

CPSC 304 Project Cover Page

Milestone #: 4

Date: Apr.5,2024

Group Number: 26

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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.)

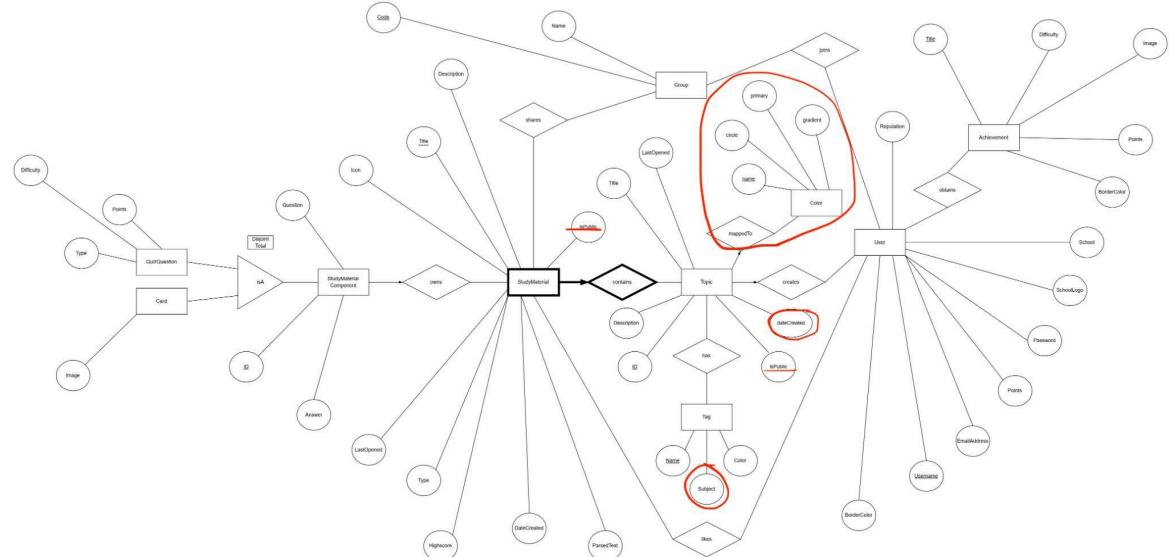
In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

1. Cover page

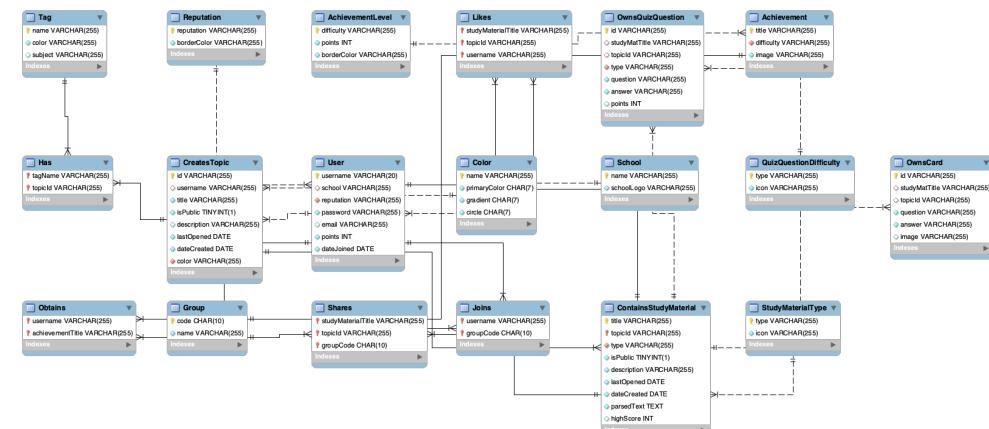
2. init.sql

3. This pdf

- a. We created a study app that allows users to create topics and study materials. These materials can be shared with other users in groups which can be found on the explore page. The admin also has full access to the data in the app to monitor usage. There are also sorting and filtering functions for displayed topics and study materials.
- b. (This is exactly what was sent in the email so you've already approved this)
 - Added Color entity, which is one to many between Color and Topic. Color has 4 entities, name(string, PK), primary(char[7]), gradient(char[7]), circle(char[7]). Color stores info for the color scheme that we will use on the frontend for each topic, and primary, gradient, and circle are all hex codes.
 - added subject field (string) to tag: we wanted a feature where you can sort materials by subject
 - added dateCreated(Date) to Topic: we wanted to display the date created on the settings page because it looks nice
 - change privacyInfo on both Topic and Studymaterial to isPublic(boolean): since the only two states are public or private, it made more sense to use a boolean rather than a string which is what we had before



c. Schemas and tables



Achievement(title, difficulty, image)

	title	difficulty	image
▶	First Flash Card Set!	Easy	https://t.ly/FvkQU
	First Quiz!	Easy	https://t.ly/FvkQT
	First Topic!	Easy	https://t.ly/FvkQO
	Learned Everything	Impossible	https://t.ly/FvkQK
	You Are the Best!	Impossible	https://t.ly/FvkQI
*	NULL	NULL	NULL

achievement 4 × achievementLevel 5 color 6 contain

AchievementLevel(difficulty, points, borderColor)

	difficulty	points	borderColor
▶	easy	5	green
	Hard	20	red
	Impossible	1000000	black
	medium	12	yellow
	Very Hard	50	Blue
	very very hard	40	dark red
*	NULL	NULL	NULL

achievement 4 achievementLevel 5 color 6

Color(name, primaryColor, gradient, circle)

	name	primaryColor	gradient	circle
▶	blue	#22B0D2	#1455CE	#1455CE
	default	#5F2EB3	#29144D	#3D1E73
	green	#9D2EB3	#29140D	#3A1E73
	pink	#F5878D	#B9568C	#B9568C
	purple	#5F2EB3	#29144D	#3D1E73
	red	#5F77B3	#29784D	#3D1903
*	NULL	NULL	NULL	NULL

achievement 4 achievementLevel 5 color 6

ContainsStudyMaterial(title, topicId, type, isPublic, description, lastOpened, dateCreated, parsedText, highScore)

	title	topicId	type	isPublic	description	lastOpened	dateCreated	parsedText	highScore
▶	1	2	Notes	0	Description	2006-01-20	1999-12-31	what am I doing	26
	2	5	Flashcards	0	Description	1078-09-20	0998-06-13	spacessss spacessss	20
	3	6	Notes	0	Description	3057-02-09	0000-12-25	lots of words here word word word word word	7
	4	7	Quiz	0	Description	2004-12-30	1969-04-20	dummy dumbo	32
	7_timetables	times_tables	Quiz	1	SUPER HARD	2024-03-01	2024-03-01	ghi	0
	Big missile	nuclear_codes	Quiz	0	I need to pass or else our missiles will go off	2024-03-01	1999-12-31	mno	1
	Difficult Harmonic Motion	2	Flashcards	1	Description	1999-02-12	1945-08-27	c D E f g h i k	99

containsStudyMaterial 7 × createsTopic 8 group 9 has 10 joins 11 likes 12 obtains 13 ownsCard 14 ownsQuizQuestion 15 quizQuestionDifficulty 16 reputation 17 Apply

