

CPSC 304 Project - Subletter

Milestone #4

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Group Number: 11

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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 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

Repository Link

https://github.students.cs.ubc.ca/CPSC304-2023S-T2/project_j0w8b_k8p8k_y3f6z

Project Description

In Subletter, we successfully created a versatile social media to facilitate sublet and item transactions between users interactively with a beautiful GUI, where users can seamlessly enjoy the experience of finding all the necessary information about their university's housing and residence circumstances at the click of a button. Users can register for a free account and specify their current school, where they will be able to access all the information about housing for their specific school, and also easily access listings that other users from the same school posted. Users can comment on listings, message listing sellers, and be notified of anything with nifty notifications.

Differences in Final Schema

- At first, we did not include images, but we quickly realized that in order to maintain an attractive GUI for users to search for sublets and items to take, it would be crucial to have available images for users to show off. Thus, we added images to our listings such that users can upload their own images. The database only stores a link to the image.
- Previously, we had two tables for reviews, one keeping track of the reviews that a user wrote, and the other keeping track of the residence for which the review was targeted towards. We realized that there was a one-to-many relationship between users and reviews, and between residences and reviews. We quickly made the review table a single table to optimize our design.
- For users, we changed their password domain so that it is a binary with 60 characters, instead of a simple varchar. This is because we encrypt the user's password such that the database stores a one-way hashed value for the user's password. This is because storing a user's password directly in a database is very insecure and prone to security leaks, and we want to ensure user privacy and protection.
- For notifications and messages, we added auto-generated time stamps so that we could easily order the notifications and messages by the date they were created.
- For our addresses relation, we split it into only two tables rather than 4, as we decided as a team that it was a better design choice and would help us while doing insertions, while still being normalized to prevent the anomalies.
- We added a couple of DEFAULT values to some of our attributes, such as having a default null description for listings or profile, or default image link for listings.
- We removed notification_types as we found that we did not have use for it on our application after all.

SQL Queries

Addresses

```
db.query(  
    SELECT a1.city, a1.country, a1.province  
        FROM addresses_1 a1  
        WHERE a1.postal_code=?',  
    [postalCode]  
);
```

```
db.query(  
    'INSERT INTO addresses_main(street_address, postal_code, country)  
        VALUES(?, ?, ?)',  
    [street_address, postal_code, country]  
);
```

```
db.query(  
    'UPDATE addresses_main  
        SET street_address = ?, postal_code = ?, country = ?  
        WHERE street_address = ? AND postal_code = ? AND country = ?',  
    [street_address, postal_code, country, prev_street_address, prev_postal_code,  
    prev_country]  
);
```

```
db.query(  
    'SELECT EXISTS (SELECT 1 FROM addresses_1  
        WHERE postal_code = ? AND country = ?) AS pc_exists',  
    [street_address, postal_code, country]  
);
```

```
db.query(  
    'SELECT street_address, postal_code, country  
        FROM residences  
        WHERE res_name = ? AND school_name = ?',  
    [residence, school]  
);
```

Authentication

```
db.query(
'SELECT EXISTS (SELECT 1 FROM users WHERE username = ?) AS userExists`,
    [username]
)
```

```
db.query(
'SELECT password FROM users WHERE username = ?',
    [username]
);
```

```
db.query(`SELECT school_name FROM users WHERE username="${username}"`);
db.query(`SELECT name FROM users WHERE username="${username}"`);
```

Comments

```
db.query(`SELECT cid, username, content FROM comments WHERE lid=${lid}`);
db.query(`INSERT INTO comments(username, lid, content) VALUES("${username}", ${lid},
"${content}")`);
```

```
db.query(
`DELETE FROM comments WHERE cid=?`,
    [id]
);
```

Housing

```
db.query(
`SELECT
    r.res_name, r.school_name, r.street_address, r.postal_code, r.country, a1.city,
    a1.province,
    GROUP_CONCAT(c.type) AS types_list,
    GROUP_CONCAT(CONCAT(c.type, ':', c.price)) AS prices_list, r.image
FROM residences AS r
INNER JOIN addresses_1 AS a1 ON r.postal_code = a1.postal_code AND r.country
= a1.country
LEFT JOIN contains AS c ON r.res_name = c.res_name AND r.school_name =
c.school_name
WHERE r.school_name = ?
GROUP BY r.res_name, r.school_name`,
    [school]
);
```

```
db.query(
`SELECT r.res_name, r.school_name, r.street_address, r.postal_code, r.country, a1.city,
a1.province, c.type, c.price, r.image
    FROM residences r
    INNER JOIN addresses_1 a1 ON r.postal_code = a1.postal_code AND
    r.country = a1.country
    INNER JOIN contains c ON r.res_name = c.res_name AND r.school_name =
c.school_name
    WHERE r.res_name = ? AND r.school_name = ?`,
    [residence, school]
);
```

```
db.query(
`INSERT INTO residences(res_name, school_name, street_address, postal_code, country, image)
VALUES(?, ?, ?, ?, ?, ?)',
    [res_name, school, street_address, postal_code, country, filename]
);
```

```
db.query(
`INSERT INTO contains(res_name, school_name, type, price) VALUES(?, ?, ?, ?)',
    [res_name, school_name, unit, price]
);
```

```
db.query(
`UPDATE residences
    SET res_name = ?
    WHERE res_name = ? AND school_name = ?`,
    [res_name, residence, school]
);
```

```
db.query(
`DELETE FROM contains
    WHERE res_name = ?
    AND school_name = ?
    AND type NOT IN (?)`,
    [res_name, school, types]
);
```

```
db.query(
`UPDATE residences
```

```
        SET image = ?
        WHERE res_name = ?
        AND school_name = ?',
        [filename, res_name, school_name]
    );

    db.query(
    'SELECT image
      FROM residences
      WHERE res_name = ?
      AND school_name = ?',
      [res_name, school_name]
    );

    db.query(
    'SELECT EXISTS (SELECT 1 FROM contains WHERE res_name = ? AND school_name = ?
    AND type = ?) AS type_exists',
      [req.body.res_name, req.user.school, type]
    );

    db.query(
    `UPDATE contains
      SET price = ?
      WHERE res_name = ? AND school_name = ? AND type = ?`,
      [price, res_name, school, type]
    );

    db.query(
    `INSERT INTO contains (res_name, school_name, type, price)
      VALUES (?, ?, ?, ?)`,
      [res_name, school, type, price]
    );

    db.query(
    `SELECT r.res_name
      FROM residences r
      WHERE NOT EXISTS (
        SELECT u.type
        FROM unit_types u
        EXCEPT
```

```
        SELECT c.type
        FROM contains c
        WHERE c.res_name = r.res_name AND c.school_name = ?,
    [school]
);
```

```
db.query(`SELECT DISTINCT ${attributeList} FROM residences`);
    - The attribute list looks something like 'res_name, school_name'
```

```
db.query(
    `SELECT r.res_name
    FROM residences r
    WHERE NOT EXISTS (
        SELECT u.type
        FROM unit_types u
        EXCEPT
        SELECT c.type
        FROM contains c
        WHERE c.res_name = r.res_name AND c.school_name = ?
    )`,
    [school_name]
);
```

