CPSC 304 Project Cover Page

Milestone #: 4

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Group Number: 15

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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

Github Repository Link:

milestone4

Project Description:

Our project resides in the domain of tourism. Specifically, our project focuses on tourist spots present in Canada.

The database models all relevant information about a tourist attraction, such as available activities, booking information, photos, and location. This application is applicable for tourists that want to visit areas that best fit their preference criteria (achieved with activity category filtering), and add reviews and comments to help future tourists to make informed decisions.

SQL Script:

An sql script to generate our tables and example tuples is present within the repository under the Node_Project directory with the title **tourist.sql**.

Database Schema

In the following schema, attributes that are <u>underlined</u> denote primary key attributes, and attributes that are **bolded** denote foreign key attributes.

- Locations(<u>province</u>: varchar, <u>city</u>: varchar)
- TouristAttractions1(<u>latitude</u>: number, longitude: number province: varchar, city: varchar)
- TouristAttractions2(<u>attractionID</u>: number, attractionName: varchar, attractionDesc: varchar, category: varchar, openingHour: number, closingHour: number, <u>latitude</u>: number, <u>longitude</u>: number)
- Transportation(<u>vehicleID</u>: number, type: varchar, price: number)
- ServicedBy(<u>vehicleID</u>: number, <u>attractionID</u>: number)
- ExperienceOffered(<u>experienceID</u>: number, <u>attractionID</u>: number, experienceName:
 varchar, experienceDesc: varchar, company: varchar, price: number)
- UserProfile(userID: number, userName: varchar)
- Booking1(<u>experienceID</u>: number, <u>userID</u>: number, <u>startTime</u>: date, <u>attractionID</u>: number)
- Booking2(<u>bookingID</u>: number, experienceID: number, userID: number, startTime: date,
 endTime: date, numOfPersons: number)
- Responses(<u>responseID</u>: number, <u>userID</u>: number, <u>attractionID</u>: number, responseDate:
 date, body: varchar)
- Reviews(<u>responselD</u>: number, starRating: number)
- Comments(<u>responselD</u>: number, <u>reviewID</u>: number)
- Photos(<u>photoID</u>: number, attractionID: number, url: varchar, photoDesc: varchar, uploadDate: date)

Table Demonstration

```
Table: Locations
ab calgary
bc vancouver
bc victoria
on ottawa
on toronto
Table: UserProfile
      0 test0
       1 test1
       2 test2
      3 test3
Table: TouristAttractions1
 49.30427 -123.14421 bc vancouver
 48.42842 -123.36564 bc victoria
 51.04427 -114.0631 ab calgary
 45.42153 -75.69719 on ottawa
 43.65107 -79.34702 on toronto
 49.27124 -123.13487 bc vancouver
 49.28245 -123.12071 bc vancouver
7 rows selected.
Table: TouristAttractions2
       1 stanley park
north america's third-largest park draws eight million visitors per year, many of whom may
skate or walk past you on the seawall, a scenic, 5.5-mile path running along the water on
the park's perimeter. It's just one of many trails among the park's 1,000 acres, which also
house an aquarium, nature center and other recreational facilities.
                                    49.30427 -123.14421
       2 butchart gardens
a group of floral display gardens in brentwood bay, british columbia, canada, near victoria
on vancouver island. the gardens receive over a million visitors each year.
park
                     9:00 17:00 48.42842 -123.36564
       3 calgary tower
a 190.8-meter free standing observation tower in downtown calgary, alberta, canada.
landmarks
                     8:00 20:00 51.04427 -114.0631
       4 parliament hill
an area of crown land on the southern banks of the ottawa river in downtown ottawa, ontario.
its gothic revival suite of buildings is the home of the parliament of canada.
historical site
                    10:00 18:00 45.42153 -75.69719
```

```
5 cn tower
a 553.3 m-high concrete communications and observation tower located in downtown toronto,
ontario.
landmark
                                 43.65107 -79.34702
      7 vancouver art gallery
one of north americas most exciting and innovative visual arts institutions.
                   10:00 20:00 49.28245 -123.12071
6 rows selected.
Table: Transportation
      0 translink
      1 mobi bicycles
      2 yellow cab ottawa
      2 yellow cab ottawa
3 enterprise calgary
      4 toronto subway
Table: ServicedBy
Table: ExperienceOffered
     0 1 seawall walk
a scenic walk along the seawall in stanley park.
walking company
             2 garden Tour
a guided tour of the butchart gardens.
butchart inc.
                   3 tower observation
an observation experience at the top of calgary tower.
city of calgary
                    4 historical tour
a guided historical tour of parliament hill.
an observation experience at the top of the cn tower.
canada lands company
                   1 bicycle park tour
with miles of car-free paths and lots to see, vancouvers stanley park is perfect for
exploring by bicycle.
city of vancouver
```

```
5 360 restaurant
surround your guests with the finest of canadian dining???and the finest of canadian
views???at 360 the restaurant at the cn tower. 360 completes a full rotation every 72
minutes, giving every guest a fresh perspective on the city below.
7 rows selected.
Table: Booking1
      0 0 20-JUL-24
            1 21-JUL-24
            3 23-JUL-24
      5 0 01-AUG-24
6 1 01
            1 01-AUG-24
7 rows selected.
Table: Booking2
                         2 22-JUL-24 22-JUL-24
                          3 23-JUL-24 23-JUL-24
                         0 01-AUG-24 01-AUG-24
7 rows selected.
amazing experience at stanley park!
                          2 21-JUL-24
the butchart gardens were beautiful.
                           3 22-JUL-24
great view from the calgary tower.
                          4 23-JUL-24
very informative tour at parliament hill.
                          5 24-JUL-24
stunning skyline view from the cn tower.
```

```
Table: Photos
https://example.com/stanley_park.jpg
a beautiful view of stanley park.
https://example.com/butchart_gardens.jpg
stunning flowers at butchart gardens.
21-JUL-24
https://example.com/calgary_tower.jpg
a view from calgary tower.
https://example.com/parliament_hill.jpg
parliament hill in ottawa.
23-JUL-24
https://example.com/cn_tower.jpg
the cn tower in toronto.
24-JUL-24
```

