

SQL file:

See schema.sql file in the repository

Final Project Description:

The final project allows the user, who would be an aquarium manager, to query through the aquarium's animals, employees, schedules, checkups, and events in their database. They are able to enter criteria to search and delete on, input information they want to delete and update for events, find the biologists' conducting specific priority checkups, find the number of animals that are not 'healthy,' count the number of schedules of each frequency, and various other things using this database interface.

Queries:

1. **INSERT:** Create a new event

```
INSERT INTO Event(ID, name, event_date, start_time, end_time) VALUES ($maxId,  
'$tmpName', TO_DATE('$tmpDate', 'YYYY-MM-DD'), '$tmpStartTime', '$tmpEndTime')
```

Found under the Events tab ([event-page.php](#)).

Before Insert

EMPLOYEES

CHECKUPS

Update Event

Event ID To Update:

New Event Name:

New Date: yyyy - mm - dd

New Start Time: -- : -- : --

New End Time: -- : -- : --

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Search Event

Select Search Criteria:

Event Name: test event

Event Date: 2021 - 12 - 01

CHECKUPS

Event ID To Update:

New Event Name:

New Date: yyyy-mm-dd

New Start Time: --:--:--

New End Time: --:--:--

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Search Event

Select Search Criteria:

Event Name:

Event Date: yyyy-mm-dd

After Insert

UBC Aquarium

ANIMALS

EVENTS

EMPLOYEES

CHECKUPS

Create Event

Event Name: test event

Date: 2021-12-01

Start Time: 03:01:48 PM

End Time: 05:01:56 PM

Update Event

Event ID To Update:

New Event Name:

New Date: yyyy-mm-dd

New Start Time: --:--:--

New End Time: --:--:--

UBC Aquarium



- [ANIMALS](#)
- [SCHEDULES](#)
- [EVENTS](#)
- [EMPLOYEES](#)
- [CHECKUPS](#)

Create Event

Event Name:

Date:

Start Time:

End Time:

Insert Successful.

Update Event

Event ID To Update:

New Event Name:

New Date:

New Start Time:

New End Time:

CHECKUPS

Event ID To Update:

New Event Name:

New Date:

New Start Time:

New End Time:

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Search Event

Select Search Criteria:

Event Name:

Event Date:

Event ID	Event Name	Event Date	Start Time	Event Time
11	test event	01-DEC-21	15:01:48	17:01:56

2. **DELETE:** Delete an event

DELETE FROM Event WHERE ID = \$idToDelete

Found under the Events tab (**event-page.php**):

CHECKUPS

Event ID To Update:
New Event Name:
New Date: yyyy-mm-dd
New Start Time: --:--:-- --
New End Time: --:--:-- --

Update

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Let's Find Out!