CreatesTopic(id, username, title, isPublic, description, lastOpened, dateCreated, color)

	id	username	title	isPublic	description	lastOpened	dateCreated	color
▶	1	test	Phys901	1	Random fake description very fake pretend this...	1997-06-24	1995-03-01	blue
	2	test	Chem123	0	idk what to write here bro	1998-06-24	1967-07-18	green
	3	test	Math049	0	Man my neck hurts	1997-08-24	1994-03-30	red
	4	test	Cpsc304	1	blah blah blah blah blah blah ahhhhhhhhh	1297-06-24	1241-11-23	blue
	5	test	Hello World	0	someone save me im not creative enough to co...	1957-06-24	1095-03-02	green
	6	test	How to swim	0	description here	1993-06-24	1712-10-14	red
	7	test	Bible studies	1	description here 2	1237-06-24	1095-12-01	blue
	Calculus 9	smug_person	Calculus 9	1	Secrets of the Universe	2021-12-25	2021-12-24	blue

createsTopic 8 × group 9 has 10 joins 11 likes 12 obtains 13 ownsCard 14 ownsQuizQuestion 15 quizQuestionDifficulty 16 reputation 17 Apply

Group(code, name)

Result Grid		Filter Rows:
code	name	
1	cool_kidz	
2	even_cooler_kidzz	
3	pokemon fans	
4	UBC CS	
5	DO NOT JOIN	
7	testg	
*	HULL	HULL

group 9 × has 10 joins 11

Has(tagName, topicId)

Result Grid		Filter Row
tagName	topicId	
Physics	1	
Waves	1	
Biology	2	
Chemistry	2	
Math	3	
Chemistry	5	
Finance	5	
Students	5	

has 10 × joins 11 likes 12

Joins(username, groupCode)

Result Grid		Filter Rows:
username	groupCode	
i_am_a_beginner	1	
smug_person	1	
smug_person	2	
ditto07	3	
smug_person	5	
ditto07	7	
test	7	
*	HULL	HULL

joins 11 × likes 12 obtains 13

Likes(studyMaterialTitle, topicId, username)

Result Grid			Filter Rows:	Edit: Export/Import:
studyMaterialTitle	topicId	username		
1	2	test		
1	2	test2		
1	2	test5		
2	5	test		
2	5	test4		
3	6	test		
3	6	test4		
4	7	test		

likes 12 × obtains 13 ownsCard 14 ownsQuizQuestion 15 quizQuestionDiff

Obtains(username, achievementTitle)

Result Grid		Filter Rows:
username	achievementTitle	
i_am_a_beginner	First Flash Card Set!	
i_am_a_beginner	First Quiz!	
i_am_a_beginner	First Topic!	
hacker101	Learned Everything	
smug_person	You Are the Best!	
*	HULL	HULL

obtains 13 × ownsCard 14 ownsQuizQuestion 15

OwnsCard(id, studyMatTitle, topicId, question, answer, image)

	id	studyMatTitle	topicId	question	answer	image
▶	1	Simple Harmonic Motion	2	What is a standing wave?	a wave that stands	image1
10	Simple Harmonic Motion	2	Which string has a shorter frequency?	string 1	image10	
11	2	5	What is the signature move of Toxapex?	Baneful Bunker	image11	
12	waterTypes	gen6pokemon	emo ninja	Greninja	https://t.ly/2ir2uqj2a	
13	waterTypes	gen6pokemon	gun for arm	Clawitzer	https://t.ly/2ir2uqkwr2a	
14	steelTypes	gen6pokemon	double swords	Doublade	https://t.ly/2ir2uq819j	
15	steelTypes	gen6pokemon	keys	Klefki	https://t.ly/q2a	
16	Quantum Computing Quadruple Integral Wave ...	Calculus 9	Riemann Hypothesis?	true	https://t.ly/2ir2u91hjq2a	

OwnsQuizQuestion(id, studyMatTitle, topicId, type, question, answer, points)

	id	studyMatTitle	topicId	type	question	answer	points
▶	1	Standing Waves	1	MCQ	What is a standing wave?	a wave that stands	10
10	Standing Waves	1	MCQ	Which string has a shorter frequency?	string 1	20	
11	4	7	MCQ	What is the signature move of Toxapex?	Baneful Bunker	1000	
12	7_timeTables	times_tables	easy	1	7	0	
13	7_timeTables	times_tables	medium	4	28	0	
14	7_timeTables	times_tables	hard	7	49	0	
15	Big missile	nuclear_codes	impossible	Neo-Armstrong Missile	8thusv17qUI1#H21	1	
16	Big missile	nuclear_codes	impossible	doom	ALwqkngNW(!&%*(@32	1	

QuizQuestionDifficulty(type, icon)

	type	icon
▶	easy	https://t.ly/2ir2uq r2a1s
	hard	https://t.ly/2ir2ukqq r2a1s
	impossible	https://t.ly/2ir1s
	MCQ	1
	medium	https://t.ly/2r2a1s
	Short Answer	2
	very hard	https://t.ly/2921q r2a1s
*	NULL	NULL

Reputation(reputation, borderColor)

	reputation	borderColor
▶	-10x Engineer	red
	a	green
	Administrator	black
	c	yellow
	f	orange
	g	blue
	z	black
*	NULL	NULL

School(name, schoolLogo)

	name	schoolLogo
▶	Acadia University	66
	Algoma University	61
	Ambrose University	70
	Athabasca University	67
	Bethany College	85
	Brandon University	53
	Brock University	33
	Canada Christian College & School of Graduate ...	86

Shares(studyMaterialTitle, topicId, groupCode)

studyMaterialTitle	topicId	groupCode
7_timestamps	times_tables	1
Quantum Computing Quadruple Integral Wave ...	Calculus 9	1
Quantum Computing Quadruple Integral Wave ...	Calculus 9	3
steelTypes	gen6pokemon	3
waterTypes	gen6pokemon	3
HULL	HULL	HULL

shares 19 x studyMaterialType 20 tag 21 user 22

StudyMaterialType(type, icon)

type	icon
Flashcards	3
MEGA QUIZ	https://t.ly/2i121wua1s
Notes	2
Quiz	1
Super Flashcard Set	https://t.ly/2ir2uq r2a1s
HULL	HULL

studyMaterialType 20 x tag 21 user 22

Tag(name, color, subject)

name	color	subject
Biology	#399cff	SCIENCE
Books	#ffa878	LIT
Chemistry	#ff7a88	SCIENCE
DO NOT READ	black	CREATIVE
Finance	#2782ee	GAM
Games	green	GAM
High Valyrian	#2924a1	LANG
Math	#22b0d2	MATH

tag 21 x user 22

User(username, school, reputation, email, password, points, dateJoined)