Listings

```
db.query(
    `SELECT l1.lid, l1.name, l1.price, l1.image,
        CASE
            WHEN EXISTS (SELECT * FROM sublets WHERE lid = l1.lid) THEN
'sublet'
            ELSE 'item'
        END AS type
    FROM listings l1
    INNER JOIN users ON l1.username = users.username
    WHERE school_name = ?`,
    [school]
);
```

```
db.query(
    `SELECT l.*, s.type AS unit, s.res_name, 'sublet' AS type FROM listings l
```

```
        INNER JOIN sublets s on l.lid = s.lid
        WHERE l.lid = ?',
        [id]
    );

    db.query(
        `SELECT l.*, i.quantity, 'item' AS type FROM listings l
        INNER JOIN items i on l.lid = i.lid
        WHERE l.lid = ?`,
        [id]
    );

    db.query(
        `INSERT INTO listings (name, username, price, description, image)
        VALUES(?, ?, ?, ?, ?)`,
        [name, username, price, description, filename]
    );

    db.query(
        `INSERT INTO sublets(lid, type, res_name, school_name)
        VALUES(LAST_INSERT_ID(), ?, ?, ?)`,
        [unitType, residence, school]
    );

    db.query(
        `INSERT INTO items(lid, quantity) VALUES(LAST_INSERT_ID(), ?)`,
        [quantity]
    );

    db.query(
        `UPDATE listings SET name = ?, description = ?, price = ? WHERE lid = ?`,
        [name, description, price, id]
    );

    db.query(
        `UPDATE sublets SET type = ?, res_name = ? WHERE lid = ?`,
        [type, res, id]
    );

    db.query(
```



```
'UPDATE items SET quantity = ? WHERE lid = ?',  
    [quantity, id]  
);
```

```
db.query(  
'UPDATE listings SET image = ? WHERE lid = ?',  
    [filename, id]  
);
```

```
db.query(  
'SELECT image FROM listings WHERE lid = ?',  
    [id]  
);
```

```
db.query(  
'DELETE FROM listings WHERE lid = ?',  
    [id]  
);
```

```
db.query(  
'SELECT username FROM listings WHERE lid = ?',  
    [id]  
);
```

```
db.query(  
`SELECT  
    CASE  
        WHEN EXISTS (SELECT * FROM sublets WHERE lid = ?) THEN 'sublet'  
        ELSE 'item'  
    END AS result`,  
    [id]  
);
```

Messages

```
db.query(
`SELECT conversation_partner
  FROM (
    SELECT
      CASE
        WHEN sid = ? THEN rid
        ELSE sid
      END AS conversation_partner,
      MAX(time_sent) AS max_time_sent
    FROM messages
    WHERE ? IN (sid, rid)
    GROUP BY conversation_partner
  ) AS subquery
 ORDER BY max_time_sent DESC`,
[username, username]
);
```

```
db.query(
`SELECT *, DATE_FORMAT(time_sent, '%h:%i %p') AS formatted_time_sent FROM
messages
  WHERE (sid = ? OR rid = ?) AND (sid = ? OR rid = ?)
  ORDER BY time_sent ASC`,
[username, username, receiver_username, receiver_username]
);
```

```
db.query(
`SELECT *, DATE_FORMAT(time_sent, '%h:%i %p') AS formatted_time_sent FROM
messages
  WHERE sid = ? AND rid = ?
  ORDER BY time_sent ASC`,
[username, username]
);
```

```
db.query(
`INSERT INTO messages(sid, rid, content)
  VALUES (?, ?, ?)`,
[username, receiver_username, content]
);
```

Admin

```
db.query(`SELECT DISTINCT ${attributeList} FROM listings
  WHERE username LIKE '%${req.body.username}%' AND
  name LIKE '%${req.body.name}%' AND
  description LIKE '%${req.body.description}%' AND
  price >= ${req.body.min}`
);
```

```
db.query(`SELECT DISTINCT ${attributeList} FROM users
  WHERE username LIKE '%${req.body.username}%'
  AND school_name LIKE '%${req.body.school}%'
  AND name LIKE '%${req.body.name}%'
  AND description LIKE '%${req.body.description}%'`
);
```

```
db.query(`SELECT DISTINCT ${attributeList} FROM residences
  WHERE res_name LIKE '%${req.body.resName}%' AND
  school_name LIKE '%${req.body.schoolName}%' AND
  street_address LIKE '%${req.body.streetAddress}%' AND
  postal_code LIKE '%${req.body.postalCode}%' AND
  country LIKE '%${req.body.country}%'`
);
```

Notifications

```
db.query('SELECT *
  FROM notifications
  WHERE username = ?,
  [req.user.username]
);
```

```
db.query('INSERT INTO notifications (username, content, title)
  VALUES (?, ?, ?),
  [req.body.username, req.body.content, req.body.title]
);
```

```
db.query('DELETE FROM notifications WHERE nid = ?', [notif_id]);
```

Registration

```
db.query(
'SELECT EXISTS (SELECT 1 FROM users WHERE username = ?) AS userExists',
    [username]
);
```

```
db.query(
'INSERT INTO users(username, password, name, school_name)
    VALUES (?, ?, ?, ?)',
    [username, password, name, school]
);
```

Reviews

```
db.query(
'SELECT rid, username, description, rating
    FROM reviews
    WHERE res_name=? AND school_name=?',
    [residence, school]
);
```

```
db.query(
'SELECT AVG(rating) AS overall
    FROM reviews
    WHERE res_name=? AND school_name=?',
    [residence, school]
);
```

```
db.query(
'SELECT res_name, AVG(rating) AS overall
    FROM reviews
    WHERE school_name=?
    GROUP BY res_name
    HAVING COUNT(*) > 1',
    [school]
);
```

```
db.query(
`INSERT INTO reviews(username, description, res_name, school_name, rating)
VALUES (?, ?, ?, ?, ?)`,
[username, content, residence, school, rating]
);
```

```
db.query(
`DELETE FROM reviews WHERE rid=?`,
[rid]
);
```

Schools

```
db.query(
`SELECT * FROM schools WHERE school_name LIKE "%${text}%" LIMIT 5`
);
```

```
db.query(
`SELECT u.school_name, COUNT(u.username) AS user_count
FROM users u
GROUP BY u.school_name
HAVING COUNT(u.username) >= (
SELECT AVG(user_count)
FROM (
SELECT COUNT(username) AS user_count
FROM users
GROUP BY school_name
) AS counts
)
ORDER BY user_count DESC`,
);
```

Units

```
db.query(
`SELECT * FROM unit_types`
);
```

User

```
db.query(
`SELECT school_name, description FROM users WHERE username = ?`,
[username]);
```

```
db.query(
'UPDATE users
    SET password = ?
    WHERE username = ?',
[hashedPassword, old_username]
);
```

```
db.query(
'UPDATE users
    SET description = ?
    WHERE username = ?',
[new_description, username]
);
```

```
db.query(
'UPDATE users
    SET username = ?
    WHERE username = ?',
[new_username, old_username]
);
```

```
db.query(
'DELETE FROM users WHERE username = ?',
[username]
);
```

Subletter Screenshots

Insert Operation

Insert Listing Database Before

	Q	* lid int	* username varchar(32)	description varchar(1024)	name varchar(128)	price double	image varchar(64)
	1	31	user1	This is a wonderful sublet lo	Ponderosa Summer Sublet!	900	fc73b5cfabe8136b8a82ef11
	2	32	user1	BRAND NEW PS5! ONLY US	PS5 for sale! Used once!	500	61416080b38c05d6ce3e5b0
	3	39	user1	Room with a STUNNING vie	Marine Drive Summer Suble	1200	0b97918402aef73c5d91f4e
	4	40	user1	Toyota Camry for sale! Plea	USED CAR FOR SALE!!	13000	a27214e1f6ea9980cc83280
	5	41	user1	Hello everyone! We have a	Dozens of used books for s	15	31f4003c788615c1b2ee2cf5
	6	43	user1	HI I'M LEAVING SOON NEE	Place Vanier sublet, NEED T	700	2703677fe01b7514dd7429
	7	44	user1	need to give awy this chair,	old chair for sale (herman n	350	d70a7fd5314c6741fd3425a

Insert Listing GUI

Subletter

ListingsHousingSchoolsProjectionSelection

Q Search listings

Filter Results

SUBLET

Ponderosa Summer Sublet!

\$900/month

ITEM

PS5 for sale! Used once!

\$500

AR FOR SALE!!

ITEM

Dozens of used books for sale at local...

\$15

Create Listing

Select Listing Type *

Sublet

Listing Name *

Single Connected sublet at Place Vanier!

Listing Price *

\$ 1100

Listing Details *

Sublet for a single connected room at Place Vanier
Send a message if interested!!

Residence: *

Place Vanier

Unit Type: *

Single Connected

Upload Image *

Choose File placevanier.jpg

Cancel

Add Listing

Insert Listing Database After

	Q	* lid int	* username varchar(32)	description varchar(1024)	name varchar(128)	price double	image varchar(64)
	1	31	user1	This is a wonderful sublet loca	Ponderosa Summer Sublet!	900	fc73b5cfabe8136b8a82ef11
	2	32	user1	BRAND NEW PS5! ONLY USED ONCE!	PS5 for sale! Used once!	500	61416080b38c05d6ce3e5b0
	3	39	user1	Room with a STUNNING view of the ocean	Marine Drive Summer Sublet	1200	0b97918402aef73c5d91f4e
	4	40	user1	Toyota Camry for sale! Please call me!	USED CAR FOR SALE!!	13000	a27214e1f6ea9980cc83280
	5	41	user1	Hello everyone! We have a great selection of books for sale	Dozens of used books for sale	15	31f4003c788615c1b2ee2cf5
	6	43	user1	HI I'M LEAVING SOON NEED TO GIVE AWAY SOME THINGS	Place Vanier sublet, NEED TO MOVE OUT	700	2703677fe01b7514dd74297
	7	44	user1	need to give away this chair, please take it!	old chair for sale (herman nelson)	350	d70a7fd5314c6741fd3425a
	8	47	user1	Sublet for a single connected room in a nice house	Single Connected sublet at Ponderosa	1100	b4e4bee11e4822aa010f18a