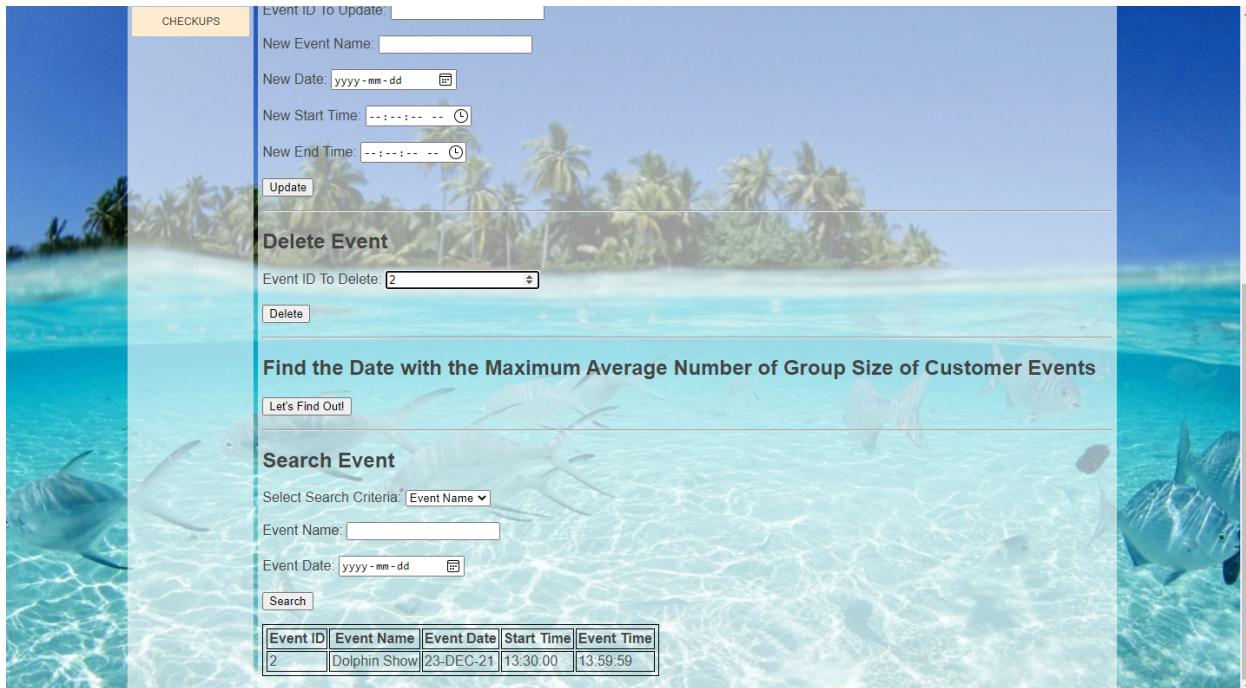
Search Event

Select Search Criteria:

Event Name:
Event Date: yyyy-mm-dd

Search

Event ID	Event Name	Event Date	Start Time	Event Time
2	Dolphin Show	23-DEC-21	13:30:00	13:59:59



EMPLOYEES

CHECKUPS

Event ID To Update:
New Event Name:
New Date: yyyy-mm-dd
New Start Time: --:--:-- --
New End Time: --:--:-- --

Update

Delete Event

Event ID To Delete:

Delete Successful.

Find the Date with the Maximum Average Number of Group Size of Customer Events

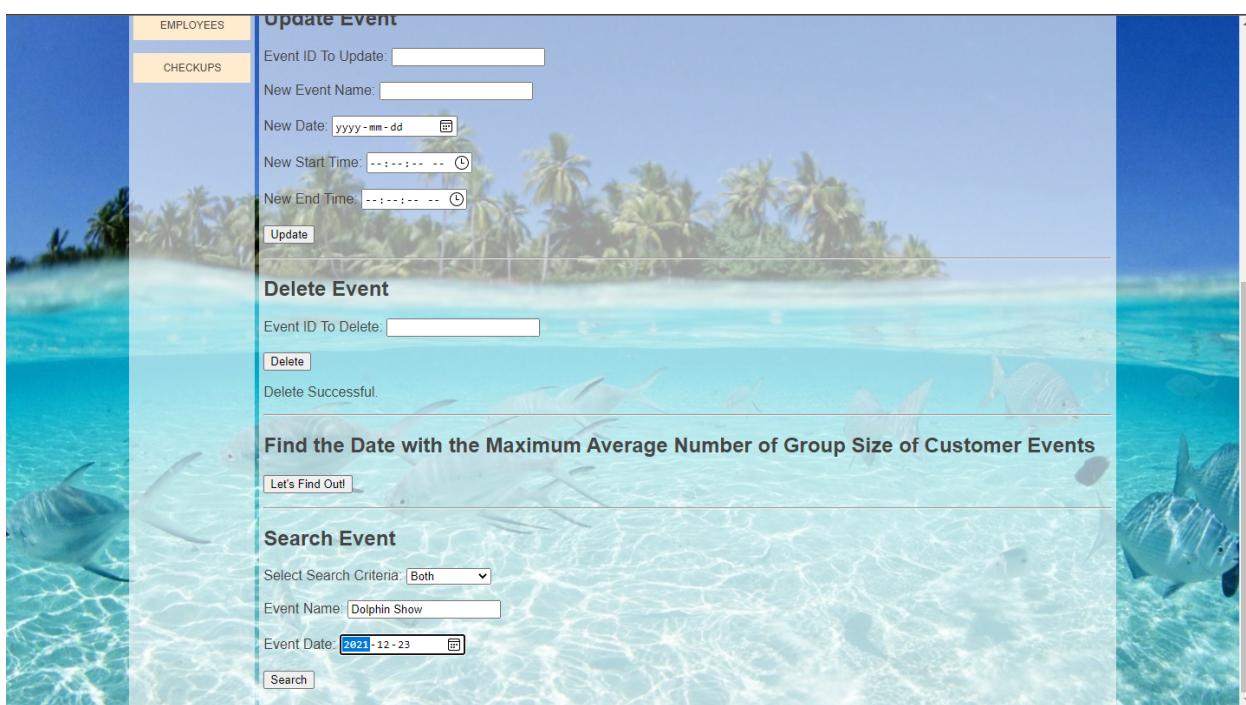
Let's Find Out!