username	school	reputation	password	email	points	dateJoined
admin	Hogwarts	Administrator	\$2a\$12\$8j5TfAu9qYezhInC4/w40vGeHTT4u...	admin@fbi.gov	2147483647	0000-01-01
admin2	University of Toronto	z	\$2a\$12\$vh1Xa8r1G1qcwLBvYhaRGOAnrkQ3es...	admin@hotmail.net	2147483647	0001-01-02
ditto07	Acadia University	c	\$2a\$12\$7mUr3ld1Tlb9gjOOSpneQrCKBykBE...	abc@uva.com	11284	2005-10-22
hacker101	Université du Québec à Trois-Rivières (UQTR)	z	\$2a\$12\$OPEjk4n0vTT151CQ53zgB03yVpkHO5...	hacker@gmail.com	2147483647	2024-03-30
i_am_a_beginner	Royal Roads University	a	\$2a\$12\$ZlsKZEBCvsc2hzaxA0xzOWZNr.923...	myemail@gmail.com	10	2024-03-01
smug_person	University of British Columbia	g	\$2a\$12\$DvDYc9Cy0lf1fp6mMjxO8dt21hbwr...	best@gmail.com	99999	1999-01-15
test	HULL	-10x Engineer	\$2a\$12\$QjD0Tu61pgalHsYfgVVyuHmjkgd7.Q...	HULL	0	2024-04-01
test1	HULL	-10x Engineer	\$2a\$12\$X1Q6kRKx2VLZt6/kqD0yeB.bzfou06...	HULL	0	2024-04-01

Apply

d. SQL queries

INSERT

<<<<<< user signs up for the app with their own info >>>>>>

<<<<<< post - auth/signup >>>>>>

<<<< AuthService.js, line 88 >>>>

INSERT INTO User (username, school, reputation, password, email, points, dateJoined) VALUES (?, ?, '-10x Engineer', ?, NULL, 0, NOW())

DELETE 😊

```
<<<<<< deletes a given study material from the given topic >>>>>>
  <<<<<< delete - topic/:id/studymaterial/:title >>>>>>
    <<<< StudyMaterialService.js, line 228 >>>>
```

```
DELETE FROM containsstudymaterial WHERE topicId = ? AND title = ?;
```

UPDATE

```
<<<<<< updates all non foreign/primary key attributes of topic >>>>>>
  <<<<<< put - topic/:id >>>>>>
    <<<< TopicService.js, line 390 >>>>
```

```
UPDATE createsTopic SET title = ?, isPublic = ?, description = ?, color = ?,
lastOpened = ?, username = ?, dateCreated = ? WHERE id = ?;
SELECT * FROM createsTopic WHERE id = ?
```

SELECTION

```
<<<<<< gets user specified topics >>>>>>
  <<<<<< get - admin/topic >>>>>>
    <<<< AdminService.js, line 30 >>>>
```

```
SELECT id, username AS name, title FROM createsTopic WHERE ?
```

PROJECTION

```
<<<<<< gets user specified table and attributes >>>>>>
  <<<<<< get - admin/table >>>>>>
    <<<< AdminService.js, line 128 >>>>
```

```
SELECT ?, ?, ?, ?, ? FROM ?
```

JOIN

```
<<<<<< gets settings data of a user's topic >>>>>>
  <<<<<< get - topic/:id/settings >>>>>>
    <<<< TopicService.js, line 250 >>>>
```

```
SELECT title, description, DATE_FORMAT(dateCreated, '%M %d, %Y') AS
creationDate, id AS tags, isPublic, t.username, "; const attr = "u.points, t.color,
DATE_FORMAT(t.lastOpened, '%Y-%m-%d') AS msL,
DATE_FORMAT(t.dateCreated, '%Y-%m-%d') AS msD FROM createsTopic t,
user u WHERE id = ? AND t.username = u.username;
```

GROUP BY

```
<<<<<< gets user's groups >>>>>>
  <<<<<< get - group >>>>>>
    <<<< GroupService.js, line 15 >>>>
```

```
SELECT DISTINCT g.name AS title, g.code AS joinCode,
COUNT(s.groupCode) AS numMaterials
FROM `Group` g LEFT JOIN Shares s ON g.code = s.groupCode INNER
JOIN Joins j ON g.code = j.groupCode
WHERE j.username = ? GROUP BY g.code;
```

GROUP BY HAVING 😊

```
< returns all public study material sorted by most recent creation date >
  <<<<<< get - topic/studymaterial/featured >>>>>>
<<< Only returns the study material with non zero components >>>
  <<<< StudyMaterialService.js, line 261 >>>>
```

(only returns all quizzes with more than 1 quiz question)

```
SELECT DISTINCT s.title, s.type, DATE_FORMAT(s.idate, '%M %d, %Y') AS
date, s.parsedText, s.numComponents, c.name, c.primaryColor, c.gradient,
c.circle, t.title AS topicTitle
FROM createsTopic t, color c, has h, tag ta,
(The following is one big table containing quizzes, flashcards, notes and call it
"s")
(only returns all quizzes with more than 1 quiz question)
(SELECT csm1.title, csm1.type, csm1.topicId,
csm1.dateCreated AS idate, csm1.parsedText,
COUNT(*) as numComponents
FROM ContainsStudyMaterial csm1, OwnsQuizQuestion oqq
WHERE oqq.studyMatTitle = csm1.title AND oqq.topicId = csm1.topicId
GROUP BY csm1.title, csm1.type, csm1.topicId, idate, csm1.parsedText
HAVING COUNT(*) <> 0
UNION
(only returns all flashcards with more than 1 card)
SELECT csm2.title, csm2.type, csm2.topicId,
csm2.dateCreated AS idate, csm2.parsedText, COUNT(*) as
numComponents
FROM ContainsStudyMaterial csm2, OwnsCard oc
WHERE oc.studyMatTitle = csm2.title AND oc.topicId = csm2.topicId
GROUP BY csm2.title, csm2.type, csm2.topicId, idate, csm2.parsedText
HAVING COUNT(*) <> 0
(returns all notes)
UNION
SELECT csm3.title, csm3.type, csm3.topicId,
csm3.dateCreated AS idate, csm3.parsedText, COUNT(*) as
numComponents
```

```

FROM ContainsStudyMaterial csm3
WHERE csm3.type = 'Notes'
GROUP BY csm3.title, csm3.type, csm3.topicId, idate, csm3.parsedText
HAVING COUNT(*) >> 0) s
(the rest of the query)
WHERE s.topicId = t.id AND t.color = c.name AND t.id = h.topicId AND
h.tagName = ta.name AND ta.subject = 'Public Safety'
ORDER BY STR_TO_DATE(date, '%M %d, %Y') DESC;

```

GROUP BY NESTED AGGREGATION

```

<<<<<< gets average likes of all public topics >>>>>>>
< Find the average likes for topic (total likes / number of study materials) >
    <<<<<< get - topic/likes >>>>>>>
    <<<<< TopicService.js, line 547 >>>>>

```

```

SELECT topicId, avg(c)
FROM (SELECT csm.title, csm.topicId, COUNT(*) as c
      FROM Likes l, containsStudyMaterial csm
      WHERE l.studyMaterialTitle = csm.title AND csm.topicID = l.topicID
      GROUP BY csm.title, csm.topicId) as T
GROUP BY topicId;

