

# 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 underlined denote primary key attributes, and attributes that are **bolded** denote foreign key attributes.

- Locations(province: varchar, city: varchar)
- TouristAttractions1(latitude: number, longitude: number **province**: varchar, **city**: varchar)
- TouristAttractions2(attractionID: number, attractionName: varchar, attractionDesc: varchar, category: varchar, openingHour: number, closingHour: number, **latitude**: number, **longitude**: number)
- Transportation(vehicleID: number, type: varchar, price: number)
- ServicedBy(**vehicleID**: number, **attractionID**: number)
- ExperienceOffered(experienceID: number, **attractionID**: number, experienceName: varchar, experienceDesc: varchar, company: varchar, price: number)
- UserProfile(**userID**: number, userName: varchar)
- Booking1(**experienceID**: number, **userID**: number, startTime: date, **attractionID**: number)
- Booking2(bookingID: number, **experienceID**: number, **userID**: number, **startTime**: date, **endTime**: date, numOfPersons: number)
- Responses(responseID: number, **userID**: number, **attractionID**: number, responseDate: date, body: varchar)
- Reviews(**responseID**: number, starRating: number)
- Comments(**responseID**: number, **reviewID**: number)
- Photos(photoID: 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  
4 test4

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.  
park 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.  
 museum 10:00 20:00 49.28245 -123.12071

6 rows selected.

Table: Transportation

0 translink	3
1 mobi bicycles	10
2 yellow cab ottawa	30
3 enterprise calgary	100
4 toronto subway	4

Table: ServicedBy

0	1
0	2
3	3
3	4
4	5

Table: ExperienceOffered

0	1 seawall walk
a scenic walk along the seawall in stanley park.	
walking company	30
1	2 garden Tour
a guided tour of the butchart gardens.	
butchart inc.	20
2	3 tower observation
an observation experience at the top of calgary tower.	
city of calgary	25
3	4 historical tour
a guided historical tour of parliament hill.	
canada	15
4	5 skyline view
an observation experience at the top of the cn tower.	
canada lands company	35
5	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	50

6 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.  
 cn tower 100

7 rows selected.

Table: Booking1

0	0	20-JUL-24	1
1	1	21-JUL-24	2
2	2	22-JUL-24	3
3	3	23-JUL-24	4
4	4	24-JUL-24	5
5	0	01-AUG-24	1
6	1	01-AUG-24	5

7 rows selected.

Table: Booking2

0	0	0	20-JUL-24	20-JUL-24	2
1	1	1	21-JUL-24	21-JUL-24	3
2	2	2	22-JUL-24	22-JUL-24	4
3	3	3	23-JUL-24	23-JUL-24	2
4	4	4	24-JUL-24	24-JUL-24	1
5	5	0	01-AUG-24	01-AUG-24	1
6	6	1	01-AUG-24	01-AUG-24	1

7 rows selected.

Table: Responses

1	0	1	20-JUL-24	amazing experience at stanley park!
2	1	2	21-JUL-24	the butchart gardens were beautiful.
3	2	3	22-JUL-24	great view from the calgary tower.
4	3	4	23-JUL-24	very informative tour at parliament hill.
5	4	5	24-JUL-24	stunning skyline view from the cn tower.

Table: Reviews

1	5
2	4
3	5

4	4
5	5

Table: Comments

1	1
2	2
3	3
4	4
5	5

Table: Photos

1	1
---	---

[https://example.com/stanley\\_park.jpg](https://example.com/stanley_park.jpg)  
a beautiful view of stanley park.  
20-JUL-24

2	2
---	---

[https://example.com/butchart\\_gardens.jpg](https://example.com/butchart_gardens.jpg)  
stunning flowers at butchart gardens.  
21-JUL-24

3	3
---	---

[https://example.com/calgary\\_tower.jpg](https://example.com/calgary_tower.jpg)  
a view from calgary tower.  
22-JUL-24

4	4
---	---

[https://example.com/parliament\\_hill.jpg](https://example.com/parliament_hill.jpg)  
parliament hill in ottawa.  
23-JUL-24

5	5
---	---

[https://example.com/cn\\_tower.jpg](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_longitude
`,
[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') {
  query =
    `SELECT experienceID, experienceName, price
FROM ExperienceOffered
WHERE price <= :price`;
}

```

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:

Delete Now!

#### During

# Delete Attraction

ID:

Delete Now!

#### After

### Find Attractions Near Me

Find Attractions Now!

### Results

Attraction Name	Attraction ID
stanley park	1
vancouver art gallery	7

## Update Operation

### Before

### Update Attraction

ID:

New Name:

New Description:

New Opening Hour:

New Closing Hour:

New Latitude:



New Longitude:



New Province:

New City:

New Category:

During

Update Attraction

ID:

6

New Name:

granville island updated

New Description:

new and improved granville island

New Opening Hour:

09 : 00 a.m.

New Closing Hour:

05 : 00 p.m.

New Latitude:

0.0001

New Longitude:

0.0003

New Province:

BC

New City:

vancouver

New Category:

Park

Update attraction

After

Find Attractions Near Me

bc

vancouver

Find Attractions Now!

Results

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

Selection Operation

Before

Find Experiences Within Budget Range

Ideal Price:

Select a Price Filter

Filter Now

Experience ID	Experience Name	Price
---------------	-----------------	-------

During

Find Experiences Within Budget Range

Ideal Price:

✓ Select a Price Filter

Equals

Equivalent or Cheaper

Equivalent or More Expensive

Filter Now

Experience ID	Experience Name	Price
---------------	-----------------	-------

After

Find Experiences Within Budget Range

Ideal Price:

Equivalent or Cheaper

Filter Now

Experience ID	Experience Name	Price
0	seawall walk	30
1	garden Tour	20
2	tower observation	25
3	historical tour	15
4	skyline view	35

# 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

1

Select relevant info

- ☒ Experience ID
- ☒ Experience Name
- ☒ Experience Description
- ☐ Experience Company
- ☒ Experience Price

Find More Details

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

# JOIN Operation

## Before

### Find Attractions Near Me

Find Attractions Now!

### Results

Attraction Name	Attraction ID
-----------------	---------------

## During

### Find Attractions Near Me

Find Attractions Now!

### Results

Attraction Name	Attraction ID
-----------------	---------------

## After

### Find Attractions Near Me

Find Attractions Now!

### 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

Find Attractions Now!

Results

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

Count attractions

During

Find Attractions Near Me

Find Attractions Now!

Results

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

Count attractions

After

Find Attractions Near Me

Find Attractions Now!

Results

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

Count attractions

localhost:50009

Theres currently 3 attractions

OK

Aggregation with having operation

Before

Present Provinces/Cities HAVING >2 Attractions	
Province	City

During

Present Provinces/Cities HAVING >2 Attractions	
Province	City

After

Present Provinces/Cities HAVING >2 Attractions	
Province	City
bc	vancouver

## Nested Aggregation with group by Operation

### Before

Average attractions per province

### During

Average attractions per province

### After

Average attractions per province

localhost:50009

Average attractions per province: 2.3333333333333333

OK

## Division Operation

### Before

#### Attraction Completionists(s)

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

Enter Attraction ID

Search

UserID

userName

### During

#### Attraction Completionists(s)

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

1

Search

UserID

userName

### After

#### Attraction Completionists(s)

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

1

Search

UserID

userName

0

test0