SQL Queries:

Below are all the sql queries present in our project. Above each query is the file location and line number. These are present within Node_Project/appService.js

```
appService.js/82
Satisfies JOIN
`SELECT attractionID, attractionName
                FROM TouristAttractions1 T1, TouristAttractions2 T2
                WHERE T1.latitude = T2.latitude AND T1.longitude = T2.longitude
                AND T1.province = :province AND T1.city = :city`,
        [province, city]
appService.js/104
Satisfies INSERT
`INSERT INTO TouristAttractions2 (attractionName, attractionDesc, category, openingHour, closingHour,
latitude, longitude)
        VALUES(:attractionName, :attractionDesc, :category, :openingHour, :closingHour, :latitude,
:longitude)`,
        [name, description, category, open, close, lat, long],
appService.js/119
 SELECT *
        FROM TouristAttractions1
        WHERE latitude = :latitude AND longitude = :longitude AND
        province = :province AND city = :city`,
        [lat, long, province, city]
appService.js/135
SELECT *
        FROM TouristAttractions2
        WHERE attractionID = :id`,
        [attractionID]
appService.js/154
`INSERT INTO TouristAttractions1
        VALUES(:latitude, :longitude, :province, :city)`,
        [lat, long, province, city],
appService.js/169
 `SELECT *
        FROM Locations
        WHERE province = :province AND city = :city`,
        [province, city]
appService.js/183
`INSERT INTO Locations
        VALUES(:province, :city)`,
        [province, city]
appService.js/232
SELECT latitude, longitude
        FROM TouristAttractions1 T1
        WHERE EXISTS (
                SELECT 1
                FROM TouristAttractions2 T2
                WHERE T1.latitude = T2.latitude
                AND T1.longitude = T2.longitude
                AND T2.attractionID = :attractionID
        [attractionID]
```

```
appService.js/256
        `UPDATE TouristAttractions2
        SET latitude = NULL, longitude = NULL
        WHERE attractionID = :attractionID
        [attractionID],
appService.js/272
`UPDATE TouristAttractions1
        SET latitude = :new_latitude, longitude = :new_longitude, province = :province, city = :city
        WHERE latitude = :current_latitude AND longitude = :current_latitude
        [lat, long, province, city, oldLatitude, oldLongitude],
appService.js/288
`UPDATE TouristAttractions2
        SET attractionName = :name, attractionDesc = :description, openingHour = :open, closingHour =
:close,
        latitude = :latitude, longitude = :longitude, category = :category
        WHERE attractionID = :attractionID
appService.js/306
Satisfies DELETE
`DELETE FROM TouristAttractions1 T1
        WHERE EXISTS (
                SELECT 1
                FROM TouristAttractions2 T2
                WHERE T1.latitude = T2.latitude
                AND T1.longitude = T2.longitude
                AND T2.attractionID = :attractionID
        [attractionID],
appService.js/339
Satisfies PROJECTION
const query =
        SELECT ${parsedSelectorString}
        FROM ExperienceOffered
        WHERE attractionID = :id
appService.js/361
Aggregation with GROUP BY
        `SELECT COUNT(*) AS attractionCount
        FROM TouristAttractions1
        GROUP BY province, city
        HAVING province = :province AND city = :city`,
appService.js/377
Satisfies AGGREGATION WITH HAVING
`SELECT province, city
        FROM TouristAttractions1
        GROUP BY city, province
       HAVING COUNT(*) > 2`
appService.js/392
Satisfies NESTED AGGREGATION WITH GROUP BY
```

```
SELECT AVG(attractionCount) AS avgAttractionCount
        FROM (
        SELECT province, COUNT(*) AS attractionCount
        FROM TouristAttractions1
        GROUP BY province
appService.js/413
SATISFIES SELECTION
if (comparison == 'equals') {
        query =
                `SELECT experienceID, experienceName, price
        FROM ExperienceOffered
        WHERE price = :price`;
        } else if (comparison == 'larger') {
        query =
                `SELECT experienceID, experienceName, price
        FROM ExperienceOffered
        WHERE price >= :price`;
        } else if (comparison == 'smaller') {
                `SELECT experienceID, experienceName, price
        FROM ExperienceOffered
        WHERE price <= :price`;</pre>
appService.js/452
SATISFIES DIVISION
`SELECT userID, userName
        FROM UserProfile U
        WHERE NOT EXISTS
                ((SELECT E.experienceID
                FROM ExperienceOffered E
                WHERE attractionID = :id)
                MINUS (SELECT B.experienceID
                FROM Booking2 B
                WHERE B.userID = U.userID))`
```

GUI Demonstration

Deletion Operation

Before

Delete Attraction

ID: Enter Attraction to Delete

Delete Now!

During

Delete Attraction

ID: 6

Delete Now!

After

Find Attractions Near Me



Results

Attraction Name	Attraction ID
stanley park	1
vancouver art gallery	7

Update Operation

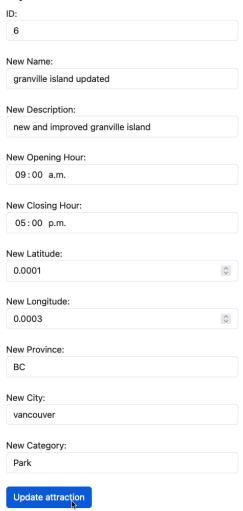
Before

Update Attraction

ID:	
Enter ID to Modify	
New Name:	
Enter New Name	
New Description:	
Enter New Brief Description	
New Opening Hour:	
:	
New Closing Hour:	
:	
New Latitude:	
Enter New Latitude	\$
New Longitude:	
Enter New Longitude	\$
New Province:	
Enter Province	
New City:	
Enter City	
New Category	
New Category: Select a Category	
Select a Category	
Undate attraction	

During

Update Attraction



After

Find Attractions Near Me



Results

Attraction Name	Attraction ID
stanley park	1
granville island updated	6
vancouver art gallery	7

Selection Operation

Before

Find Experiences Within Budget Range



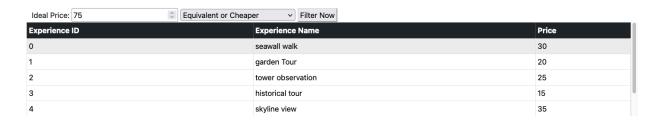
During

Find Experiences Within Budget Range



After

Find Experiences Within Budget Range



Projection Operation

Before

Find Experiences

Enter Attraction ID		
Select relevant info		
Experience ID		
Experience Name		
 Experience Description 		
 Experience Company 		
Experience Price		
Find More Details		
Display Table		

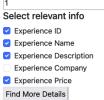
During

Find Experiences

1		
Select relevant info		
Experience ID		
Experience Name		
Experience Description		
 Experience Company 		
Experience Price		
Find More Details		
Display Table		

After

Find Experiences



Experience Experience Experience					
ID	Name	Description Price			
0		5	seawall walk	a scenic walk along the seawall in stanley park.	30
5		ł	bicycle park tour	with miles of car-free paths and lots to see, vancouvers stanley park is perfect for exploring by bicycle.	50

JOIN Operation

Before

Find Attractions Near Me Enter Province alpha code (2 letters) Enter City Name Find Attractions Now! Results Attraction Name Attraction ID

During

Find Attractions Near Me BC Vancouver Find Attractions Now!

Results

Attraction Name	Attraction ID

After

Find Attractions Near Me



Results

Attraction Name	Attraction ID
stanley park	1
granville island	6
vancouver art gallery	7

Aggregation with group by Operation

Before

Find Attractions Near Me



Results



During

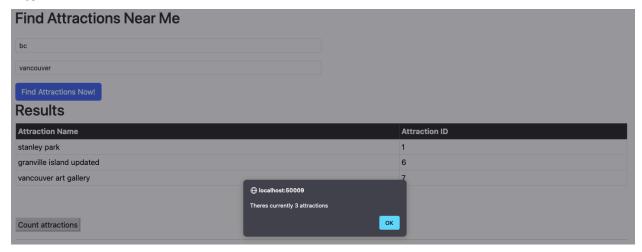
Find Attractions Near Me



Results

Attraction Name	Attraction ID
stanley park	1
granville island updated	6
vancouver art gallery	7
Count attractions	

After



Aggregation with having operation

Before

Present Provinces/Cities HAVING >2 Attractions

Province

City

During

Present Provinces/Cities HAVING >2 Attgactions

Province City

After

Present Provinces/Cities HAVING >2 Attractions

Province

City

vancouver

Nested Aggregation with group by Operation

Before

Average attractions per province

During

Average attractions per province

After



Division Operation

Before

Attraction Completionists(s)

Search for users who have booked every experience at a specified attraction.



UserID userName

During

Attraction Completionists(s)

Search for users who have booked every experience at a specified attraction.



UserID userName

After

Attraction Completionists(s)

Search for users who have booked every experience at a specified attraction.