```

DIVISION

```

<<<<<< posts all the user's topics in homepage format >>>>>>>
    <<<<<< post - topic/home-page >>>>>>>
    <<<<< TopicService.js, line 45 >>>>>

```

```

CREATE TABLE Temp (tag VARCHAR(255));
INSERT INTO Temp (tag) VALUES (?);

```

```

SELECT DISTINCT T1.id, T1.title, T1.isPublic, T1.lastOpened,
(get the number of flashcards as attribute numF)
(SELECT COUNT(*)
FROM createsTopic T, containsstudymaterial csm
WHERE T.id = csm.topicId AND csm.type = 'Flashcards' AND T1.id =
csm.topicId) AS numF,
(get the number of quizzes as attribute numA)
(SELECT COUNT(*)
FROM createsTopic T, containsstudymaterial csm
WHERE T.id = csm.topicId AND csm.type = 'Quiz' AND T1.id = csm.topicId)
AS numQ,
(get the number of notes as attribute numN)
(SELECT COUNT(*)
FROM createsTopic T, containsstudymaterial csm
WHERE T.id = csm.topicId AND csm.type = 'Notes' AND T1.id = csm.topicId)
AS numN, T1.color,
primaryColor, gradient, circle
FROM createsTopic T1, color c

```

```

WHERE T1.username = ? AND T1.color = c.name AND T1.title LIKE '% t%'
AND
(actual division)
    NOT EXISTS (SELECT Temp.tag
        FROM Temp
        WHERE NOT EXISTS (SELECT h1.topicId
            FROM Has h1
            WHERE h1.tagName = Temp.tag AND h1.topicId =
T1.id))
ORDER BY T1.title ASC;
DROP TABLE Temp;

```

OTHERS

(Only included substantial queries that are not checks)

```

<<<<<< returns all featured topics with a given subject >>>>>>>
<<<<<< get - topic/featured >>>>>>>
<<<< TopicService.js, line 177 >>>>>

```

```

SELECT DISTINCT T1.id, T1.title, DATE_FORMAT(T1.dateCreated, '%M %d,
%Y') AS date,
(SELECT COUNT(*)
FROM createsTopic T, containsstudymaterial csm
WHERE T.id = csm.topicId AND csm.type = 'Flashcards' AND T1.id =
csm.topicId) AS numF,
(SELECT COUNT(*)
FROM createsTopic T, containsstudymaterial csm
WHERE T.id = csm.topicId AND csm.type = 'Quiz' AND T1.id =
csm.topicId) AS numQ,
(SELECT COUNT(*)
FROM createsTopic T, containsstudymaterial csm
WHERE T.id = csm.topicId AND csm.type = 'Notes' AND T1.id =
csm.topicId) AS numN,
T1.color, primaryColor, gradient, circle
FROM createsTopic T1, color c, Has h, Tag t
WHERE T1.color = c.name AND t1.id = h.topicId AND h.tagName = t.name
AND t.subject = 'Science' AND T1.isPublic = TRUE
ORDER BY date DESC;

```

```

<< returns a list of filtered and sorted study material from the given topicId >>
<<<<<< get - topic/:id/studymaterial >>>>>>
<<<< StudyMaterialService.js, line 109 >>>>>

```

(return all quizzes and the number of quiz questions they have)

```

SELECT csm1.title, csm1.type, DATE_FORMAT(csm1.lastOpened, '%M %d,
%Y') AS lastOpened,

```

```

COUNT(*) as numComponents, csm1.parsedText FROM
ContainsStudyMaterial csm1, OwnsQuizQuestion oqq
WHERE oqq.studyMatTitle = csm1.title AND oqq.topicId = csm1.topicId AND
csm1.topicId = '1'
GROUP BY csm1.title, csm1.type, lastOpened, csm1.parsedText
(return all quizzes with 0 quiz questions === all quizzes excluding the quizzes
returned in the query above)
UNION
SELECT csm.title, csm.type, DATE_FORMAT(csm.lastOpened, '%M
%d, %Y') AS lastOpened, 0, csm.parsedText
FROM ContainsStudyMaterial csm WHERE csm.type = 'Quiz' AND
csm.title NOT IN
(SELECT csm2.title FROM ContainsStudyMaterial csm2,
OwnsQuizQuestion oqq
WHERE oqq.studyMatTitle = csm2.title AND oqq.topicId =
csm2.topicId) AND csm.topicId = '1'
GROUP BY csm.title, csm.type, lastOpened, csm.parsedText
UNION
(return all Flashcards and the number of cards they have)
SELECT csm2.title, csm2.type, DATE_FORMAT(csm2.lastOpened, '%M %d,
%Y') AS lastOpened,
COUNT(*) as numComponents, csm2.parsedText FROM
ContainsStudyMaterial csm2, OwnsCard oc
WHERE oc.studyMatTitle = csm2.title AND oc.topicId = csm2.topicId
GROUP BY csm2.title, csm2.type, lastOpened, csm2.parsedText
(return all Flashcards with 0 cards === all flashcards excluding the flashcards
returned in the query above)
UNION
SELECT csm4.title, csm4.type, DATE_FORMAT(csm4.lastOpened,
'%M %d, %Y') AS lastOpened, 0, csm4.parsedText
FROM ContainsStudyMaterial csm4 WHERE csm4.type = 'Flashcards'
AND csm4.title NOT IN
(SELECT csm5.title FROM ContainsStudyMaterial csm5, OwnsCard
oc2
WHERE oc2.studyMatTitle = csm5.title AND oc2.topicId =
csm5.topicId)
GROUP BY csm4.title, csm4.type, lastOpened, csm4.parsedText
UNION
(return all notes)
SELECT csm3.title, csm3.type, DATE_FORMAT(csm3.lastOpened, '%M %d,
%Y') AS lastOpened,
COUNT(*) as numComponents, csm3.parsedText FROM
ContainsStudyMaterial csm3
WHERE csm3.type = 'Notes' GROUP BY csm3.title, csm3.type, lastOpened,
csm3.parsedText
ORDER BY title ASC;

