake	6.49	Dessert

Query:

UPDATE Menu

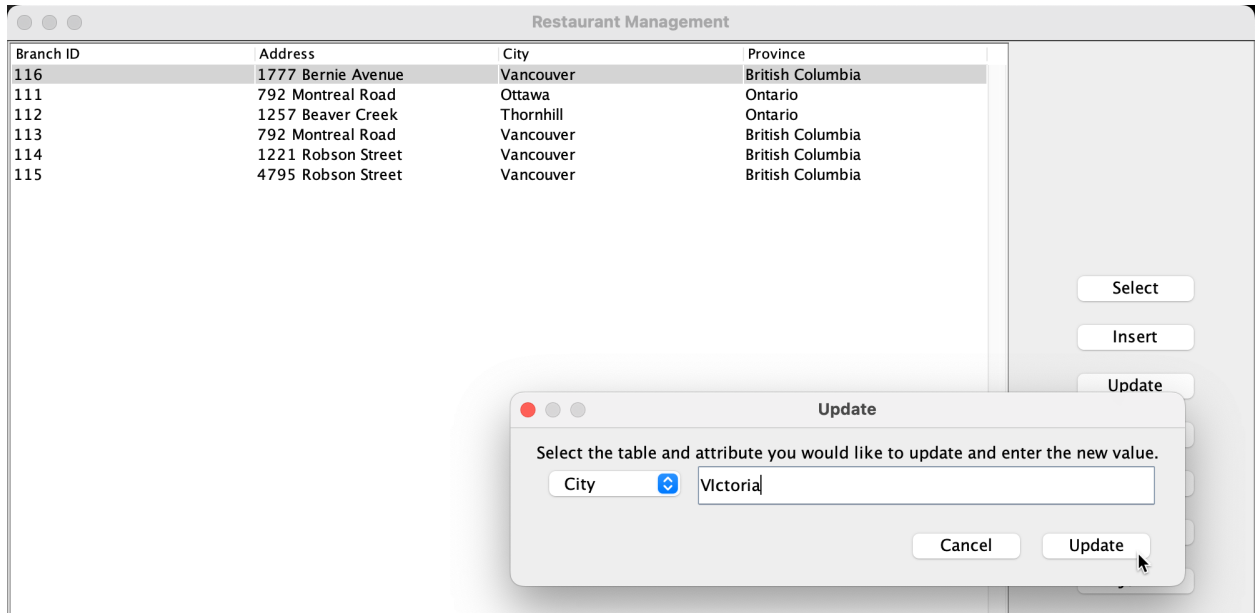
SET name = ?, cost = ?, category = ?

WHERE name = ?

(Implemented in updateMenu() method)

- Branches

Before:



After:

Branch ID	Address	City	Province
116	1777 Bernie Avenue	Victoria	British Columbia
111	792 Montreal Road	Ottawa	Ontario
112	1257 Beaver Creek	Thornhill	Ontario
113	792 Montreal Road	Vancouver	British Columbia
114	1221 Robson Street	Vancouver	British Columbia
115	4795 Robson Street	Vancouver	British Columbia

Query:

UPDATE Branches

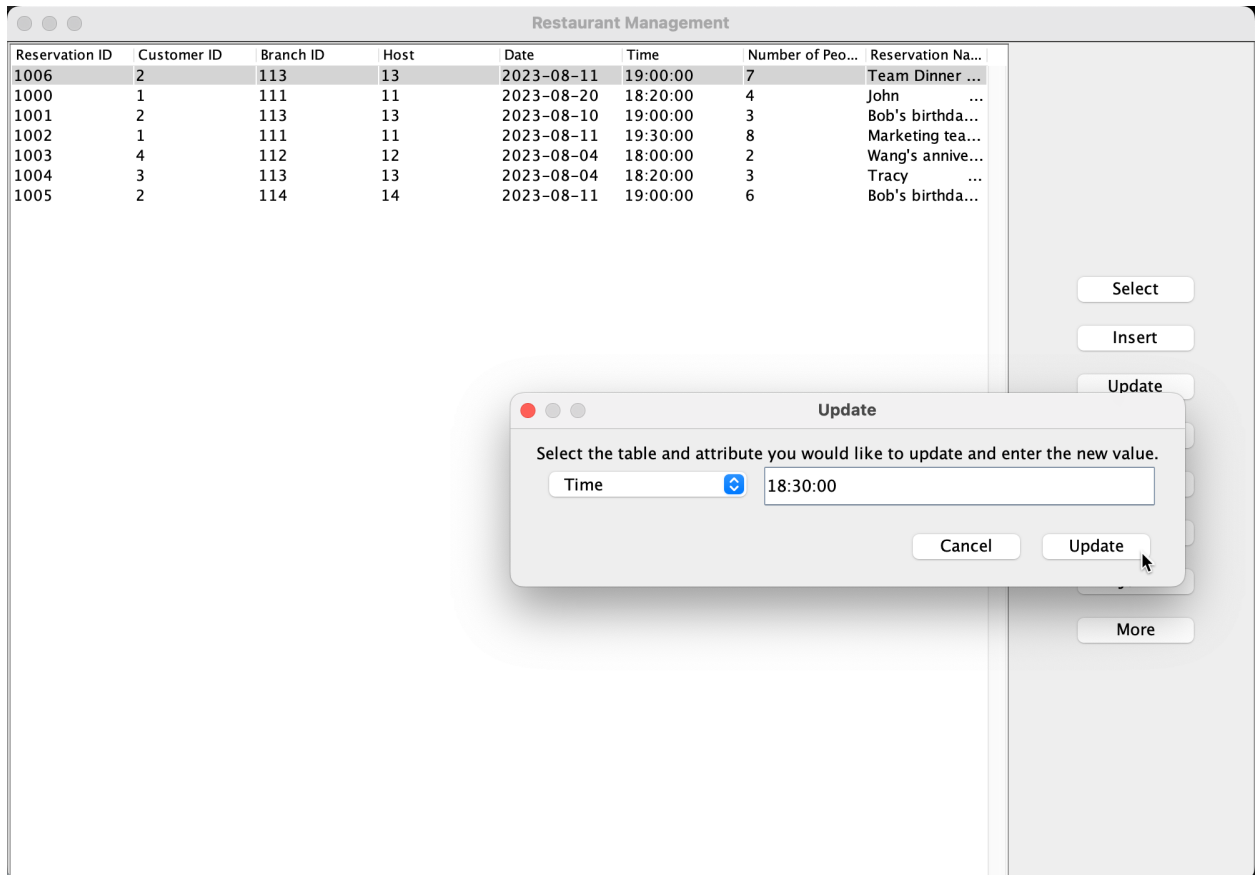
SET locID = ?, streetAddress = ?, city = ?, province = ?

WHERE locID = ?

(Implemented in updateBranch() method)

- Reservations

Before:



After:

Reservation ID	Customer ID	Branch ID	Host	Date	Time	Number of Peo...	Reservation Na...
1006	2	113	13	2023-08-11	18:30:00	7	Team Dinner ...
1000	1	111	11	2023-08-20	18:20:00	4	John ...
1001	2	113	13	2023-08-10	19:00:00	3	Bob's birthda...
1002	1	111	11	2023-08-11	19:30:00	8	Marketing tea...
1003	4	112	12	2023-08-04	18:00:00	2	Wang's annive...
1004	3	113	13	2023-08-04	18:20:00	3	Tracy ...
1005	2	114	14	2023-08-11	19:00:00	6	Bob's birthda...

Query:

UPDATE Reservations

SET rID = ?, cID = ?, locID = ?, wID = ?, rDate = ?, rTime = ?, numOfPeople = ?,  
reservationName = ?

WHERE rID = ?

(Implemented in updateReservation() method)

Selection:

Before:

Restaurant Management

Reservation ID	Customer ID	Branch ID	Host	Date	Time	Number of Peo...	Reservation Na...
1000	1	111	11	2023-08-20	18:20:00	4	John ...
1001	2	113	13	2023-08-10	19:00:00	3	Bob's birthda...
1002	1	111	11	2023-08-11	19:30:00	8	Marketing tea...
1003	4	112	12	2023-08-04	18:00:00	2	Wang's annive...
1004	3	113	13	2023-08-04	18:20:00	3	Tracy ...
1005	2	114	14	2023-08-11	19:00:00	6	Bob's birthda...

Filter

Reservation:

☒ Reservation ID

☐ Customer ID

☐ Location ID

☐ Employee ID

☒ Date

☐ Time

☒ Number of People

☒ Reservation Name

Reservation ID:

Customer ID:

Location ID:

113

Employee ID:

Date:

2023-08-04

Time:

Number of People:

Reservation Name:

Filter

After:

Restaurant Management

rID	rDate	NumOfPeople	ReservationName
1004	2023-08-04	3	Tracy

Filter

Reservation:

☒ Reservation ID
 ☐ Customer ID
 ☐ Location ID
 ☐ Employee ID
 ☒ Date
 ☐ Time
 ☒ Number of People
 ☒ Reservation Name

Reservation ID:

Customer ID:

Location ID:

113

Employee ID:

Date:

2023-08-04

Time:

Number of People:


Reservation Name:

Filter

Query:

```
SELECT `selectColumns`
FROM `tableSelected`
WHERE `conditions`
(`var` → var is the parameter passed in to the query)
(Implemented in filter() method)
```

## Projection:

 Restaurant Management

Name	Cost	Category
idk	12.2	idk
Miso and mango soup	7.89	Main Dish
Chervil and prosciutto salad	6.49	Appetizer
Tangerine and ugli fruit salad	9.99	Appetizer
Haddock and pepper pie	9.99	Main Dish
Courgette and ginger cake	6.49	Dessert
potato	8.99	Main Dish
Salmon fillet	12.34	Main Dish
tiramisu	4.99	Dessert
lobster bisque	12.99	soup

Projection

Reservation:
☒ reservation id
☐ customer id
☒ employee id
☒ date
☒ time
☐ number of people
Show

Query:

```
SELECT DISTINCT 'attributes'
FROM 'tableSelected'
```

The query can be found in:

```
public List<List<String>> projection(List<String> attributes, List<String>
columnsDomain, String tableSelected)
```

Restaurant Management			
rID	wID	rDate	rTime
1007	11	2023-08-12	15:28:00
1008	11	2023-08-03	19:30:00
1010	12	2023-08-09	16:06:00
1000	11	2023-08-01	18:20:00
1001	13	2023-08-01	19:00:00
1002	11	2023-08-03	19:30:00
1003	12	2023-08-04	18:00:00
1004	13	2023-08-04	18:20:00
1009	14	2023-08-05	19:00:00
10006	11	2023-08-08	21:21:00

Join:

```
SELECT b.lcoID, b.city, r.reservationName, r.rDate
FROM Branches b, Reservations r
WHERE r.locID = b.locID AND rDATE >= ? AND rDate <= ?
```

This query is found in DatabaseConnectionHandler class under the joinedBranchReservation method and the select portion is implemented through JoinedBranchReservation class.

Branches and Reservations table before join:

Branch ID	Address	City	Province
111	792 Montreal Road	Ottawa	Ontario
112	1257 Beaver Creek	Thornhill	Ontario
113	792 Montreal Road	Vancouver	British Columbia
114	1221 Robson Street	Vancouver	British Columbia
115	4795 Robson Street	Vancouver	British Columbia

Reservation ID	Customer ID	Branch ID	Host	Date	Time	Number of Peo...	Reservation N...
1000	1	111	11	2023-08-20	18:20:00	4	John ...
1001	2	113	13	2023-08-10	19:00:00	3	Bob's birthday...
1002	1	111	11	2023-08-03	19:30:00	8	Marketing tea...
1003	4	112	12	2023-08-09	18:00:00	2	Wang's annive...
1004	3	113	13	2023-08-04	18:20:00	3	Tracy ...
1005	2	114	14	2023-08-11	19:00:00	6	Bob's birthday...
1009	2	113	13	2023-08-09	12:00:00	4	tim ...
1006	3	112	12	2023-08-13	13:05:00	5	Thomas ...

Join

View all reservations during given time for every branch.

Insert the number of days from current day:3

Confirm

Cancel

Current date when ran: 2023-08-09

Joined Table:

Branch ID	City	Reservation Name	Date
113	Vancouver	Bob's birthday ...	2023-08-10
112	Thornhill	Wang's anniversary ...	2023-08-09
114	Vancouver	Bob's birthday ...	2023-08-11
113	Vancouver	tim	2023-08-09

Aggregation with group by:

## Restaurant Management

Name	Cost	Category
idk	12.2	idk
Miso and mango soup	7.89	Main Dish
Chervil and prosciutto salad	6.49	Appetizer
Tangerine and ugli fruit salad	9.99	Appetizer
Haddock and pepper pie	9.99	Main Dish
Courgette and ginger cake	6.49	Dessert
potato	8.99	Main Dish
Salmon fillet	12.34	Main Dish
tiramisu	4.99	Dessert
lobster bisque	12.99	soup

Click the average cost for each menu category:

## More

Average cost for each menu category

Average Cost of Each Category which have more than one menu item

Average cost of each category which is less than or equal to all average cost for each category

Show menus that are served in all branches

Query:

```
SELECT AVG(cost), category
```

```
FROM Menu m
```

```
GROUP BY category
```

The query can be found in:

```
public MenuSorted showGroupBy()
```

## Find average cost of the menu group by category

Category	Cost
soup	12.99
Main Dish	9.8025
Dessert	5.74
idk	12.2
Appetizer	8.24

Aggregation with having:



## Restaurant Management

Name	Cost	Category
idk	12.2	idk
Miso and mango soup	7.89	Main Dish
Chervil and prosciutto salad	6.49	Appetizer
Tangerine and ugli fruit salad	9.99	Appetizer
Haddock and pepper pie	9.99	Main Dish
Courgette and ginger cake	6.49	Dessert
potato	8.99	Main Dish
Salmon fillet	12.34	Main Dish
tiramisu	4.99	Dessert
lobster bisque	12.99	soup

Click the average cost of each category which have more than one menu time:

## More

Average cost for each menu category

Average Cost of Each Category which have more than one menu item

Average cost of each category which is less than or equal to all average cost for each category

Show menus that are served in all branches

Query:

```
SELECT category, AVG(cost) as avgCost
FROM Menu m
GROUP BY category
HAVING COUNT(category) > 1
```


The query can be found in:

public MenusAvgCost showAvgCostMenu()

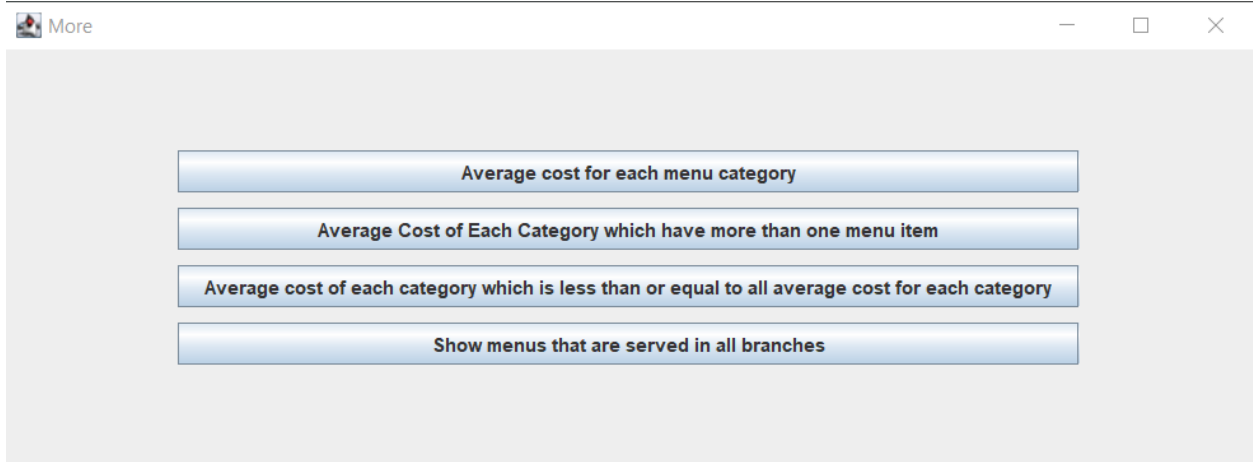
## Average Price of Menu Category which has more than one item

Category	Average Cost
Main Dish	9.8025
Dessert	5.74
Appetizer	8.24

## Nested Aggregation with GroupBy:

 Restaurant Management		
Name	Cost	Category
idk	12.2	idk
Miso and mango soup	7.89	Main Dish
Chervil and prosciutto salad	6.49	Appetizer
Tangerine and ugli fruit salad	9.99	Appetizer
Haddock and pepper pie	9.99	Main Dish
Courgette and ginger cake	6.49	Dessert
potato	8.99	Main Dish
Salmon fillet	12.34	Main Dish
tiramisu	4.99	Dessert
lobster bisque	12.99	soup

Click the average cost of each category which is less than or equal to all average cost for each category:



Query:

```
SELECT category, AVG(cost)
FROM Menu m
GROUP BY category
HAVING AVG(cost) <= ALL(SELECT AVG(m2.cost)
                        FROM Menu m2
                        GROUP BY category)
```

The query can be found in:

public MenuSorted showNestedAggregation()

nested group by	
Category	Cost
Dessert	5.74

### Division:

Restaurant Management			
Branch ID	Address	City	Province
111	792 Montreal Road	Ottawa	Ontario
112	1257 Beaver Creek	Thornhill	Ontario
113	792 Montreal Road	Vancouver	British Columbia
114	1221 Robson Street	Vancouver	British Columbia
115	4795 Robson Street	Vancouver	British Columbia

Query:

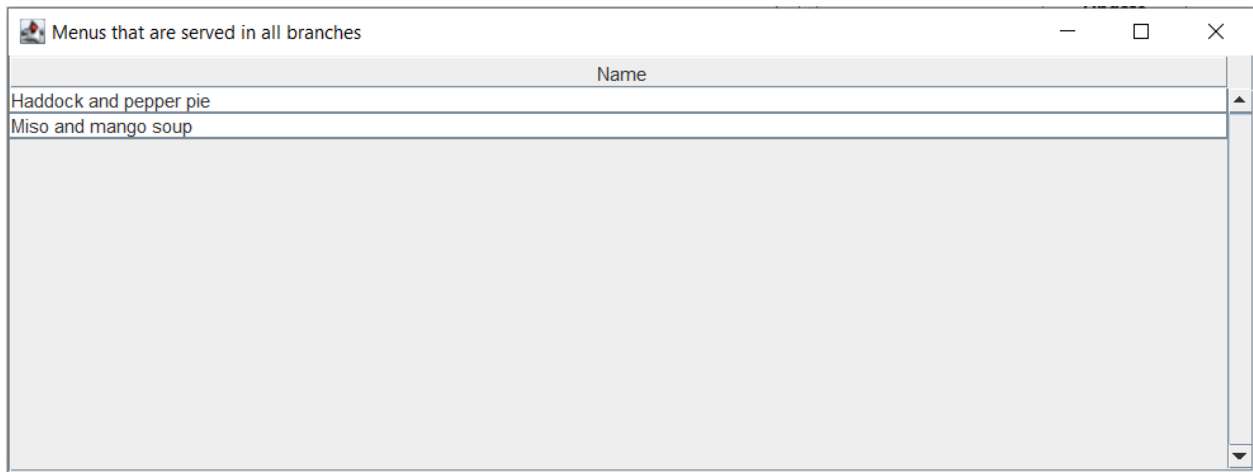
```

SELECT name
FROM Menu m
WHERE NOT EXISTS (
    (SELECT locID
     FROM Branches b)
    MINUS
    (SELECT locID
     FROM MenuServed ms
     WHERE m.name = ms.menuName))

```

The query can be found in:

public Menu showDivision()



A screenshot of a Java Swing window titled "Menus that are served in all branches". The window contains a table with a single column labeled "Name". The table lists two menu items: "Haddock and pepper pie" and "Miso and mango soup". The table has a vertical scrollbar on the right side.

Name
Haddock and pepper pie
Miso and mango soup