Search Event

Select Search Criteria:

Event Name: Dolphin Show
Event Date: 2021-12-23

Search



CHECKUPS

Event ID To Update:

New Event Name:

New Date: yyyy-mm-dd

New Start Time: --:--:--

New End Time: --:--:--

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Search Event

Select Search Criteria:

Event Name:

Event Date: yyyy-mm-dd

Event ID	Event Name	Event Date	Start Time	Event Time
7	Volunteer Cleanup at Stanley	15-Nov-21	11:30:00	13:59:59

3. UPDATE: Update an existing event

```
UPDATE Event SET name= '$newName' , event_date = TO_DATE('$newDate',
'YYYY-MM-DD'), start_time= '$newStartTime' , end_time= '$newEndTime' WHERE ID =
$IDUpdate
```

Found under the Events tab ([event-page.php](#));

CHECKUPS

Event ID To Update:

New Event Name: Volunteer Cleanup at Stanley

New Date: 2021-12-15

New Start Time: 01:00:00 PM

New End Time: 03:59:59 PM

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Search Event

Select Search Criteria:

Event Name:

Event Date: yyyy-mm-dd

Event ID	Event Name	Event Date	Start Time	Event Time
7	Volunteer Cleanup at Stanley	15-Nov-21	11:30:00	13:59:59

Event Name:

Date: yyyy-mm-dd

Start Time: --:--:-- --

End Time: --:--:-- --

Update Event

Event ID To Update:

New Event Name:

New Date: yyyy-mm-dd

New Start Time: --:--:-- --

New End Time: --:--:-- --

Update Successful.

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

EMPLOYEES

CHECKUPS

Update Event

Event ID To Update:

New Event Name:

New Date: yyyy-mm-dd

New Start Time: --:--:-- --

New End Time: --:--:-- --

Update Successful.

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Search Event

Select Search Criteria:

Event Name: Volunteer Cleanup at Stanley

Event Date: 2021-12-15

CHECKUPS

Event ID To Update:

New Event Name:

New Date: yyyy-mm-dd

New Start Time: --:--:--

New End Time: --:--:--

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Search Event

Select Search Criteria:

Event Name:

Event Date: yyyy-mm-dd

Event ID	Event Name	Event Date	Start Time	Event Time
7	Volunteer Cleanup at Stanley Park	15-DEC-21	13:00:00	15:59:59

4. SELECTION:

```
SELECT *
FROM $table
WHERE $field1 = $var1 AND $field2 = $var2
```

Found under all tabs (**animal-page.php, schedule-page.php, event-page.php, employee-page.php, checkup-page.php**):

Animals:

UBC Aquarium

ANIMALS

Search For an Animal

Search Scope:

Primary Query Inputs: Enclosure ID 2

Secondary Query Inputs: Healthy

Count the Number of Sick Animals for Each Type of Animals That Has More Than 1 Animal

Count the Number of Sick Animals!

UBC Aquarium

Search For an Animal

Search Scope: Animals

Primary Query Inputs: Animal ID

Secondary Query Inputs: Animal Group

Animal ID	Name	Enclosure ID	Group	Species	Health
7	Otto	2	Otter	Enhydra lutris	Healthy

Count the Number of Sick Animals for Each Type of Animals That Has More Than 1 Animal

Animals Count the Number of Sick Animals!

Schedules:

UBC Aquarium

Total Number of Active Schedules

Select Schedule

Search Scope: Schedules

Query Inputs:
 ID
 Frequency
 Time

ID:

Frequency: Daily

Time: 06:30:00 AM

UBC Aquarium

Total Number of Active Schedules

Select Schedule

Search Scope: **Schedules**

Query Inputs:

- ID
- Frequency
- Time

ID:

Frequency:

Time:

Event ID	Frequency	Schedule Time
4	Daily	06 30:00
6	Daily	06 30:00
10	Daily	06 30:00

Events:

Update Event

Event ID To Update:

New Event Name:

New Date:

New Start Time:

New End Time:

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Search Event

Select Search Criteria: **Both**

Event Name: Virtual Aquarium Tour

Event Date: 2021-11-15

CHECKUPS

Event ID To Update:

New Event Name:

New Date: yyyy-mm-dd

New Start Time: --:--:-- --

New End Time: --:--:-- --

Delete Event

Event ID To Delete:

Find the Date with the Maximum Average Number of Group Size of Customer Events

Search Event

Select Search Criteria:

Event Name:

Event Date: yyyy-mm-dd

Event ID	Event Name	Event Date	Start Time	Event Time
10	Virtual Aquarium Tour	15-NOV-21	12:30:00	13:59:59

Employee:

UBC Aquarium

Search Employees

Enter search criteria.

First Name ▾ Linda

Last Name ▾ Poon

Find Employees Who Are Leading All Events

UBC Aquarium

Search Employees

Enter search criteria:

--Select--

--Select--

ID	First Name	Last Name	Phone #	Email
4	Linda	Poon	778-111-1111	linda.poon@aquarium.ubc.ca

Find Employees Who Are Leading All Events

Checkups:

UBC Aquarium

Search Checkups

Search specific:

First search criteria: Type Regular Checkup

Second search criteria: Date 2021-12-01

OR

Find all checkup: Type Date Time

Find Biologists Conducting Checkups by Priority

Low Medium High

The screenshot shows the UBC Aquarium website with a tropical background image of fish and palm trees. The title "UBC Aquarium" is at the top. On the left is a sidebar with a dolphin icon and links: ANIMALS, SCHEDULES, EVENTS, EMPLOYEES, and CHECKUPS. The CHECKUPS link is highlighted. The main content area has a heading "Search Checkups" and a form with dropdowns for "First search criteria" and "Second search criteria", both set to "-Select-". Below is a "Search" button, an "OR" section, and a checkbox group for "Find all checkup": Type, Date, Time, followed by another "Search" button. A table titled "Find Biologists Conducting Checkups by Priority" shows two rows of data:

ID	Biologist ID	Animal ID	Type	Priority	Date	Time
1	4	5	Regular Checkup	Low	01-DEC-21	09:30:00
6	6	6	Regular Checkup	Low	01-DEC-21	10:30:00

Below the table is a section titled "Find Biologists Conducting Checkups by Priority" with radio buttons for priority levels: Low, Medium, High, and a final "Search" button.

5. **PROJECTION:** Find all checkup type, date, and/or time

```
SELECT $attr_str  
FROM Checkup
```

Found under the Checkup tab (**checkup-page.php**):

This screenshot is identical to the one above, but the "Type" checkbox in the "Find all checkup" section is now checked (indicated by a blue outline). All other elements, including the table and priority selection section, remain the same.

UBC Aquarium

ANIMALS

SCHEDULES

EVENTS

EMPLOYEES

CHECKUPS

Search Checkups

Search specific:

First search criteria: --Select--

Second search criteria: --Select--

OR

Find all checkup: Type Date Time

Type
Regular Checkup
Heart Surgery
Swim Rehab
Pregnancy Checkup
Artificial Fin Attachment Surgery
Regular Checkup
Pregnancy Checkup
Swim Rehab
Heart Surgery

Find Biologists Conducting Checkups by Priority

Low Medium High

UBC Aquarium

ANIMALS

SCHEDULES

EVENTS

EMPLOYEES

CHECKUPS

Search Checkups

Search specific:

First search criteria: --Select--

Second search criteria: --Select--

OR

Find all checkup: Type Date Time

Find Biologists Conducting Checkups by Priority

Low Medium High

Search Checkups

Search specific:

First search criteria: Second search criteria:

OR

Find all checkup: Type Date Time

Type	Date	Time
Regular Checkup	01-DEC-21	09:30:00
Heart Surgery	23-JAN-22	11:30:00
Swim Rehab	11-FEB-22	14:00:00
Pregnancy Checkup	11-FEB-22	13:15:00
Artificial Fin Attachment Surgery	23-JAN-22	09:30:00
Regular Checkup	01-DEC-21	10:30:00
Pregnancy Checkup	01-DEC-21	2:00:00
Swim Rehab	11-FEB-22	14:15:00
Heart Surgery	23-JAN-22	15:15:00

Find Biologists Conducting Checkups by Priority

Low Medium High

6. **JOIN:** Find employees conduction specific priority checkups

```
SELECT DISTINCT e.first_name, e.last_name, b.specialty
FROM Biologist b, Checkup c, Checkup_Priority cp, Employee e
WHERE b.employee_id = e.id AND c.biologist_id = b.employee_id AND c.type = cp.type
AND cp.priority = '$priority'
```

Found under the Checkups tab (**checkup-page.php**):

Search Checkups

Search specific:

First search criteria: Second search criteria:

OR

Find all checkup: Type Date Time

Find Biologists Conducting Checkups by Priority

Low Medium High

UBC Aquarium

ANIMALS

SCHEDULES

EVENTS

EMPLOYEES

CHECKUPS

Search Checkups

Search specific:

First search criteria:

Second search criteria:

OR

Find all checkup: Type Date Time

Find Biologists Conducting Checkups by Priority

Low Medium High

Biologist(s) conducting Medium priority checkups:

First Name	Last Name	Specialty
Kurt	Kaufel	Dolphin Physiology
Alan	Li	Penguin Physiology
Taylor	Swift	Reproduction

UBC Aquarium

ANIMALS

SCHEDULES

EVENTS

EMPLOYEES

CHECKUPS

Search Checkups

Search specific:

First search criteria:

Second search criteria:

OR

Find all checkup: Type Date Time

Find Biologists Conducting Checkups by Priority

Low Medium High

7. **AGGREGATION WITH GROUP BY:** Count the number of active schedules belonging to each frequency
- ```
SELECT s.frequency, COUNT(*)
FROM Schedule s
GROUP BY s.frequency
```

Found under the Schedules tab ([schedule-page.php](#)):

**UBC Aquarium**

**Total Number of Active Schedules**

| Frequency Type | Number of Schedules |
|----------------|---------------------|
| Monthly        | 3                   |
| Weekly         | 4                   |
| Daily          | 5                   |
| Bi-weekly      | 3                   |

**Select Schedule**

Search Scope: **Schedules**

Query Inputs:

- ID
- Frequency
- Time

ID:

Frequency:

Time:

8. **AGGREGATION WITH HAVING:** Count the number of not healthy animals in each animal group with more than 1 animal

```
SELECT animal_group, COUNT(*)
FROM Animal
WHERE health <> 'Healthy'
GROUP BY animal_group
HAVING COUNT(*) > 1
```

Found under the Animals tab (**animal-page.php**):

**UBC Aquarium**

**Search For an Animal**

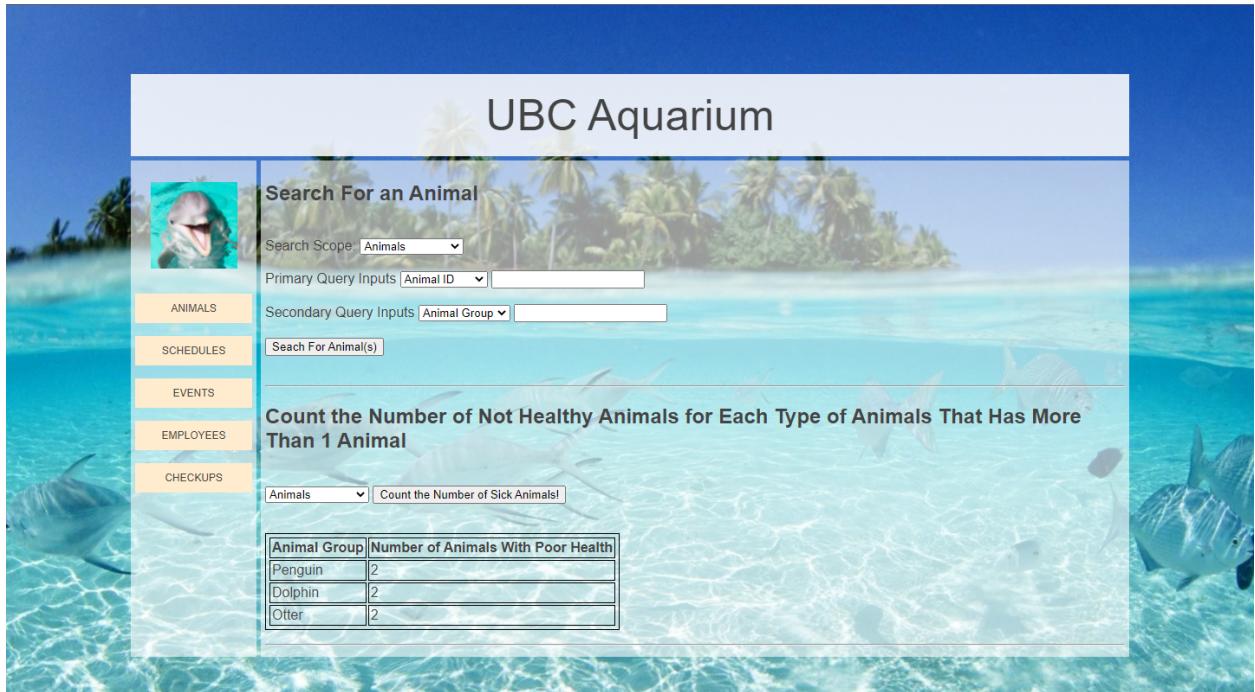
Search Scope: **Animals**

Primary Query Inputs: **Animal ID**

Secondary Query Inputs: **Animal Group**

**Count the Number of Not Healthy Animals for Each Type of Animals That Has More Than 1 Animal**

| Animals | Count the Number of Sick Animals! |
|---------|-----------------------------------|
|         |                                   |



9. **NESTED AGGREGATION WITH GROUP BY:** Find the date with the max avg group size of customer events

```
SELECT e.event_date, avg(c.group_size) as AverageGroupSize
FROM Event e, Customer_Event c
WHERE e.ID = c.event_id
GROUP BY e.event_date
HAVING avg(c.group_size) >= ALL(SELECT avg(c1.group_size)
 FROM Event e1, Customer_Event c1
 WHERE e1.ID = c1.event_id
 GROUP BY e1.event_date)
```

Found under the Events tab ([event-page.php](#)):

**EMPLOYEES**

**CHECKUPS**

**Update Event**

Event ID To Update:

New Event Name:

New Date: yyyy-mm-dd

New Start Time: --::-- --

New End Time: --::-- --

**Delete Event**

Event ID To Delete:

**Find the Date with the Maximum Average Number of Group Size of Customer Events**

**Search Event**

Select Search Criteria:

Event Name:

Event Date: yyyy-mm-dd

**CHECKUPS**

**Update Event**

Event ID To Update:

New Event Name:

New Date: yyyy-mm-dd

New Start Time: --::-- --

New End Time: --::-- --

**Delete Event**

Event ID To Delete:

**Find the Date with the Maximum Average Number of Group Size of Customer Events**

| Event Date | Average Group Size |
|------------|--------------------|
| 02-FEB-22  | 50                 |

**Search Event**

Select Search Criteria:

Event Name:

Event Date: yyyy-mm-dd

## 10. DIVISION: Find employees who are leading all events

```

SELECT *
FROM Employee e
WHERE NOT EXISTS ((SELECT ev.ID as event_id
 FROM Event ev)
MINUS

```

```
(SELECT l.event_id as event_id
FROM Leads l
WHERE l.employee_id = e.ID))
```

Found under the Employees tab ([employee-page.php](#)):

The screenshot shows a web application titled "Search Employees" with a dolphin icon. The sidebar menu includes ANIMALS, SCHEDULES, EVENTS, EMPLOYEES (which is selected), and CHECKUPS. The main content area displays a search form with dropdown menus for search criteria and a "Search" button. Below the form, a section titled "Find Employees Who Are Leading All Events" contains another "Search" button. The background of the page is a scenic image of a tropical island with palm trees and fish swimming in clear blue water.

This screenshot shows the same "Search Employees" page as above, but the "EMPLOYEES" section of the sidebar is now highlighted. The main content area displays a table of search results:

| ID | First Name | Last Name | Phone #      | Email                         |
|----|------------|-----------|--------------|-------------------------------|
| 1  | Kurt       | Kaufer    | 778-984-9384 | kurt.kaufer@aquarium.ubc.ca   |
| 5  | Samuel     | Ericson   | 604-000-0000 | samuel.ericon@aquarium.ubc.ca |
| 6  | Xiao       | Wang      | 778-661-6633 | xiao.wang@aquarium.ubc.ca     |