```

```

<<<<<< gets the given user's info >>>>>>
    <<<<<< get - user >>>>>>
        <<<< UserService.js, line 17 >>>>
SELECT username, dateJoined AS joined, points AS exp, u.reputation AS
title, r.borderColor, school, email,
    (SELECT COUNT(*)
     FROM createsTopic T, containsstudymaterial csm
      WHERE T.username = u.username AND T.id = csm.topicId) AS
totalMat,
    (SELECT COUNT(*)
     FROM createsTopic T
      WHERE T.username = u.username) AS totalTopics,
    (SELECT COUNT(*)
     FROM joins j
      WHERE j.username = u.username) AS totalGroups,
    (SELECT COUNT(*)
     FROM obtains o
      WHERE u.username = o.username) AS totalAchievements
  FROM user u, reputation r
 WHERE u.reputation = r.reputation AND u.username = 'test';

<<<<<< updates the user's email >>>>>>
    <<<<<< put - user/email >>>>>>
        <<<< UserService.js, line 65 >>>>
UPDATE user
SET email = 'hello@gmail.com'
WHERE user.username = 'test';

SELECT username, dateJoined AS joined, points AS exp, u.reputation AS
title, r.borderColor, school, email,
    (SELECT COUNT(*)
     FROM createsTopic T, containsstudymaterial csm
      WHERE T.username = u.username AND T.id = csm.topicId) AS
totalMat,
    (SELECT COUNT(*)
     FROM createsTopic T
      WHERE T.username = u.username) AS totalTopics,
    (SELECT COUNT(*)
     FROM joins j
      WHERE j.username = u.username) AS totalGroups,
    (SELECT COUNT(*)
     FROM obtains o
      WHERE u.username = o.username) AS totalAchievements
  FROM user u, reputation r
 WHERE u.reputation = r.reputation AND u.username = 'test';
    <<<<<< updates the user's school >>>>>>

```

```
<<<<<< put - user/school >>>>>>
<<<< UserService.js, line 114 >>>>
```

```
UPDATE user
SET school = 'Hogwarts'
WHERE user.username = 'test';
```

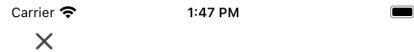
```
SELECT username, dateJoined AS joined, points AS exp, u.reputation AS
title, r.borderColor, school, email,
(SELECT COUNT(*)
FROM createsTopic T, containsstudymaterial csm
WHERE T.username = u.username AND T.id = csm.topicId) AS
totalMat,
(SELECT COUNT(*)
FROM createsTopic T
WHERE T.username = u.username) AS totalTopics,
(SELECT COUNT(*)
FROM joins j
WHERE j.username = u.username) AS totalGroups,
(SELECT COUNT(*)
FROM obtains o
WHERE u.username = o.username) AS totalAchievements
FROM user u, reputation r
WHERE u.reputation = r.reputation AND u.username = 'test';
```

e. **INSERT query:** insert a user

Before

username	school	reputation	password	email	points	dateJoined
admin	Hogwarts	Administrator	\$2a\$12\$8j5TfAu9qYXeZhNC4i4W4OwGeHTT4...	admin@fbi.gov	2147483647	0000-01-01
admin2	University of Toronto	z	\$2a\$12\$vh1Xaer1GigqwUBvYharGOAnKq3es...	admin@hotmail.net	2147483647	0001-01-02
ditto07	Acadia University	c	\$2a\$12\$7mUr3Ud1Tl9bjQOSpineQrCKBYkjB...	ab@uva.com	11284	2005-10-22
hacker101	Université du Québec à Trois-Rivières (UQTR)	z	\$2a\$12\$Op ejK4n0vTl51CQ53lzb803yVpbkHO...	hacker@gmail.com	2147483647	2024-03-30
i_am_a_beginner	Royal Roads University	a	\$2a\$12\$lsKZEBcvsc2hzaxA0xzOWZNr92J...	myemail@gmail.com	10	2024-03-01
smug_person	University of British Columbia	g	\$2a\$12\$DvDYc9CylOlff1p6mM/uXO8dI2JHbwrr...	best@gmail.com	99999	1999-01-15
test	NULL	-10x Engineer	\$2a\$12\$QjD0Tu61ppafJjsYgVVYuhmjkp7L...	NULL	0	2024-04-05
test1	NULL	-10x Engineer	\$2a\$12\$X1Q6kRKx2VLZt6/kqD0zeB_bzfvouO...	NULL	0	2024-04-05
test2	NULL	-10x Engineer	\$2a\$12\$E/GQJdihSF5j5lbPZG3GseotdZwi.bd...	NULL	0	2024-04-05
test3	NULL	-10x Engineer	\$2a\$12\$p7JWhTRCD/uqKQ/69cB.rjoQWFpB...	NULL	0	2024-04-05
test4	NULL	-10x Engineer	\$2a\$12\$OyKEGFLu7qDv6svvECZTOkNQGfc...	NULL	0	2024-04-05
test5	NULL	-10x Engineer	\$2a\$12\$Rbz345ws1faXhFAuIBLUOWLSyPr96i...	NULL	0	2024-04-05
NULL	NULL	NULL	NULL	NULL	NULL	NULL

During



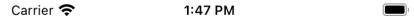
New_user

my_password

MIT

[Sign up](#)

[Login](#)



 **New_user**

Joined April 2024
0 EXP
-10x Engineer

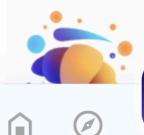
 MIT 

 0 Topics 

 0 Groups

My Achievements [See all >](#)

Total: 0

After:

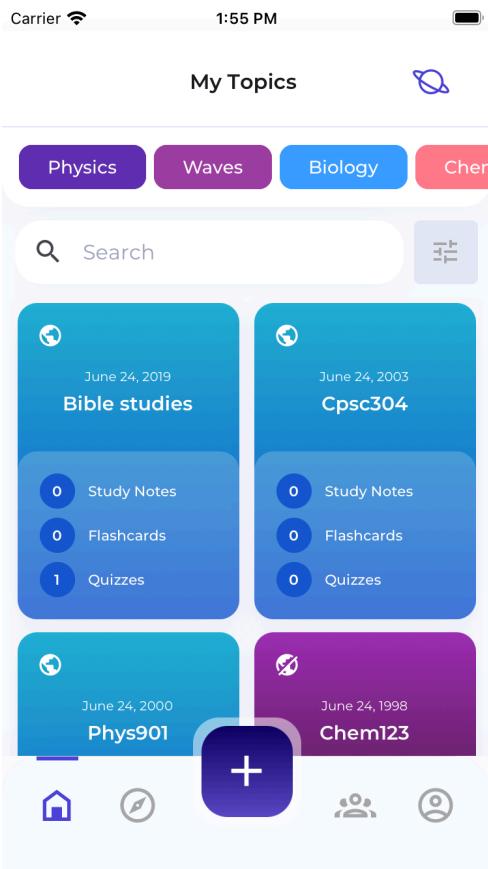
admin	Hogwarts	Administrator	\$2a\$12\$85TfAu9qYXeZhNc4i4W4OwGeHTT4...	admin@fbi.gov	2147483647	0000-01-01
admin2	University of Toronto	z	\$2a\$12\$h1Xa8r1GjqcwUBvYhaRGOAnrKq3es...	admin@hotmail.net	2147483647	0001-01-02
ditto07	Acadia University	c	\$2a\$12\$7rnUr3Ud1Tl9bjgOOSpneQrCKBYkjB...	abc@uva.com	11284	2005-10-22
hacker101	Université du Québec à Trois-Rivières (UQTR)	z	\$2a\$12\$OPelK4n0vTi51CO53lzg8O3yVpbkHO...	hacker@gmail.com	2147483647	2024-03-30
i_am_a_beginner	Royal Roads University	a	\$2a\$12\$ZlskZEbCyscZhazAi0xzOWZNNr92...	myemail@gmail.com	10	2024-03-01
New_user	MIT	-10x Engineer	\$2a\$12\$RXEUbneB51erc4mKSHYs3.iKF24lhU...	NULL	0	2024-04-05
smug_person	University of British Columbia	g	\$2a\$12\$DxDY9Cy0If1fp6mM/uXO8d2JHbwrr...	best@gmail.com	99999	1999-01-15
test	NULL	-10x Engineer	\$2a\$12\$QID0Tu61pgAHsYfGVYYutHmjkdq7L...	NULL	0	2024-04-05
test1	NULL	-10x Engineer	\$2a\$12\$X106kRKx2VLZ6/kpD0yzeB.bzfouO...	NULL	0	2024-04-05
test2	NULL	-10x Engineer	\$2a\$12\$E/GQjdinSF5JLbP2G3GseotdZwl.bd...	NULL	0	2024-04-05
test3	NULL	-10x Engineer	\$2a\$12\$p7JWlnTRCD/uqKQ/69dB.rjocQWFpB...	NULL	0	2024-04-05
test4	NULL	-10x Engineer	\$2a\$12\$OyKEGFL/t7qDv6sfvECZTOKnQGFca...	NULL	0	2024-04-05
test5	NULL	-10x Engineer	\$2a\$12\$Rb/z345ws1faXhFAu8LUOWLSyPr96I...	NULL	0	2024-04-05
	NULL		NULL	NULL	NULL	NULL