Delete Operation

Delete User Database Before

		* username varchar(32)	password binary(60)	* name varchar(32)	* school_name varchar(128)	description varchar(1600)
	1	abc	\$2b\$10\$S53WEEDRfQR9w	abc	University of British Columk	ajslkdfjasldkfjasldkjfasdf
	2	Andy	Andy	Andy	University of British Columk	Write your description...
	3	Bob	Bob	Bob	University of Calgary	Write your description...
	4	bobbypatuc	\$2b\$10\$IYI9hAMNQr3yqL	Bobby Poppy	University of Calgary	Write your description...
	5	hg_uw	\$2b\$10\$qwzdLtC.pKYtDHM	Harold Gunderson	University of Waterloo	Write your description...
	6	Imaad	Imaad	Imaad	University of British Columk	Write your description...
	7	Jason	Jason	Jason	University of Waterloo	Write your description...
	8	johnny2	\$2b\$10\$W5YgKmb1IX92sN	johnny	University of Calgary	Write your description...
	9	Karen	Karen	Karen	University of Illinois Urbana	Write your description...
	10	Ronald	Ronald	Ronald	University of Toronto	Write your description...
	11	vinfer	\$2b\$10\$6MT23CEaCTYoun	Bob Merley	University of Illinois Urbana	Write your description...

Delete User Listing Before

	Q	* lid int	* username varchar(32)	description varchar(1024)	name varchar(128)	price double	image varchar(64)
	1	31	user1	This is a wonderful sublet loc	Ponderosa Summer Sublet!	900	fc73b5cfabe8136b8a82ef11
	2	32	user1	BRAND NEW PS5! ONLY US	PS5 for sale! Used once!	500	61416080b38c05d6ce3e5bc
	3	39	user1	Room with a STUNNING vie	Marine Drive Summer Suble	1200	0b97918402aef73c5d91f4e
	4	40	user1	Toyota Camry for sale! Plea	USED CAR FOR SALE!!	13000	a27214e1f6ea9980cc83280
	5	41	user1	Hello everyone! We have a	Dozens of used books for s	15	31f4003c788615c1b2ee2cf5
	6	43	user1	HI I'M LEAVING SOON NEE	Place Vanier sublet, NEED T	700	2703677fe01b7514dd7429
	7	44	user1	need to give awy this chair,	old chair for sale (herman n	350	d70a7fd5314c6741fd3425a
	8	47	user1	Sublet for a single connecte	Single Connected sublet at	1100	b4e4bee11e4822aa010f18a
	9	48	abc	Never used before steel wa	Brand new water bottle	40	7798129f0fb6faf7af8ca6c7c

Delete User Message Database Before

		* sid varchar(32)	* rid varchar(32)	* mid varchar(36)	time_sent timestamp	content varchar(512)
	1	abc	user1	276d45eb-34c8-11ee-a5d2	2023-08-06 19:14:35	bruh
	2	abc	user1	2d11616f-34d5-11ee-a5d2	2023-08-06 20:47:48	super long string fj f f f f fff
	3	abc	user1	4441f26a-34c8-11ee-a5d2	2023-08-06 19:15:23	hey whats up
	4	abc	user1	491a3513-325b-11ee-a5d2	2023-08-03 17:10:14	is this still available?
	5	abc	user1	4c7efab7-325b-11ee-a5d2	2023-08-03 17:10:20	bruh
	6	abc	user1	4d056587-325b-11ee-a5d2	2023-08-03 17:10:21	sheesh
	7	abc	user1	4d7b09b8-325b-11ee-a5d2	2023-08-03 17:10:21	dang
	8	abc	user1	4e30ec49-325b-11ee-a5d2	2023-08-03 17:10:23	thats sick
	9	abc	user1	4e9d8f3c-325b-11ee-a5d2	2023-08-03 17:10:23	wow
	10	abc	user1	4f00976b-325b-11ee-a5d2	2023-08-03 17:10:24	f
	11	abc	user1	4f2cc56f-325b-11ee-a5d2	2023-08-03 17:10:24	o

Delete User GUI

Subletter

Listings

Housing

Schools

Projection

Selection



Profile



University of British Columbia

abc

Description

ajslkdjfasldkjfasldkjfasdf

Are you sure you want to delete your account? ×

Yes

No

Edit Details

Logout

Delete Account

Delete User Database After

		* username varchar(32)	password binary(60)	* name varchar(32)	* school_name varchar(128)	description varchar(1600)
	1	Andy	Andy	Andy	University of British Columbia	Write your description...
	2	Bob	Bob	Bob	University of Calgary	Write your description...
	3	bobbypatuc	\$2b\$10\$IYl9hAMNQur3yqL	Bobby Poppy	University of Calgary	Write your description...
	4	hg_uw	\$2b\$10\$qwzdLtC.pKYtDHM	Harold Gunderson	University of Waterloo	Write your description...
	5	Imaad	Imaad	Imaad	University of British Columbia	Write your description...
	6	Jason	Jason	Jason	University of Waterloo	Write your description...
	7	johnny2	\$2b\$10\$W5YgKmb1IX92sN	johnny	University of Calgary	Write your description...
	8	Karen	Karen	Karen	University of Illinois Urbana	Write your description...
	9	Ronald	Ronald	Ronald	University of Toronto	Write your description...
	10	uiucfan	\$2b\$10\$6MT33C5eCTXawp	Bob Marley	University of Illinois Urbana	Write your description...

Delete User Listing After

	Q	* lid int	* username varchar(32)	description varchar(1024)	name varchar(128)	price double	image varchar(64)
	1	31	user1	This is a wonderful sublet for	Ponderosa Summer Sublet!	900	fc73b5cfabe8136b8a82ef11
	2	32	user1	BRAND NEW PS5! ONLY USED	PS5 for sale! Used once!	500	61416080b38c05d6ce3e5b0
	3	39	user1	Room with a STUNNING view	Marine Drive Summer Suble	1200	0b97918402aef73c5d91f4e
	4	40	user1	Toyota Camry for sale! Please	USED CAR FOR SALE!!	13000	a27214e1f6ea9980cc83280
	5	41	user1	Hello everyone! We have a	Dozens of used books for s	15	31f4003c788615c1b2ee2cf5
	6	43	user1	HI I'M LEAVING SOON NEED	Place Vanier sublet, NEED T	700	2703677fe01b7514dd7429
	7	44	user1	need to give awy this chair,	old chair for sale (herman n	350	d70a7fd5314c6741fd3425a
	8	47	user1	Sublet for a single connecte	Single Connected sublet at	1100	b4e4bee11e4822aa010f18a

Delete User Message Database After

		* sid varchar(32)	* rid varchar(32)	* mid varchar(36)	time_sent timestamp	content varchar(512)
	1	Andy	Ronald	d651b4b2-2cbe-11ee-bef0	2023-07-27 13:47:44	Sheesh
	2	Bob	Karen	d651b754-2cbe-11ee-bef0	2023-07-27 13:47:44	Well I do not care
	3	hg_uw	Jason	4aa3c128-31c5-11ee-bde6	2023-08-02 23:16:32	hey jason i really want this
	4	Imaad	user1	00a82055-30d7-11ee-bde6	2023-08-01 18:50:48	Hey I am imaad
	5	Imaad	Yu Cheng	d651afe1-2cbe-11ee-bef0	2023-07-27 13:47:44	I want McDonalds
	6	Jason	Yu Cheng	d651b842-2cbe-11ee-bef0	2023-07-27 13:47:44	I am not going to clean the
	7	Karen	Bob	d651b665-2cbe-11ee-bef0	2023-07-27 13:47:44	I have a problem with you f
	8	user1	Imaad	5c167462-3101-11ee-bde6	2023-08-01 23:54:00	test
	9	user1	Imaad	84a4177b-30e1-11ee-bde6	2023-08-01 20:06:04	oh hi imaad
	10	user1	Imaad	bab47815-30ef-11ee-bde6	2023-08-01 21:47:48	Hi
	11	user1	Imaad	d651d542-3102-11ee-bde6	2023-08-02 00:04:44	hey imaad

Update Operation

Update User Database Before

		* username varchar(32)	password binary(60)	* name varchar(32)	* school_name varchar(128)	description varchar(1600)
	1	Andy	Andy	Andy	University of British Columbia	Write your description...
	2	Bob	Bob	Bob	University of Calgary	Write your description...
	3	bobbypatuc	\$2b\$10\$YI9hAMNQr3yqL	Bobby Poppy	University of Calgary	Write your description...
	4	hg_uw	\$2b\$10\$qwzdLtC.pKYtDHV	Harold Gunderson	University of Waterloo	Write your description...
	5	Imaad	Imaad	Imaad	University of British Columbia	Write your description...
	6	Jason	Jason	Jason	University of Waterloo	Write your description...
	7	johnny2	\$2b\$10\$W5YgKmb1IX92sN	johnny	University of Calgary	Write your description...
	8	Karen	Karen	Karen	University of Illinois Urbana	Write your description...
	9	Ronald	Ronald	Ronald	University of Toronto	Write your description...
	10	uiucfan	\$2b\$10\$6MT33C5eCTXawp	Bob Marley	University of Illinois Urbana	Write your description...
	11	user1	\$2b\$10\$NV1FJW.fOELT15EI	Test User	University of British Columbia	I am the default user, this a
	12	user12345	\$2b\$10\$pLY3gfE3KCo8e7Xf	user12345	University of British Columbia	Write your description...
	13	user45	\$2b\$10\$2SoV9wFBBiLiGI44	User2	University of British Columbia	Testing again I am testing
	14	user478	\$2b\$10\$Jlw2KMz2KGyPZ/e	user478	University of Toronto	Write your description...
	15	user5	\$2b\$10\$2SrzbUmhNs2ReoV	Luke	University of Waterloo	I love Waterloo!
	16	user56	\$2b\$10\$iht20IzalySjXbVWA	user56	University of British Columbia	Write your description...
	17	user89	\$2b\$10\$dnsst6ege8WBwJ3	user89	University of Calgary	Write your description...
	18	Yu Cheng	Yu Cheng	Yu Cheng	University of British Columbia	Write your description...

Update User Database Gui

Subletter

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Profile



University of Waterloo

user5

Description

I love Waterloo!

Edit Details



Username *

changeuser123

New Password *

...

You must input a password

Re-Enter New Password *

...

Description

Waterloo is overrated

Submit

Update User Database After

		* username varchar(32)	password binary(60)	* name varchar(32)	* school_name varchar(128)	description varchar(1600)
	1	Andy	Andy	Andy	University of British Columbia	Write your description...
	2	Bob	Bob	Bob	University of Calgary	Write your description...
	3	bobbypatuc	\$2b\$10\$IYI9hAMNQur3yqL	Bobby Poppy	University of Calgary	Write your description...
	4	changeuser123	\$2b\$10\$vT4qQnCU6JSDMj	Luke	University of Waterloo	Waterloo is overrated
	5	hg_uw	\$2b\$10\$qwzdLtC.pKYtDHM	Harold Gunderson	University of Waterloo	Write your description...
	6	Imaad	Imaad	Imaad	University of British Columbia	Write your description...
	7	Jason	Jason	Jason	University of Waterloo	Write your description...
	8	johnny2	\$2b\$10\$W5YgKmb1IX92sN	johnny	University of Calgary	Write your description...
	9	Karen	Karen	Karen	University of Illinois Urbana	Write your description...
	10	Ronald	Ronald	Ronald	University of Toronto	Write your description...
	11	uiucfan	\$2b\$10\$6MT33C5eCTXawp	Bob Marley	University of Illinois Urbana	Write your description...
	12	user1	\$2b\$10\$NV1FJW.fOELT15E	Test User	University of British Columbia	I am the default user, this a
	13	user12345	\$2b\$10\$pLY3gfE3KCo8e7Xf	user12345	University of British Columbia	Write your description...
	14	user45	\$2b\$10\$2SoV9wFBBiLiGI44	User2	University of British Columbia	Testing again I am testing
	15	user478	\$2b\$10\$JW2KMz2KGyPZ/e	user478	University of Toronto	Write your description...
	16	user56	\$2b\$10\$iht20lzalySjXbVWA	user56	University of British Columbia	Write your description...
	17	user89	\$2b\$10\$dnsst6ege8WBwJ3	user89	University of Calgary	Write your description...
	18	Yu Cheng	Yu Cheng	Yu Cheng	University of British Columbia	Write your description...

Selection

Selection Database Residence

	Q	* res_name varchar(128)	* school_name varchar(128)	* street_address varchar(128)	* postal_code varchar(16)	country varchar(12)	image varchar(64)
<input type="checkbox"/>	1	Brock Commons	University of British Columbia	6088 Walter Gage Rd	V6T 0B4	Canada	8201570ad68acc193e66bb2
<input type="checkbox"/>	2	Exchange Student Residence	University of British Columbia	5960 Student Union Blvd	V6T 1Z1	Canada	a1a712e4b62114cac2d39e6
<input type="checkbox"/>	3	Hopkins Hall	University of Illinois Urbana	2205 East St	60404	USA	20418c567d3ff6da149b47d
<input type="checkbox"/>	4	Marine Drive Residence	University of British Columbia	2205 Lower Mall	V6T 1Z4	Canada	d856ac5e9ebca90d7a76ba8
<input type="checkbox"/>	5	Nugent Hall	University of Illinois Urbana	2205 West St	60404	USA	d6111efe09138d7e2403f98
<input type="checkbox"/>	6	Orchard Commons	University of British Columbia	6363 Agronomy Rd	V6T 1Z4	Canada	11f19ce6aadf49dd5febde4
<input type="checkbox"/>	7	Place Vanier	University of British Columbia	1935 Lower Mall	V6T 1X1	Canada	cb14c9eb4dc4734a6796d8e
<input type="checkbox"/>	8	Ponderosa Commons	University of British Columbia	2075 West Mall	V6T 1Z2	Canada	d48a6dca827c7aef1e2d96d
<input type="checkbox"/>	9	Totem Park	University of British Columbia	2205 Lower Mall	V6T 0B4	Canada	861dd3eec4ff7ea525d41f85
<input type="checkbox"/>	10	Wassaja Hall	University of Illinois Urbana	1102 Hamilton St	60404	USA	ef8596bb0ced03dc8942f2c

Selection Database UBC Residence

Select your tables and conditions!

residences

Residences

☒

resName

☒

University of British Columbia

☒

streetAddress

☒

postalCode

☒

country

Query Me!

Residence Name: Place Vanier
School Name: University of British Columbia
Street Address: 1935 Lower Mall
Postal Code: V6T 1X1
Country: Canada

Residence Name: Ponderosa Commons
School Name: University of British Columbia
Street Address: 2075 West Mall
Postal Code: V6T 1Z2
Country: Canada

Residence Name: Totem Park
School Name: University of British Columbia
Street Address: 2205 Lower Mall
Postal Code: V6T 0B4
Country: Canada

Residence Name: Marine Drive Residence
School Name: University of British Columbia

Selection Database UI

Select your tables and conditions!

residences



Residences



resName



University of Illinois Urbana-Champaign



streetAddress



postalCode



country

Query Me!

Residence Name: Wassaja Hall
School Name: University of Illinois Urbana-Champaign
Street Address: 1102 Hamilton St
Postal Code: 60404
Country: USA

Residence Name: Hopkins Hall
School Name: University of Illinois Urbana-Champaign
Street Address: 2205 East St
Postal Code: 60404
Country: USA

Residence Name: Nugent Hall
School Name: University of Illinois Urbana-Champaign
Street Address: 2205 West St
Postal Code: 60404
Country: USA

Projection

Projection Residence Database

	Q	* res_name varchar(128)	* school_name varchar(128)	* street_address varchar(128)	* postal_code varchar(16)	country varchar(12)	image varchar(64)
	1	Brock Commons	University of British Columbia	6088 Walter Gage Rd	V6T 0B4	Canada	8201570ad68acc193e66bb2
	2	Exchange Student Residence	University of British Columbia	5960 Student Union Blvd	V6T 1Z1	Canada	a1a712e4b62114cac2d39e8
	3	Hopkins Hall	University of Illinois Urbana	2205 East St	60404	USA	20418c567d3ff6da149b47d
	4	Marine Drive Residence	University of British Columbia	2205 Lower Mall	V6T 1Z4	Canada	d856ac5e9ebca90d7a76ba8
	5	Nugent Hall	University of Illinois Urbana	2205 West St	60404	USA	d6111efe09138d7e2403f98
	6	Orchard Commons	University of British Columbia	6363 Agronomy Rd	V6T 1Z4	Canada	11f19ce6aadf49dd5febde4
	7	Place Vanier	University of British Columbia	1935 Lower Mall	V6T 1X1	Canada	cb14c9eb4dc4734a6796d8f
	8	Ponderosa Commons	University of British Columbia	2075 West Mall	V6T 1Z2	Canada	d48a6dca827c7aef1e2d96d
	9	Totem Park	University of British Columbia	2205 Lower Mall	V6T 0B4	Canada	861dd3eec4ff7ea525d41f85
	10	Wassaja Hall	University of Illinois Urbana	1102 Hamilton St	60404	USA	ef8596bb0ced03dc8942f2c

Projection Database GUI

Subletter

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Profile

Select Attributes

☒ res_name ☒ school_name ☒ street_address ☐ postal_code ☐ country

Get Results!

Results:

res_name: Wassaja Hall
school_name: University of Illinois Urbana-Champaign
street_address: 1102 Hamilton St

res_name: Place Vanier
school_name: University of British Columbia
street_address: 1935 Lower Mall

res_name: Ponderosa Commons
school_name: University of British Columbia
street_address: 2075 West Mall

res_name: Hopkins Hall
school_name: University of Illinois Urbana-Champaign
street_address: 2205 East St

res_name: Totem Park
school_name: University of British Columbia
street_address: 2205 Lower Mall

res_name: Marine Drive Residence
school_name: University of British Columbia
street_address: 2205 Lower Mall

Join

Join Listing UBC Database

SELECT *,

CASE

WHEN EXISTS (SELECT * FROM sublets WHERE lid = l1.lid) THEN 'sublet'

ELSE 'item'

END AS type

FROM listings l1

INNER JOIN users ON l1.username = users.username

WHERE school_name = "University of British Columbia" LIMIT 0,100

🔒

🔍

Search results

📄

⚙️

Free

📧

1

🔄

+

+

🗑️

🔇

🗨️

⬆️

⬇️

▶️

Cost: 12ms < 1 > Total 8

✓	🔍	lid int	username varchar	description varchar	name varchar	price double	image varchar	username varchar	password string	name varchar	school_name varchar	description varchar	type varchar
	1	31	user1	This is a wonder	Ponderosa S	900	fc73b5cfabe	user1	\$2b\$10\$NV1	Test User	University of Bri	I am the default	sublet
	2	32	user1	BRAND NEW PS	PSS for sale!	500	61416080b3i	user1	\$2b\$10\$NV1	Test User	University of Bri	I am the default	item
	3	39	user1	Room with a ST	Marine Drive	1200	0b97918402i	user1	\$2b\$10\$NV1	Test User	University of Bri	I am the default	sublet
	4	40	user1	Toyota Camry fo	USED CAR FO	13000	a27214e1f6e	user1	\$2b\$10\$NV1	Test User	University of Bri	I am the default	item
	5	41	user1	Hello everyone!	Dozens of us	15	31f4003c788	user1	\$2b\$10\$NV1	Test User	University of Bri	I am the default	item
	6	43	user1	HI I'M LEAVING	Place Vanier	700	2703677fe01	user1	\$2b\$10\$NV1	Test User	University of Bri	I am the default	sublet
	7	44	user1	need to give aw	old chair for	350	d70a7fd5314	user1	\$2b\$10\$NV1	Test User	University of Bri	I am the default	item
	8	47	user1	Sublet for a sing	Single Conne	1100	b4e4bee11e	user1	\$2b\$10\$NV1	Test User	University of Bri	I am the default	sublet

Join Listing UBC GUI

Subletter

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Profile

Q Search listings

\$ Min

\$ Max

Filter Results

University of British Columbia



SUBLET

Ponderosa Summer Sublet!
\$900/month



ITEM

PS5 for sale! Used once!
\$500



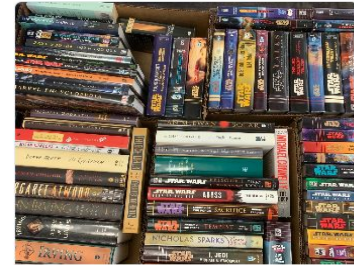
SUBLET

Marine Drive Summer Sublet
\$1200/month



ITEM

USED CAR FOR SALE!!
\$13000



ITEM

Dozens of used books for sale at local...
\$15



+ Add Listing

Join Listing UI GUI

Subletter

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Profile

Search listings

\$ Min

\$ Max

Filter Results

University of Illinois Urbana-Champaign



ITEM

Cheeseburger

\$14

+ Add Listing

Aggregation with Group By

GroupBy Aggregation Database

```
SELECT
    r.res_name,
    r.school_name,
    r.street_address,
    r.postal_code,
    r.country,
    a1.city,
    a1.province,
    GROUP_CONCAT(c.type) AS types_list,
    GROUP_CONCAT(CONCAT(c.type, ':', c.price)) AS prices_list,
    r.image
FROM
```

		res_name varchar	school_name varchar	street_address varchar	postal_code varchar	country varchar	city varchar	province varchar	types_list long_blob	prices_list long_blob	image varchar
	1	Brock Commons	University of British Columbia	6088 Walter Gage Rd	V6T 0B4	Canada	Vancouver	British Columbia	One Bedroom,Shared Room	One Bedroom:1000,Shared Room:1000	8201570ad68acc
	2	Exchange Student Residence	University of British Columbia	5960 Student Union Blvd	V6T 1Z1	Canada	Vancouver	British Columbia	Four Bedroom,One Bedroom	Four Bedroom:1000,One Bedroom:1000	a1a712e4b62114
	3	Marine Drive Residence	University of British Columbia	2205 Lower Mall	V6T 1Z4	Canada	Vancouver	British Columbia	Four Bedroom,Studio	Four Bedroom:1100,Studio:1000	d856ac5e9ebca9
	4	Orchard Commons	University of British Columbia	6363 Agronomy Rd	V6T 1Z4	Canada	Vancouver	British Columbia	One Bedroom,Shared Room	One Bedroom:900,Shared Room:1000	11f19ce6aadf49c
	5	Place Vanier	University of British Columbia	1935 Lower Mall	V6T 1X1	Canada	Vancouver	British Columbia	Single Connected,Studio	Single Connected:1100,Studio:1000	cb14c9eb4dc473
	6	Ponderosa Commons	University of British Columbia	2075 West Mall	V6T 1Z2	Canada	Vancouver	British Columbia	Four Bedroom,Shared Room	Four Bedroom:1050,Shared Room:1000	d48a6dca827c7a
	7	Totem Park	University of British Columbia	2205 Lower Mall	V6T 0B4	Canada	Vancouver	British Columbia	Studio	Studio:1200	861dd3eec4ff7e

GroupBy Aggregation GUI

Subletter

Listings

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Profile

Housing Information

See the most versatile residences!

Hit me!



Brock Commons

★★★★★

6088 Walter Gage Rd, Vancouver, British Columbia V6T 0B4

\$1000 - \$1200/month



One Bedroom Suite >



Shared Room >



Connected Single Room >



Six Bedroom Suite >



Studio Suite >



Townhouse >



Two Bedroom Suite >



Exchange Student Residence

★★★★★

5960 Student Union Blvd, Vancouver, British Columbia V6T 1Z1

\$950 - \$1600/month



Four Bedroom Suite >



One Bedroom Suite >



Shared Room >



Connected Single Room >



Six Bedroom Suite >



Studio Suite >



Townhouse >




Two Bedroom Suite >



+ Add Residence

Aggregation with Having

Having Aggregation for Residence review stars



Brock Commons

★★★★★

6088 Walter Gage Rd, Vancouver, British Columbia V6T 0B4

\$1000 - \$1200/month

One Bedroom Suite ›

Shared Room ›

Connected Single Room ›

Six Bedroom Suite ›

Studio Suite ›

Townhouse ›

Two Bedroom Suite ›



Exchange Student Residence

★★★★★

5960 Student Union Blvd, Vancouver, British Columbia V6T 1Z1

\$950 - \$1600/month

Four Bedroom Suite ›

One Bedroom Suite ›

Shared Room ›

Connected Single Room ›

Six Bedroom Suite ›

Studio Suite ›

Townhouse ›

Two Bedroom Suite ›

Having Aggregation for Brock Residence Review

\$1000 / month

Reviews

Brock

Add a review...

user1



it's aight

Delete

Having Aggregation for Exchange Residence Review

\$1300 / month

Reviews

Add a review...

user1



not bad at all if i do say so myself

Delete

user1



truly not bad at all fr

Delete

Exchange

Nested Aggregation with Group By

Nested Aggregation Database

```
SELECT u.school_name, COUNT(u.username) AS user_count
FROM users u
GROUP BY u.school_name
HAVING COUNT(u.username) >= (
    SELECT AVG(user_count)
    FROM (
        SELECT COUNT(username) AS user_count
        FROM users
        GROUP BY school_name
    ) AS counts
)
ORDER BY user_count DESC LIMIT 100
```

Search results

Free 1

Cost: 4ms < 1 > Total 2

	school_name varchar	user_count bigint
1	University of British Columbia	7
2	University of Calgary	4

Nested Aggregation GUI

Subletter

Listings

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Profile

Top Schools by User Count

University of British Columbia 7

University of Calgary 4

Division

Division Residence Database Before

	Q	* res_name varchar(128)	* school_name varchar(128)	* type varchar(128)	price double
	1	Brock Commons	University of British Colum	Four Bedroom	2000
	2	Brock Commons	University of British Colum	One Bedroom	1000
	3	Brock Commons	University of British Colum	Shared Room	1000
	4	Brock Commons	University of British Colum	Single Connected	1000
	5	Brock Commons	University of British Colum	Six Bedroom	1000
	6	Brock Commons	University of British Colum	Studio	1200
	7	Brock Commons	University of British Colum	Townhouse	1000
	8	Brock Commons	University of British Colum	Two Bedroom	1000
	9	Exchange Student Residenc	University of British Colum	Four Bedroom	1000
	10	Exchange Student Residenc	University of British Colum	One Bedroom	1600
	11	Exchange Student Residenc	University of British Colum	Shared Room	1000
	12	Exchange Student Residenc	University of British Colum	Single Connected	1000
	13	Exchange Student Residenc	University of British Colum	Six Bedroom	950
	14	Exchange Student Residenc	University of British Colum	Studio	1300
	15	Exchange Student Residenc	University of British Colum	Townhouse	1000
	16	Exchange Student Residenc	University of British Colum	Two Bedroom	1300
	17	Hopkins Hall	University of Illinois Urbana	One Bedroom	200
	18	Hopkins Hall	University of Illinois Urbana	Single Connected	196
	19	Marine Drive Residence	University of British Colum	Four Bedroom	1100
	20	Marine Drive Residence	University of British Colum	Studio	1200
	21	Nugent Hall	University of Illinois Urbana	Shared Room	1200
	22	Orchard Commons	University of British Colum	One Bedroom	900
	23	Orchard Commons	University of British Colum	Shared Room	650
	24	Orchard Commons	University of British Colum	Studio	1200
	25	Place Vanier	University of British Colum	Single Connected	1100

Division Residence GUI

Subletter

Listings

Housing

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Profile

Housing Information

Most Versatile Residences:

✓ Brock Commons

✓ Exchange Student Residence

Close



Brock Commons

\$1000 - \$2000/month

★★★★★

6088 Walter Gage Rd, Vancouver, British Columbia V6T 0B4



Four Bedroom
Suite ›



One Bedroom
Suite ›



Shared Room ›



Connected
Single Room ›



Six Bedroom
Suite ›



Studio Suite ›



Townhouse ›



Two Bedroom
Suite ›



Exchange Student Residence

\$950 - \$1600/month

★★★★★

5960 Student Union Blvd, Vancouver, British Columbia V6T 1Z1



Four Bedroom



One Bedroom



Shared Room ›



Connected



Six Bedroom



Studio Suite ›



Townhouse ›



Two Bedroom



+ Add Residence

Division Residence Database After

```
SELECT r.res_name
FROM residences r
WHERE NOT EXISTS (
  SELECT u.type
  FROM unit_types u
  EXCEPT
  SELECT c.type
  FROM contains c
  WHERE c.res_name = r.res_name AND c.school_name = "University of British Columbia"
)
```

Search results

Free 1

Cost: 5ms < 1 > Total 2

	res_name
1	Brock Commons
2	Exchange Student Residence