

## Faculty of Engineering and Computer Science Expectations of Originality

This form sets out the requirements for originality for work submitted by students in the Faculty of Engineering and Computer Science. Submissions such as assignments, lab reports, project reports, computer programs and take-home exams must conform to the requirements stated on this form and to the Academic Code of Conduct. The course outline may stipulate additional requirements for the course.

1. Your submissions must be your own original work. Group submissions must be the original work of the students in the group.
2. Direct quotations must not exceed 5% of the content of a report, must be enclosed in quotation marks, and must be attributed to the source by a numerical reference citation<sup>1</sup>. Note that engineering reports rarely contain direct quotations.
3. Material paraphrased or taken from a source must be attributed to the source by a numerical reference citation.
4. Text that is inserted from a web site must be enclosed in quotation marks and attributed to the web site by numerical reference citation.
5. Drawings, diagrams, photos, maps or other visual material taken from a source must be attributed to that source by a numerical reference citation.
6. No part of any assignment, lab report or project report submitted for this course can be submitted for any other course.
7. In preparing your submissions, the work of other past or present students cannot be consulted, used, copied, paraphrased or relied upon in any manner whatsoever.
8. Your submissions must consist entirely of your own or your group's ideas, observations, calculations, information and conclusions, except for statements attributed to sources by numerical citation.
9. Your submissions cannot be edited or revised by any other student.
10. For lab reports, the data must be obtained from your own or your lab group's experimental work.
11. For software, the code must be composed by you or by the group submitting the work, except for code that is attributed to its sources by numerical reference.


You must write one of the following statements on each piece of work that you submit:

For individual work: **"I certify that this submission is my original work and meets the Faculty's Expectations of Originality"**, with your signature, I.D. #, and the date.

For group work: **"We certify that this submission is the original work of members of the group and meets the Faculty's Expectations of Originality"**, with the signatures and I.D. #s of all the team members and the date.

A signed copy of this form must be submitted to the instructor at the beginning of the semester in each course.

I certify that I have read the requirements set out on this form, and that I am aware of these requirements. I certify that all the work I will submit for this course will comply with these requirements and with additional requirements stated in the course outline.

Course Number: Coen 353  
Name: Andre Hei Wang Law  
Signature: 

Instructor: Prof. Khaled Jababo  
I.D. # 4017 5600  
Date: 07/14/2023

<sup>1</sup> Rules for reference citation can be found in "Form and Style" by Patrich MacDonagh and Jack Bordan, fourth edition, May, 2000, available at <http://www.encs.concordia.ca/scs/Forms/Form&Style.pdf>.

Andre Hei Wang Law

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## COEN 353 - Assignment 1

### PART I:

#### a) Code

```
CREATE TABLE donors (
    donorID INT(100) NOT NULL AUTO_INCREMENT,
    firstName VARCHAR(100) NOT NULL,
    lastName VARCHAR(100) NOT NULL,
    middleInitial VARCHAR(1) NOT NULL,
    dateOfBirth DATE,
    address VARCHAR(100) NOT NULL,
    city VARCHAR(100) NOT NULL,
    postalCode VARCHAR(100) NOT NULL,
    province VARCHAR(100) NOT NULL,
    gender VARCHAR(100) NOT NULL,
    SSN VARCHAR(100) NOT NULL,
    PRIMARY KEY(donorID)
);
```

```
CREATE TABLE donations (
    dID INT(100) NOT NULL AUTO_INCREMENT,
    donorID INT(100),
    date DATE,
    type VARCHAR(100),
    amount DECIMAL(20, 2),
    PRIMARY KEY(dID),
    FOREIGN KEY (donorID) REFERENCES donors(donorID)
);
```

```
CREATE TABLE products (
    pID INT(100) NOT NULL AUTO_INCREMENT,
    description VARCHAR(100),
    date DATE,
    price DECIMAL(20, 2),
    weight DECIMAL(20, 2),
    isInStock BOOLEAN,
    PRIMARY KEY(pID)
);
```

```
CREATE TABLE sales (  
    sID INT(100) NOT NULL AUTO_INCREMENT,  
    date DATE,  
    amount DECIMAL(20, 2),  
    deliveryFee DECIMAL(20, 2),  
    PRIMARY KEY(sID)  
);
```

```
CREATE TABLE salesItems (  
    sID INT(100) NOT NULL AUTO_INCREMENT,  
    pID INT(100) NOT NULL,  
    FOREIGN KEY (sID) REFERENCES sales(sID),  
    FOREIGN KEY (pID) REFERENCES products(pID),  
    PRIMARY KEY (sID, pID)  
);
```

## a) Results

The screenshot displays the phpMyAdmin web interface. On the left, a tree view shows the database structure for 'myfirstdatabase', including tables like 'donations', 'donors', 'products', 'sales', and 'salesitems'. The 'products' table is selected, and its columns (pID, description, date, price, weight, isInStock) are visible. The right pane shows the SQL query 'SELECT \* FROM `products`' and the result: 'MySQL returned an empty result set (i.e. zero rows). (Query took 0.0001 seconds.)'. Below the query, there are buttons for 'Profiling', 'Edit inline', 'Edit', 'Explain SQL', 'Create PHP code', and 'Refresh'. A 'Query results operations' section contains a 'Create view' button. A 'Bookmark this SQL query' section includes a 'Label' input field, a checkbox 'Let every user access this bookmark', and a 'Bookmark this SQL query' button.

Server: 127.0.0.1 Database: myfirstdatabase Table: products

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0001 seconds.)

```
SELECT * FROM `products`
```

☐ Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

pID	description	date	price	weight	isInStock
-----	-------------	------	-------	--------	-----------

Query results operations

Create view

Bookmark this SQL query

Label:  ☐ Let every user access this bookmark

Bookmark this SQL query

## b) Code

```
ALTER TABLE donors
DROP COLUMN middleInitial;
```

## b) Results

-Before

The screenshot shows the phpMyAdmin interface. On the left, the database structure tree is visible, with 'myfirstdatabase' expanded to show the 'donors' table. The 'Columns' tab for 'donors' is selected, displaying the following columns: address (varchar), city (varchar), dateOfBirth (date, NULL, nullable), donorID (PRI, int), firstName (varchar), gender (varchar), lastName (varchar), middleInitial (varchar), postalCode (varchar), province (varchar), and SSN (varchar). On the right, the 'SQL' tab is active, showing a successful query result: 'MySQL returned an empty result set (i.e. zero rows). (Query took 0.0001 seconds.)'. The query is 'SELECT \* FROM `donors`'. Below the query, the table structure is displayed with columns: donorID, firstName, lastName, middleInitial, dateOfBirth, address, city, postalCode, province, gender, and SSN. The 'Query results operations' section includes a 'Create view' button. The 'Bookmark this SQL query' section has a label input field and a checkbox 'Let every user access this bookmark'.

-After

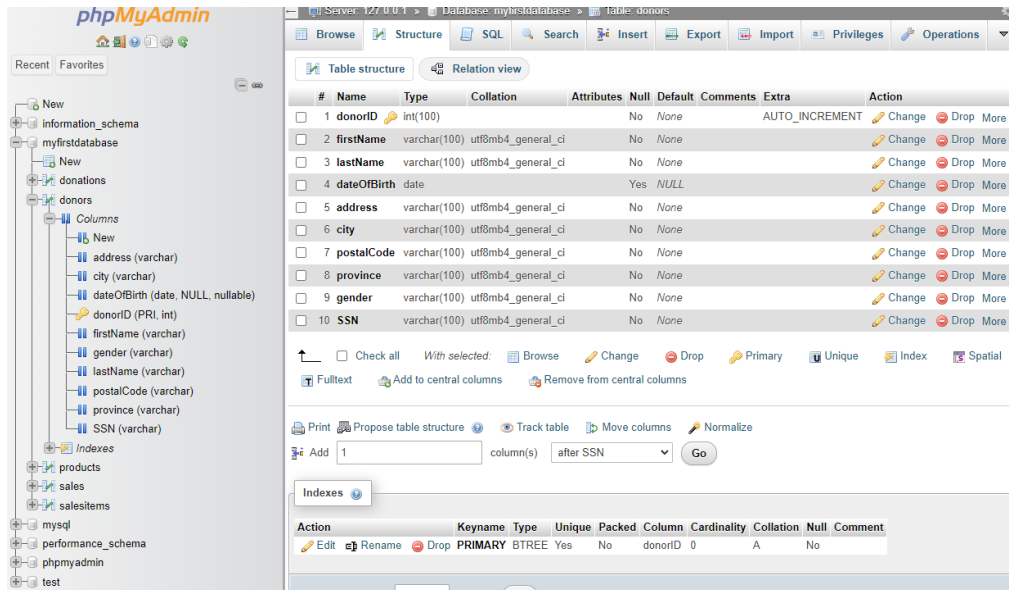
The screenshot shows the phpMyAdmin interface after the 'middleInitial' column has been dropped. The left sidebar shows the same database structure, but the 'donors' table is now listed under 'Columns' without the 'middleInitial' column. On the right, the 'SQL' tab is active, showing the same successful query result: 'MySQL returned an empty result set (i.e. zero rows). (Query took 0.0001 seconds.)'. The query is 'SELECT \* FROM `donors`'. Below the query, the table structure is displayed with columns: donorID, firstName, lastName, dateOfBirth, address, city, postalCode, province, gender, and SSN. The 'Query results operations' section includes a 'Create view' button. The 'Bookmark this SQL query' section has a label input field and a checkbox 'Let every user access this bookmark'.

### c) Code

```
ALTER TABLE donors
ADD phone VARCHAR(100) DEFAULT 'unknown',
ADD email VARCHAR(100) DEFAULT 'unknown';
```

### c) Results

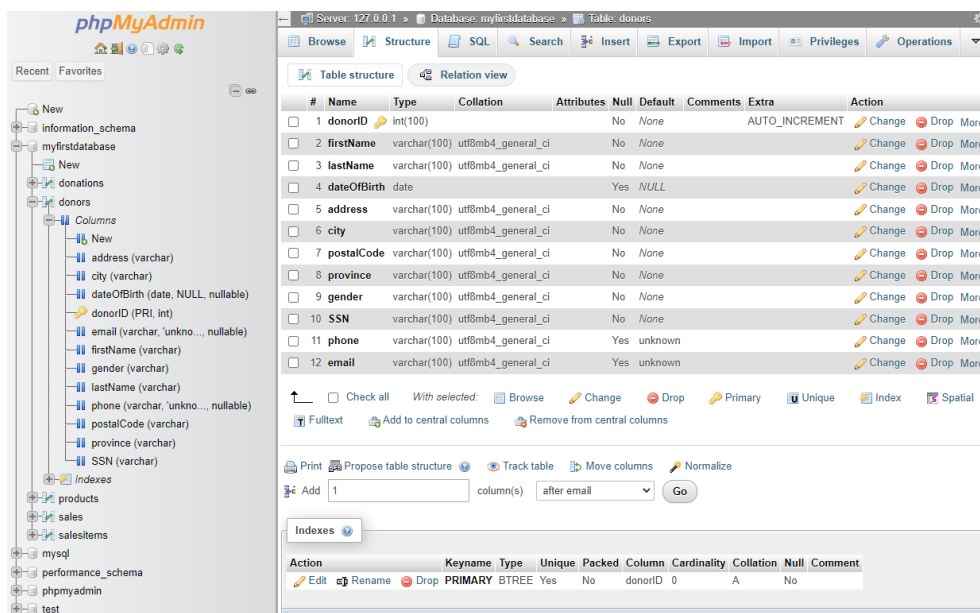
-Before



The screenshot shows the phpMyAdmin interface with the 'donors' table structure displayed. The table has 10 columns:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	donorID	int(100)			No	None		AUTO_INCREMENT	Change Drop More
2	firstName	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
3	lastName	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
4	dateOfBirth	date			Yes	NULL			Change Drop More
5	address	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
6	city	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
7	postalCode	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
8	province	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
9	gender	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
10	SSN	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More

-After



The screenshot shows the phpMyAdmin interface with the 'donors' table structure displayed after the ALTER TABLE command. The table now has 12 columns:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	donorID	int(100)			No	None		AUTO_INCREMENT	Change Drop More
2	firstName	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
3	lastName	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
4	dateOfBirth	date			Yes	NULL			Change Drop More
5	address	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
6	city	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
7	postalCode	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
8	province	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
9	gender	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
10	SSN	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
11	phone	varchar(100)	utf8mb4_general_ci		Yes	unknown			Change Drop More
12	email	varchar(100)	utf8mb4_general_ci		Yes	unknown			Change Drop More

#### d) Code

```
INSERT INTO products (pID, description, date, price, weight, isInStock)
VALUES (1, 'product_1', '2023-07-13', 1.00, 100.00, false);

INSERT INTO products (pID, description, date, price, weight, isInStock)
VALUES (2, 'product_2', '2023-07-14', 10.00, 10.00, true);

INSERT INTO products (pID, description, date, price, weight, isInStock)
VALUES (3, 'product_3', '2023-07-15', 100.00, 1.00, true);
```

#### d) Results

The screenshot shows the phpMyAdmin interface for a database named 'myfirstdatabase'. The 'Table: products' is selected. The query results are displayed in a table with 3 rows. The columns are pID, description, date, price, weight, and isInStock. The results are as follows:

pID	description	date	price	weight	isInStock
1	product_1	2023-07-13	1.00	100.00	0
2	product_2	2023-07-14	10.00	10.00	1
3	product_3	2023-07-15	100.00	1.00	1

The interface also includes a sidebar with a tree view of the database structure, a top navigation bar with various tools (Browse, Structure, SQL, Search, Insert, Export, Import, Privileges, Operations, Tracking, More), and a bottom section for query results operations (Print, Copy to clipboard, Export, Display chart, Create view) and a bookmark section.

## e) Code

```
DELETE FROM products;
```

## e) Results

The screenshot shows the phpMyAdmin interface. On the left is the database structure tree with 'myfirstdatabase' selected. The main panel shows the 'products' table. A green message bar at the top states: 'MySQL returned an empty result set (i.e. zero rows). (Query took 0.0001 seconds.)'. Below this, the SQL query 'SELECT \* FROM `products`' is displayed. The table structure is shown with columns: pID, description, date, price, weight, and isInStock. The 'Query results operations' section is visible, including a 'Create view' button and a 'Bookmark this SQL query' section with a label input field and a checkbox for 'Let every user access this bookmark'.

## f) Code

```
DROP TABLE salesItems;  
DROP TABLE sales;  
DROP TABLE products;  
DROP TABLE donations;  
DROP TABLE donors;
```

## f) Results

-Before

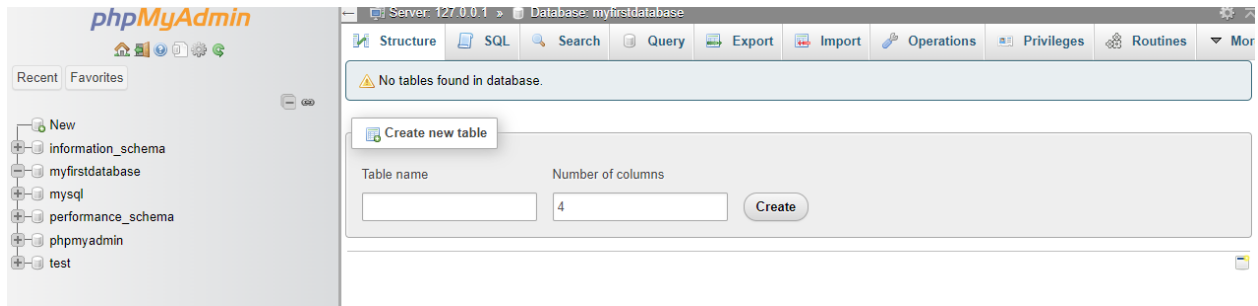
The screenshot shows the phpMyAdmin interface with the 'Structure' tab selected. A 'Filters' section is at the top with a search input. Below is a table listing the database structure:

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> donations		0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/> donors		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> products		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> sales		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> salesItems		0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
5 tables	Sum	0	InnoDB	utf8mb4_general_ci	112.0 KiB	0 B

At the bottom, there is a 'Check all' checkbox and a 'With selected:' dropdown menu.



-After

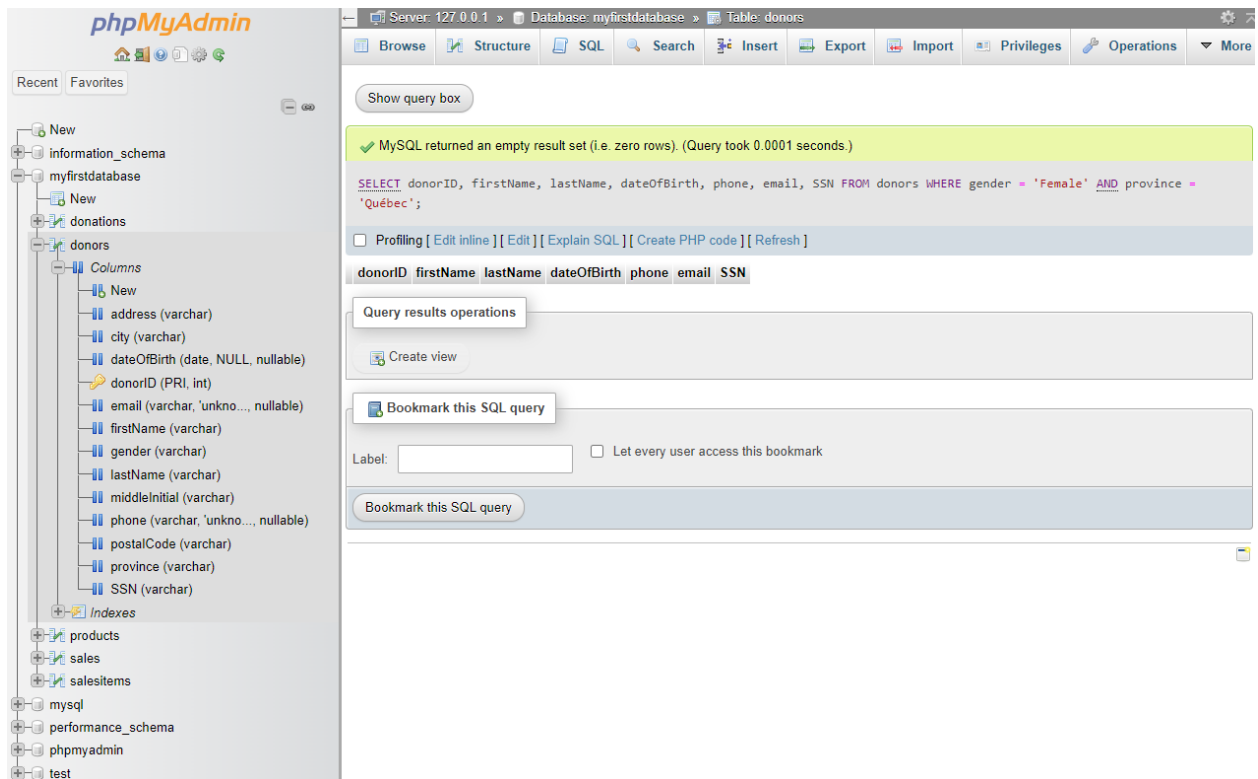


## PART II:

### a) Code

```
SELECT donorID, firstName, lastName, dateOfBirth, phone, email, SSN
FROM donors
WHERE gender = 'Female' AND province = 'Québec';
```

### a) Results



## b) Code

```
SELECT salesItem.sID, salesItem.pID, product.description,  
product.price, product.weight  
FROM salesItems salesItem  
JOIN sales sale ON sale.sID = salesItem.sID  
JOIN products product ON product.pID = salesItem.pID  
WHERE sale.date = '2023-07-01' AND sale.deliveryFee > 0;
```

## b) Results

The screenshot displays the phpMyAdmin web interface. On the left, a sidebar shows the database structure, including 'myfirstdatabase' and its tables: 'donations', 'donors', 'products', 'sales', and 'salesItems'. The 'donors' table is expanded, showing its columns: 'address', 'city', 'dateOfBirth', 'donorID', 'email', 'firstName', 'gender', 'lastName', 'middleInitial', 'phone', 'postalCode', 'province', and 'SSN'. The main panel shows the 'Query' tab selected. A message indicates that the MySQL query returned an empty result set (zero rows) and took 0.0001 seconds to execute. The SQL query is displayed in a text area, and below it, there are options for 'Query results operations' (Create view, Bookmark this SQL query) and a 'Bookmark this SQL query' button. The interface is in English and uses a light blue and white color scheme.

Server: 127.0.0.1 Database: myfirstdatabase

Structure SQL Search Query Export Import Operations Privileges Routines Mo

Show query box

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0001 seconds.)

```
SELECT salesItem.sID, salesItem.pID, product.description, product.price, product.weight FROM salesItems salesItem JOIN sales sale ON sale.sID = salesItem.sID JOIN products product ON product.pID = salesItem.pID WHERE sale.date = '2023-07-01' AND sale.deliveryFee > 0;
```

☐ Profiling [\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Explain SQL \]](#) [\[ Create PHP code \]](#) [\[ Refresh \]](#)

sID	pID	description	price	weight
-----	-----	-------------	-------	--------

Query results operations

[Create view](#)

[Bookmark this SQL query](#)

Label:  ☐ Let every user access this bookmark

[Bookmark this SQL query](#)

### c) Code

```
SELECT SUM(deliveryFee) AS allDeliveryFees
FROM sales
WHERE date >= '2023-06-01' AND date <= '2023-06-30';
```

### c) Results

The screenshot displays the phpMyAdmin web interface. On the left, a sidebar shows the database structure with 'myfirstdatabase' selected, containing tables like 'donations', 'donors', 'products', 'sales', and 'salesitems'. The 'sales' table is highlighted. The main panel shows the 'Table: sales' view. A message at the top states: 'Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available.' Below this, a green bar indicates 'Showing rows 0 - 0 (1 total. Query took 0.0001 seconds.)'. The SQL query is displayed: `SELECT SUM(deliveryFee) AS allDeliveryFees FROM sales WHERE date >= '2023-06-01' AND date <= '2023-06-30';`. The query results are shown as a single row with the column 'allDeliveryFees' and a value of 'NULL'. The interface includes various navigation and tool buttons at the top and bottom.

#### d) Code

```
SELECT MONTH(date) AS month, COUNT(*) AS allSales, SUM(amount) AS  
allAmount, SUM(deliveryFee) AS allDeliveryFees  
FROM sales  
WHERE date >= '2022-01-01' AND date <= '2023-12-31'  
GROUP BY MONTH(date);
```

#### d) Results

The screenshot shows the phpMyAdmin interface. On the left is the database structure tree, highlighting the 'sales' table under the 'myfirstdatabase' database. The main panel displays the results of a SQL query. A green message box states: "MySQL returned an empty result set (i.e. zero rows). (Query took 0.0002 seconds.)". Below this, the SQL query is shown: `SELECT MONTH(date) AS month, COUNT(*) AS allSales, SUM(amount) AS allAmount, SUM(deliveryFee) AS allDeliveryFees FROM sales WHERE date >= '2022-01-01' AND date <= '2023-12-31' GROUP BY MONTH(date);`. The query execution options are visible, including "Profiling", "Edit inline", "Edit", "Explain SQL", "Create PHP code", and "Refresh". Below the query, the column headers for the result set are listed: "month", "allSales", "allAmount", and "allDeliveryFees". The "Query results operations" section includes a "Create view" button. The "Bookmark this SQL query" section has a "Label:" input field, a checkbox for "Let every user access this bookmark", and a "Bookmark this SQL query" button.

#### e) Code

```
SELECT donor.donorID, donor.gender, donor.firstName, donor.lastName,  
SUM(donation.amount) AS allDonations  
FROM donors donor  
JOIN donations donation ON donation.donorID = donor.donorID  
WHERE donor.city = 'Montréal' AND donation.date >= '2022-01-01' AND  
donation.date <= '2023-12-31'  
GROUP BY donor.donorID, donor.firstName, donor.lastName  
ORDER BY donor.gender ASC, donor.lastName ASC, donor.firstName ASC;
```

## e) Results

The screenshot displays the phpMyAdmin web interface. On the left, a sidebar shows the database structure with 'myfirstdatabase' selected, containing tables 'donations' and 'donors'. The 'donors' table is expanded, showing columns like 'donorID', 'gender', 'firstName', 'lastName', 'address', 'city', 'dateOfBirth', 'email', 'middleInitial', 'phone', 'postalCode', 'province', and 'SSN'. The main panel shows a SQL query executed against the 'donors' table. The query filters for donors in 'Montréal' who made donations between '2022-01-01' and '2023-12-31', grouped by donor information and ordered by gender. The result is an empty set. Below the query, there are options for 'Query results operations' (Create view) and 'Bookmark this SQL query' (with a label field and a checkbox for public access).

Server: 127.0.0.1 > Database: myfirstdatabase > Table: donors

Browse Structure SQL Search Insert Export Import Privileges Operations More

Show query box

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0002 seconds.)

```
SELECT donor.donorID, donor.gender, donor.firstName, donor.lastName, SUM(donation.amount) AS allDonations FROM donors donor JOIN donations donation ON donation.donorID = donor.donorID WHERE donor.city = 'Montréal' AND donation.date >= '2022-01-01' AND donation.date <= '2023-12-31' GROUP BY donor.donorID, donor.firstName, donor.lastName ORDER BY donor.gender ASC, donor.lastName ASC, donor.firstName ASC;
```

☐ Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

donorID gender firstName lastName allDonations

Query results operations

Create view

Bookmark this SQL query

Label:  ☐ Let every user access this bookmark

Bookmark this SQL query