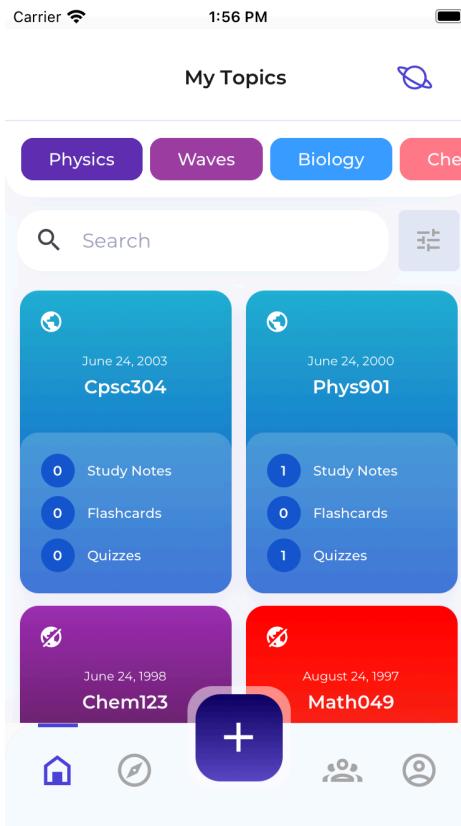
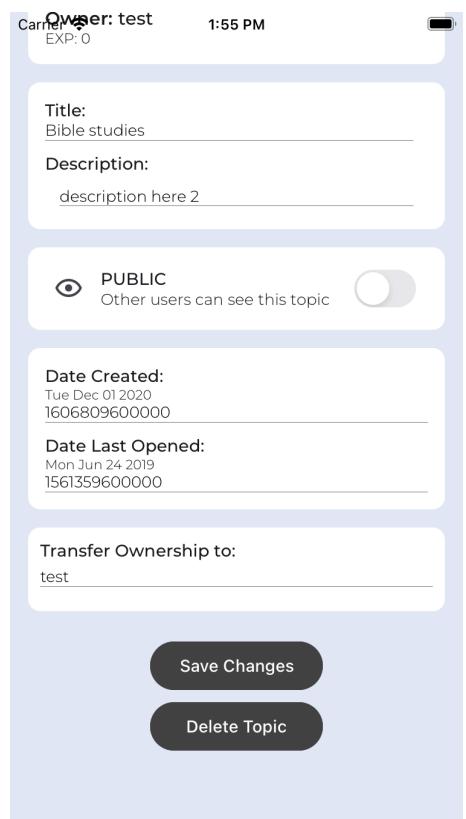
DELETE query: Delete a topic

Before:

id	username	title	isPublic	description	lastOpened	dateCreated	color
1	test	Phys901	1	Random fake description very fake pretend this...	2000-06-24	2001-03-01	blue
2	test	Chem123	0	idk what to write here bro	1998-06-24	1998-07-18	green
3	test	Math049	0	Man my neck hurts	1997-08-24	1994-03-30	red
4	test	Cpsc304	1	blah blah blah blah blah blah ahahhhhhh...	2003-06-24	2031-11-23	blue
5	test	Hello World	0	someone save me im not creative enough to co...	1984-06-24	2021-03-02	green
6	test	How to swim	0	description here	1993-06-24	1995-10-14	red
7	test	Bible studies	1	description here 2	2019-06-24	2020-12-01	blue
Calculus 9	smug_person	Calculus 9	1	Secrets of the Universe	2021-12-25	2021-12-24	blue
gen6pokemon	ditto07	gen6pokemon	1	memorize gen 6 pokemon before pokemon z-a...	2024-03-01	2004-08-27	green
List of Personal Achievements	smug_person	List of Personal Achievements	1	I am so cool	2024-03-01	2024-01-01	red
nuclear_codes	admin2	nuclear_codes	1	post to internet when app is dead	2002-02-02	2000-02-25	pink
times_tables	i_am_a_beginner	times_tables	1	multiplication practice for grade four	2024-03-01	2024-03-01	purple
HULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

During:





After:

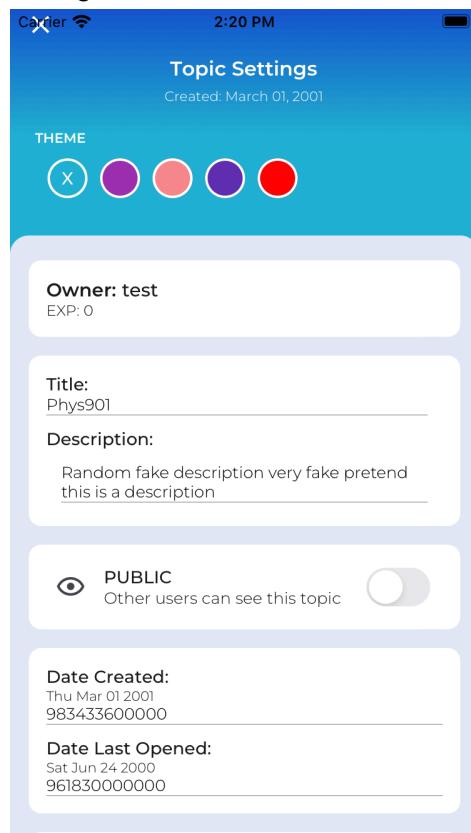
id	username	title	isPublic	description	lastOpened	dateCreated	color
1	test	Phys901	1	Random fake description very fake pretend this is a description	2000-06-24	2001-03-01	blue
2	test	Chem123	0	idk what to write here bro	1998-05-24	1998-07-18	green
3	test	Math049	0	Man my neck hurts	1997-05-24	1994-03-30	red
4	test	Cpsc304	1	blah blah blah blah blah blah ahhhhhhhhh...	2003-06-24	2031-11-23	blue
5	test	Hello World	0	someone save me im not creative enough to co...	1984-06-24	2021-03-02	green
6	test	How to swim	0	description here	1993-06-24	1995-10-14	red
Calculus 9	smug_person	Calculus 9	1	Secrets of the Universe	2021-12-25	2021-12-24	blue
gen6pokemon	ditto07	gen6pokemon	1	memorize gen 6 pokemon before pokemon z-a...	2024-03-01	2004-08-27	green
List of Personal Achievements	smug_person	List of Personal Achievements	1	I am so cool	2024-03-01	2024-01-01	red
nuclear_codes	admin2	nuclear_codes	1	post to internet when app is dead	2002-02-02	2000-02-25	pink
times_tables	i.am.a.beg...	times_tables	1	multiplication practice for grade four	2024-03-01	2024-03-01	purple
HULL	HULL	HULL	HULL	HULL	HULL	HULL	HULL

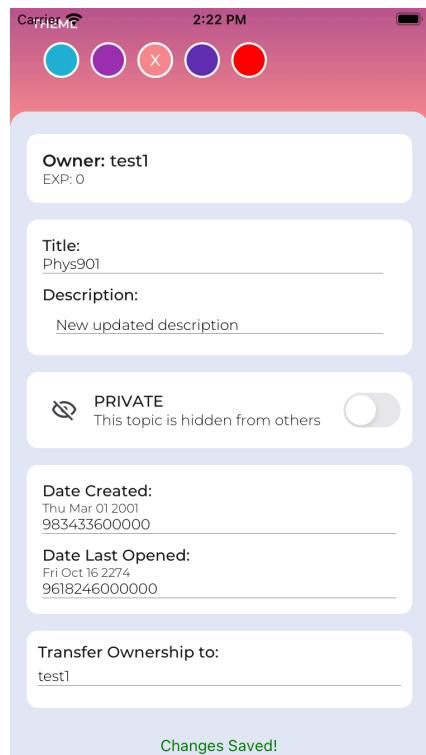
UPDATE query: update a topic

Before:

id	username	title	isPublic	description	lastOpened	dateCreated	color
1	test	Phys901	1	Random fake description very fake pretend this is a description	2024-04-01	2024-03-31	blue
2	test	Chem123	0	idk what to write here bro	2024-04-01	2024-03-31	green
3	test	Math049	0	Man my neck hurts	2024-04-01	2024-03-31	red
4	test	Cpsc304	1	blah blah blah blah blah blah ahhhhhhhhh...	2024-04-01	2024-04-01	blue
5	test	Hello World	0	someone save me im not creative enough to co...	2024-04-01	2024-03-31	green
6	test	How to swim	0	description here	2024-04-01	2024-03-31	red

During:



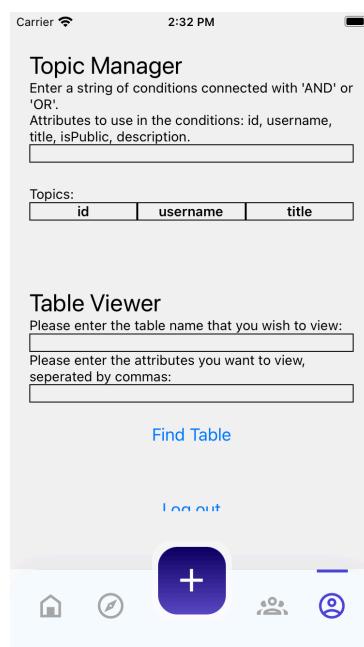


After:

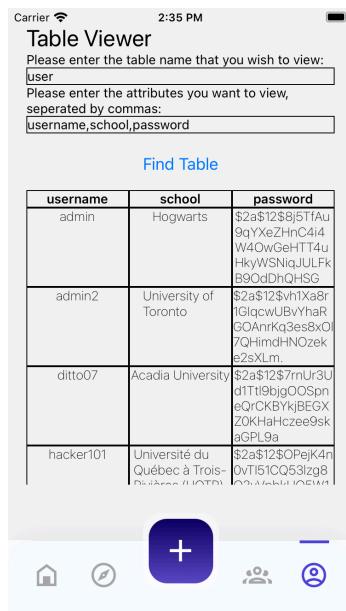
id	username	title	isPublic	description	lastOpened	dateCreated	color
1	test1	Phys901	0	New updated description	2274-10-16	2001-03-01	blue
2	test	Chem123	0	idk what to write here bro	1998-06-24	1998-07-18	green
3	test	Math049	0	Man my neck hurts	1997-08-24	1994-03-30	red
4	test	Cpsc304	1	blah blah blah blah blah ahhhhhhhhh...	2003-06-24	2031-11-23	blue
5	test	Hello World	0	someone save me ifm not creative enough to co...	1984-06-24	2021-03-02	green
6	test	How to swim	0	description here	1993-06-24	1995-10-14	red

PROJECTION query:

Before:



After:

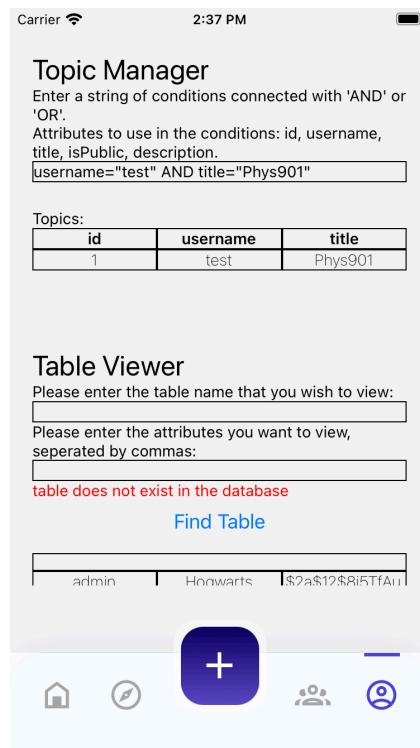


SELECTION query:

Before:

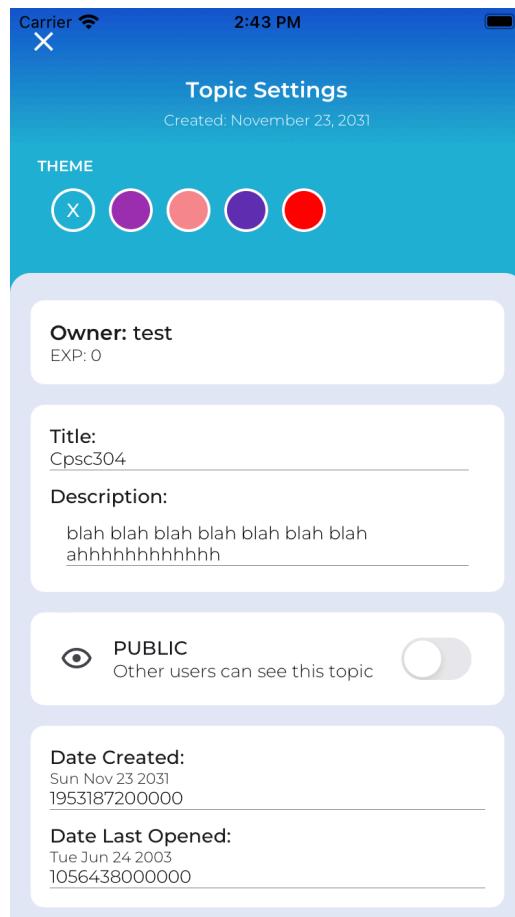


After:



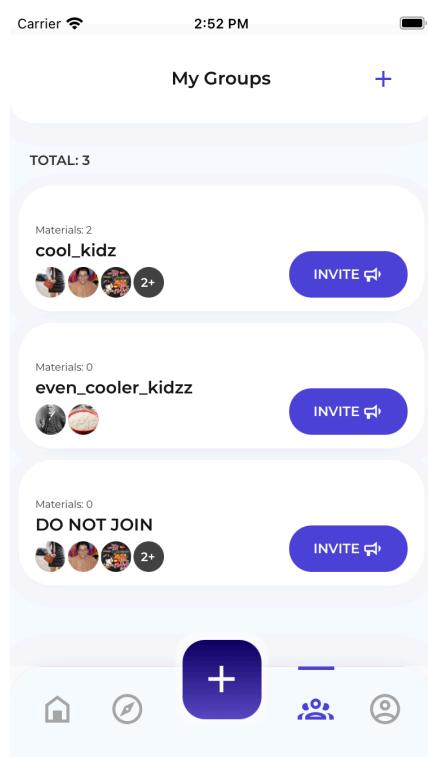
JOIN query: joining Topic and User

After:



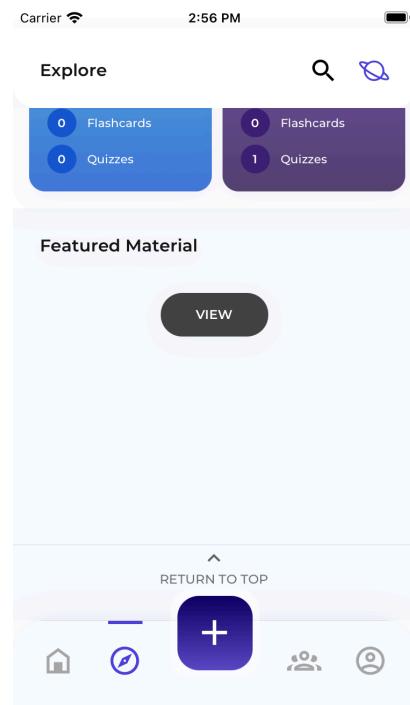
Aggregation with GROUP BY: to find the number of study material for each topic

After:

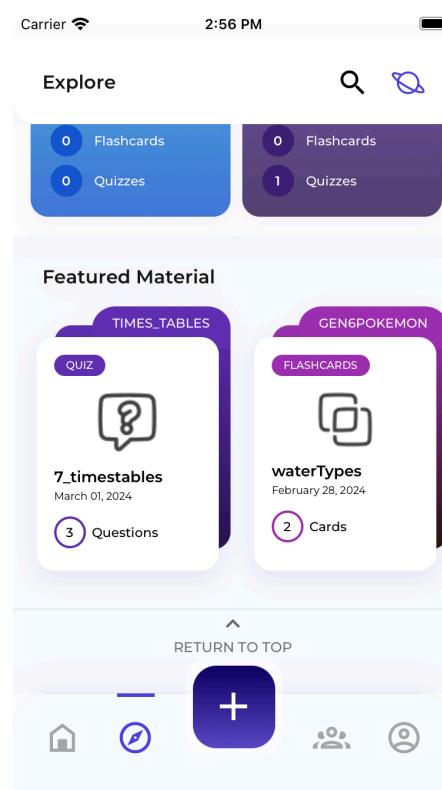


Aggregation with HAVING: display featured study materials in explore page, but only show those that have > 1 components

Before:

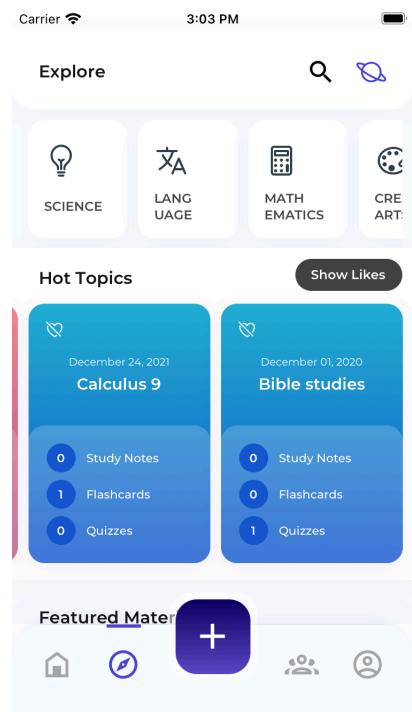


After:

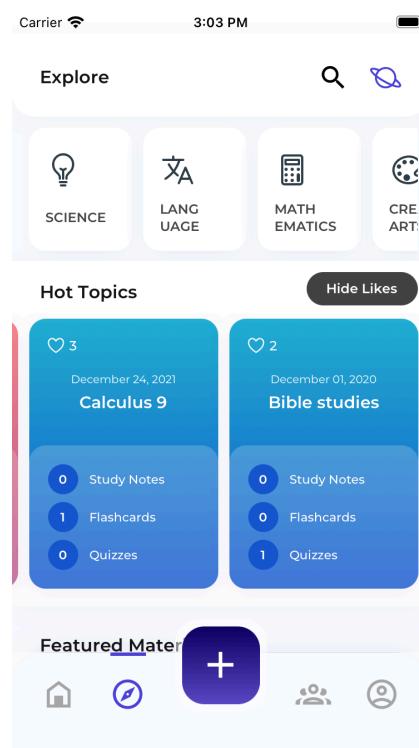


Nested Aggregation with GROUP BY: find the average likes of each topic in the explore page

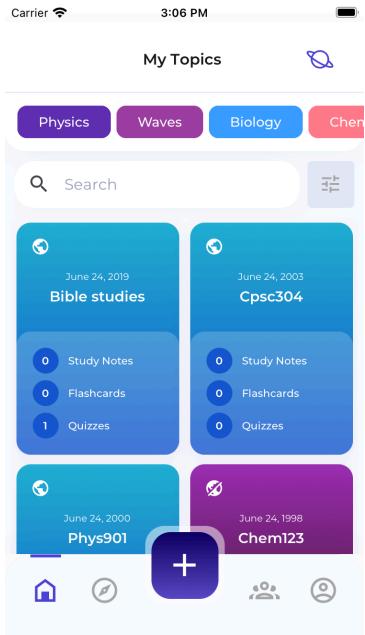
Before:



After:



Division Query: get only topics that contains all of the selected tags in home page
Before:



After:

