
Final Report Draft

Group 3

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1. Introduction

Summary

The University of Calgary is known for unreliable bathroom facility options. For returning students, choosing a facility is a daily activity where factors such as lineup, smell, or wheelchair accessibility are important considerations. For new students or visitors, it may be difficult to find a bathroom that fits your needs (for example, a unisex bathroom). Our team has developed a website to eliminate the guesswork out of this process by providing all students, faculty, and visitors with a system that categorizes the bathroom facilities on campus, and gives them the option to rate them.

How does it Work?

A user of our system can search for bathrooms based on location, or through advanced filtering criteria, add ratings to existing facilities, and add new facilities currently not in the system.

Facilities are categorized using basic information such as location, gender, number of stalls, and whether it is currently closed (such as due to construction). Bathrooms are further categorized based on their ratings that compile user opinions on their cleanliness, wait times, and smell.

Why University of Calgary Facilities?

By limiting the scope of our application to the University of Calgary, we hope to capture the interest of the student population, bring awareness to bathrooms that require some extra attention from the facilities staff, and provide a tool for users old and new to find the perfect facility when the need strikes.

2. System Requirements

Technology Used

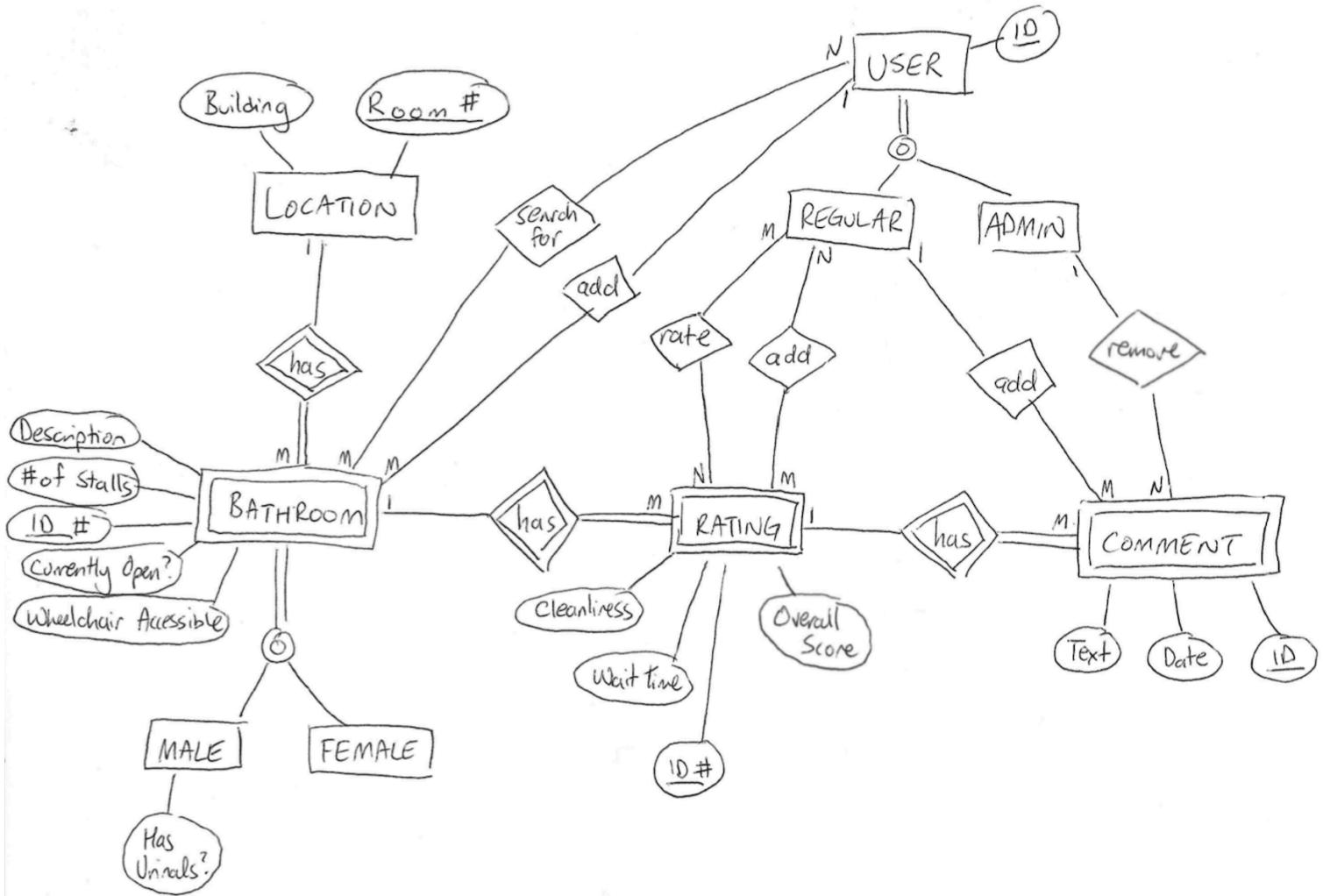
This project was built using a variety of tools. The server side backend code was implemented using Node.js. We used the Express.js framework on top of this in order to create routes connecting certain URL's to our MySQL database. We utilized a package called Express generator, to automatically create many of the dependency's our project requires, as well as the file structure for the server.

In regards to the front-end, we chose to build our website using React.js, which is a Javascript framework that made managing the state of our program and fetching database info from our server much easier. We also took advantage of a

react package called Create-React-App, to provide the necessary dependencies, and create a front-end file structure to build on top of.

3. Entity Relationship Design

ER Diagram



Assumptions

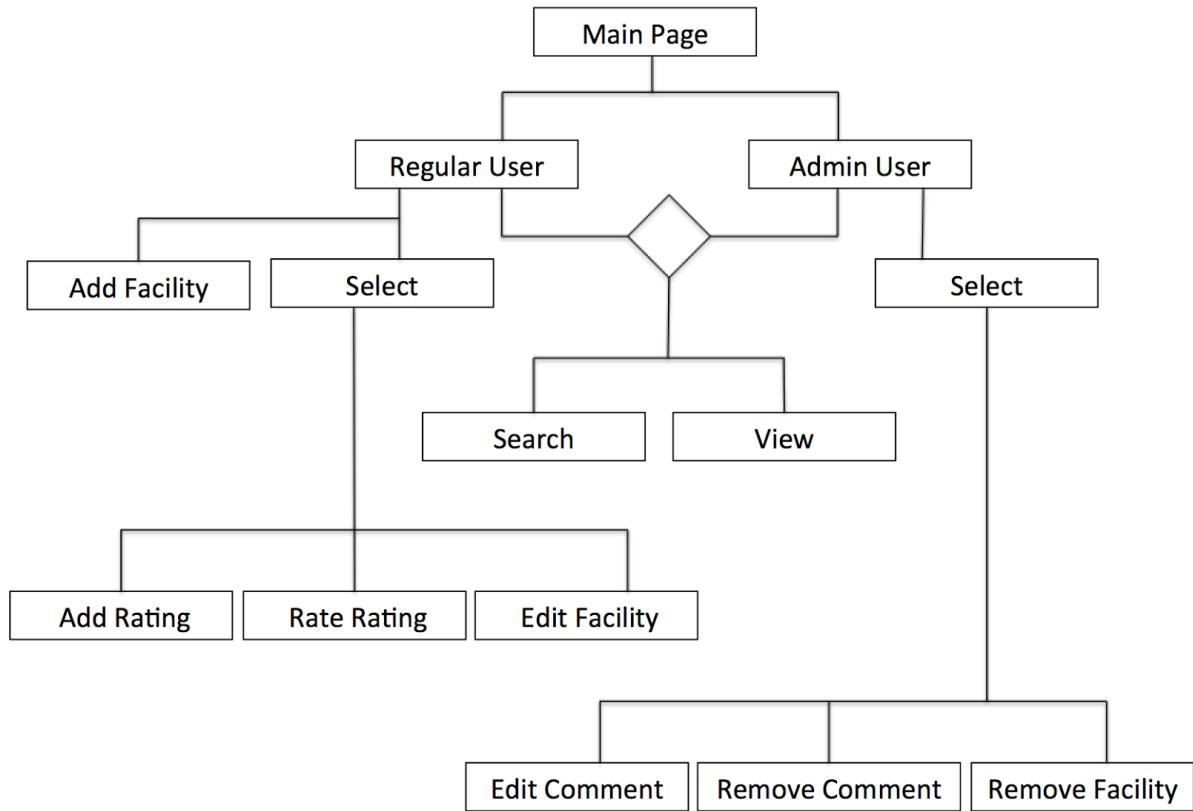
After the last few weeks of class, we found out that we had some redundancies in our design. Our User entity for example has no functionality that would require separate entities for Admin and Regular users: it makes us have to store one piece of information in multiple places which is not efficient. For this reason,

we removed the User umbrella entity while keeping the Regular and Admin users as just a Boolean value.

We also added an attribute to the female bathrooms to give information about whether feminine hygiene products are available.

4. Hierarchical Structure

HIPo Diagram



Queries

Function: Add Facility

Inputs: @ID, @Building, @Room#, @Stall#, @Description, @Open, @Wheelchair

Outputs: None

Pseudocode:

Connect to the database

```
Query = INSERT INTO Bathroom(@ID, @Stall#, @Description, @Open,
@Wheelchair,
@Building, @Room#);
```

Parse Query

Execute Query
Close connection to the database

Function: Search/View Facility
Inputs: @Building
Outputs: @ID, @Building, @Room, @Wheelchair, @Rating.ID
Pseudocode:
Connect to the database
Query = SELECT *
 FROM Bathroom as b
 Where Bathroom.Building = @Building
Parse Query
Execute Query
Close connection to the database

Function: Select Facility
Inputs: @ID (from View)
Outputs: @BathroomID, @Description, @#ofStalls, @CurrentlyOpen,
@WheelchairAccessible, @Gender, @Cleanliness, @OverallScore, @WaitTime,
@UserApproval
Pseudocode:
Connect to the database
Query = SELECT *
FROM (Bathroom JOIN Rating ON ID=Bthrm_ID) JOIN Comment ON
Rating.ID=Comment.ID
 WHERE Bathroom.ID = @ID
Parse Queries
Execute Queries
Close connection to the database

Function: Add Rating
Inputs: @ID, @Cleanliness, @WaitTime, @UserApproval, @Overall, @BathroomID,
@UserID
Outputs: None
Pseudocode:
Connect to the database
Query = INSERT INTO Rating(@ID, @Cleanliness, @WaitTime, @UserApproval,
@Overall, @BathroomID, @UserID);
Parse Query
Execute Query
Close connection to the database

Function: Rate Rating
Inputs: @RatingID, @User_Approval
Outputs: None
Pseudocode:
Connect to the database
Query = UPDATE Rating as r
 SET r.User_Approval = r.User_Approval + @User_Approval

WHERE r.ID=@RatingID
Parse Query
Execute Query
Close connection to the database

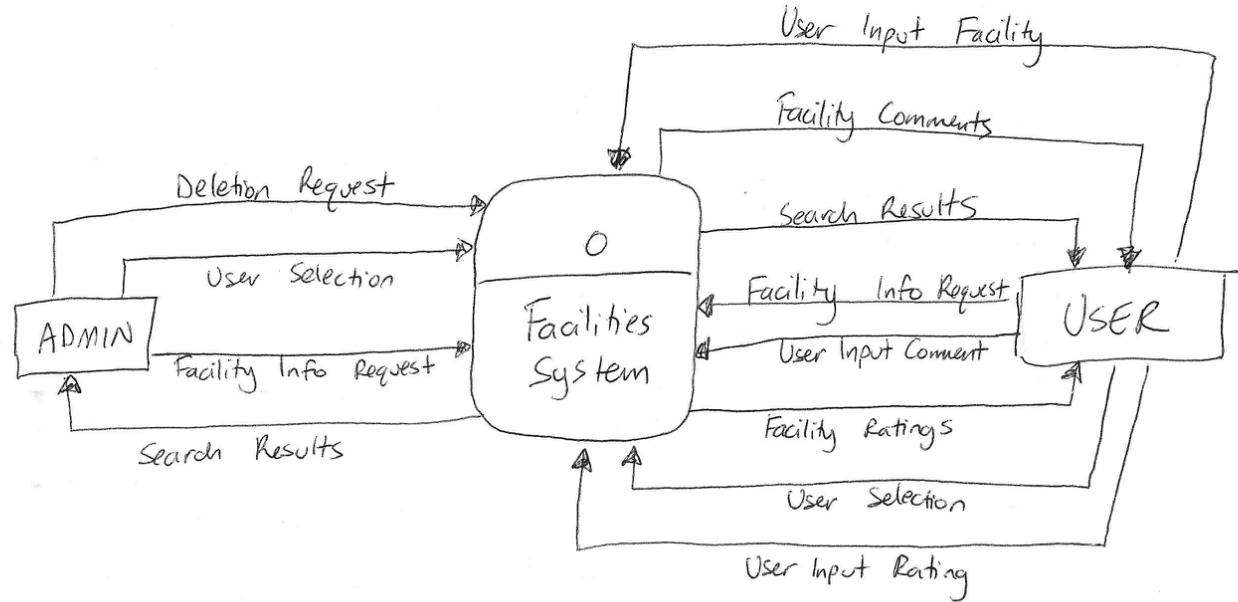
Function: Edit Facility
Inputs: @ID, @Building, @Room#, @Stall#, @Description, @Open, @Wheelchair
Outputs: None
Pseudocode:
Connect to the database
Query = UPDATE Facility as f
 SET f.ID = @ID, f.Building = @Building, f.Room#= @RoomR, f.Stall=@Stall,
 f.Description=@Description, f.Open=@Open, f.Wheelchair=@Wheelchair
 Where f.ID = @ID
Parse Query
Execute Query
Close connection to the database

Function: Remove Comment
Inputs: @ID
Outputs: None
Pseudocode:
Connect to the database
Query = DELETE FROM Comment as c
 WHERE c.ID = @ID
Parse Query
Execute Query
Close connection to the database

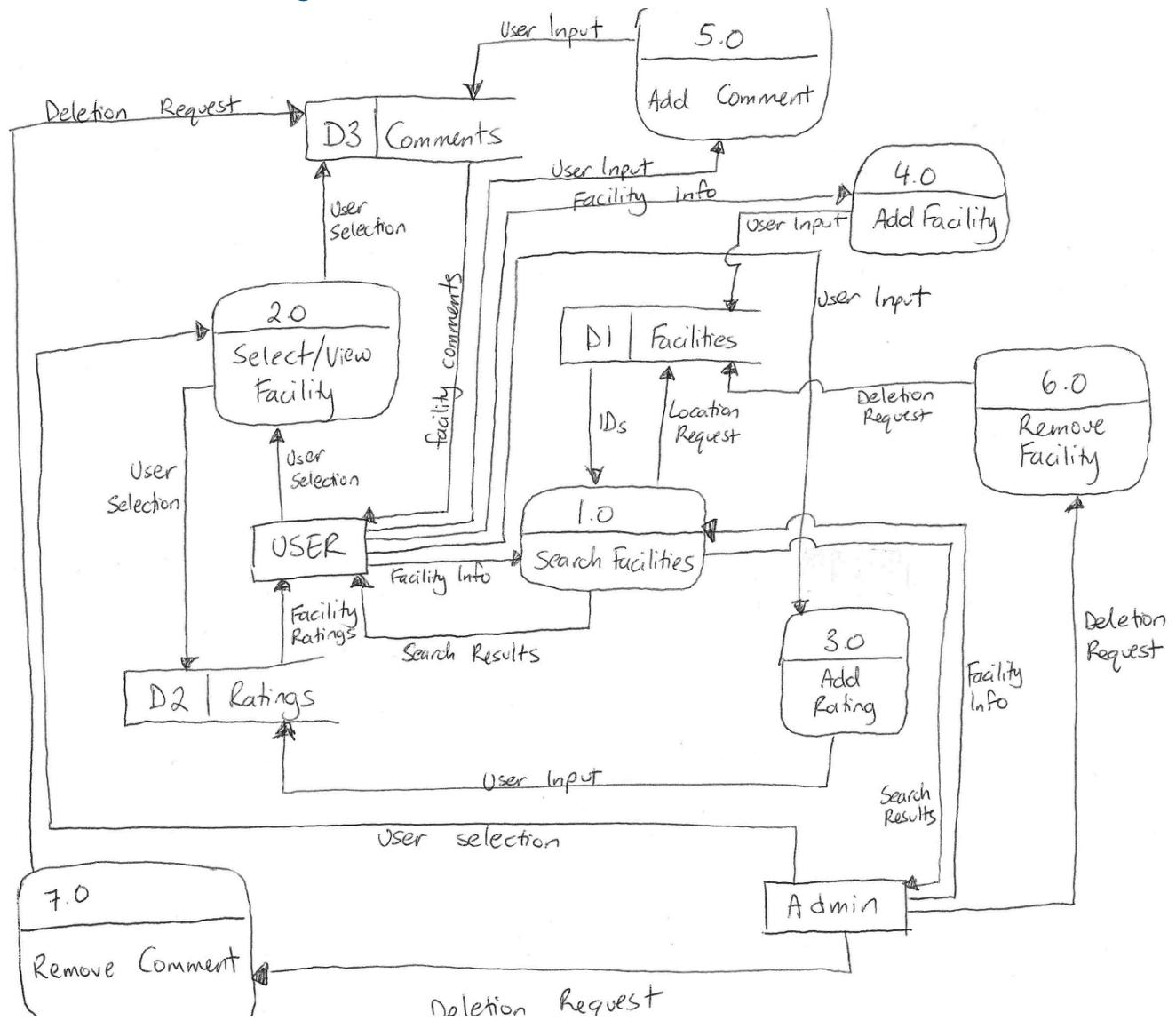
Function: Remove Facility
Inputs: @ID
Outputs: None
Pseudocode:
 NOTE: When the tables that use Bathroom ID as a foreign key are created,
 the
 constraint ON DELETE CASCADE is included.
Connect to the database
Query = DELETE FROM Bathroom
 WHERE Bathroom.ID = @ ID
Parse Query
Execute Query
Close connection to the database
Function: Edit Comment
Inputs: @ID, @Text
Outputs: None
Pseudocode:
Connect to the database
Query = UPDATE Comment as c
 SET c.ID=@ID, c.Text=@Text
 WHERE c.ID = @ID
Parse Query

Execute Query
Close connection to the database

DFD: Context Diagram



DFD: Level-0 Diagram



5. Relational Database Design Model

Note: '*' Denotes a foreign key.



Changes Made

The above relational database design has undergone a few changes to provide a more intuitive user experience.

A future direction for this application is to include the option for users to edit the information for a facility. This is because we recognize that a facility may change (be closed due to construction, etc.) and the administrators are not able to keep track of all facilities at all times. Having regular users have the option to not only add but edit existing facilities, will allow our website to me more reliable and up to date.

6. User Manual

How to run the program

1. Install NVM. This manages node and makes updates easier in the future. Then install node

```
- curl -o-
https://raw.githubusercontent.com/creationix/nvm/v0.33.0/install.
sh | bash
- nvm install node
- nvm use node
- nvm install --lts
- nvm use --lts
```

2. Using homebrew make sure you have mySQL installed and started on local host

If you dont have homebrew, then use this command:

```
/usr/bin/ruby -e "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/master/install
)"

- brew update
- brew install mysql
- brew services start mysql
- mysqladmin -u root password 'pass'
```

3. To run the server:

In terminal window 1, navigate to the PeeOrFlee repo then install necessary dependencies by typing: npm install

Then use: PORT=3001 npm start

4. To run the Front-end:

In terminal window 2, navigate to the front_end folder inside the PeeOrFlee repo then install dependencies by typing `npm install`

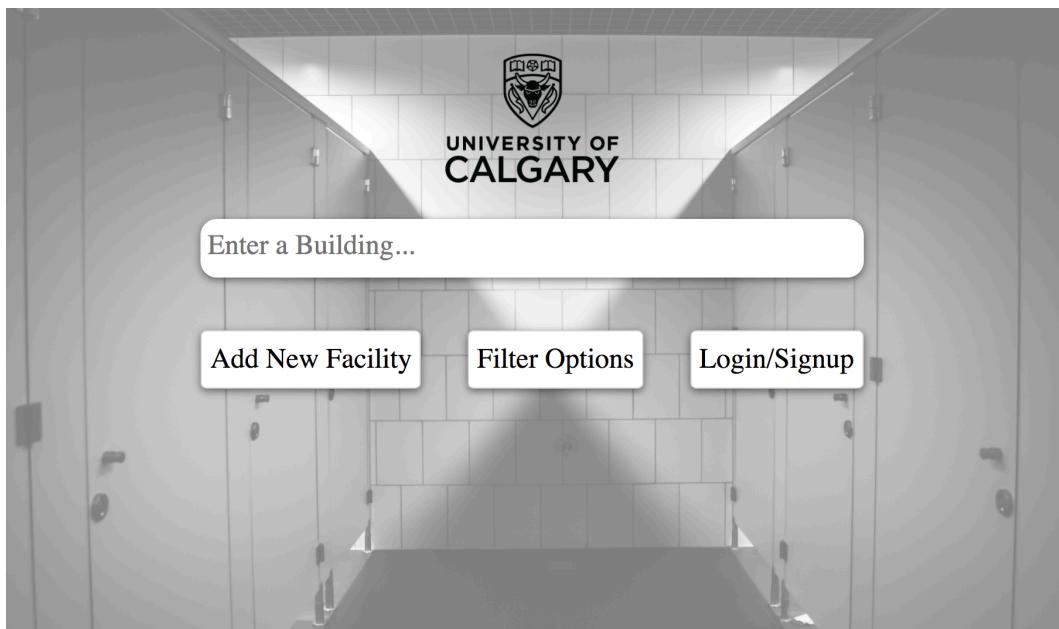
Then, use: `npm start`

****Note**** the backend will be running on port 3001, and the front-end on port 3000

****Note**** you will also need the database .sql file in order to run properly.

Welcome Page

Welcome to the University of Calgary bathroom rater! Read on to find out how our application works.



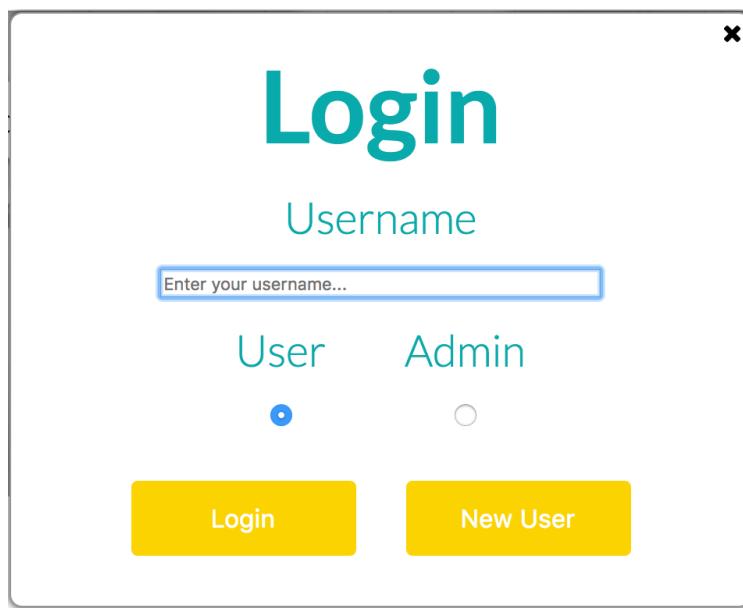
Guest Mode

If you are not logged in, any ratings that you leave will be as a Guest, however you still have access to all basic functionality of the program



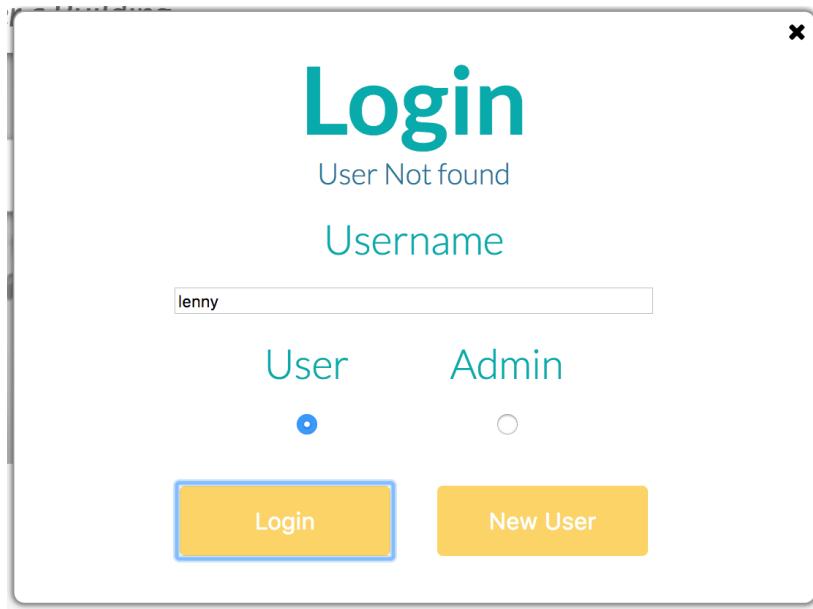
User Mode

On our program, there is an option to log in to leave comments under your own name or a selected username.

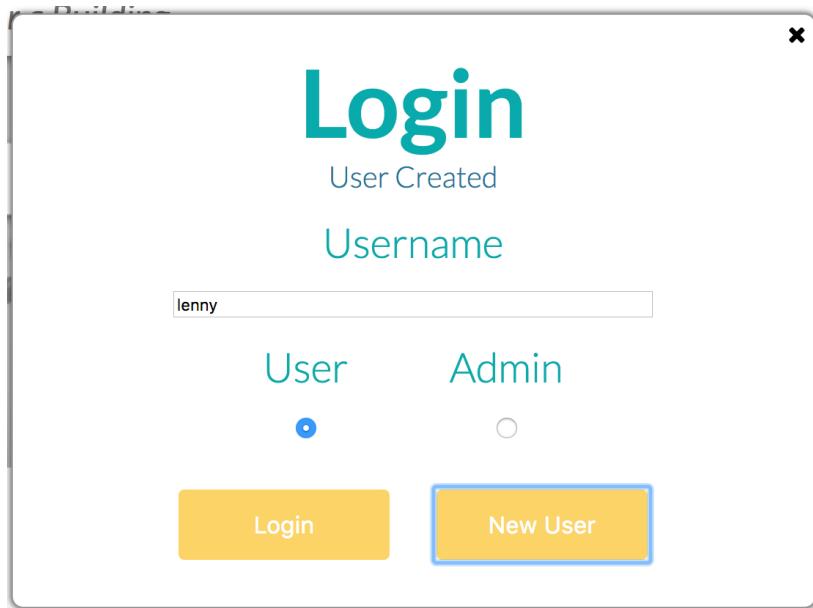


Navigating to the Login/SignUp screen, one may enter the desired Internet handle to leave their ratings under. For the purpose of this demo, we are using the name “lenny”.

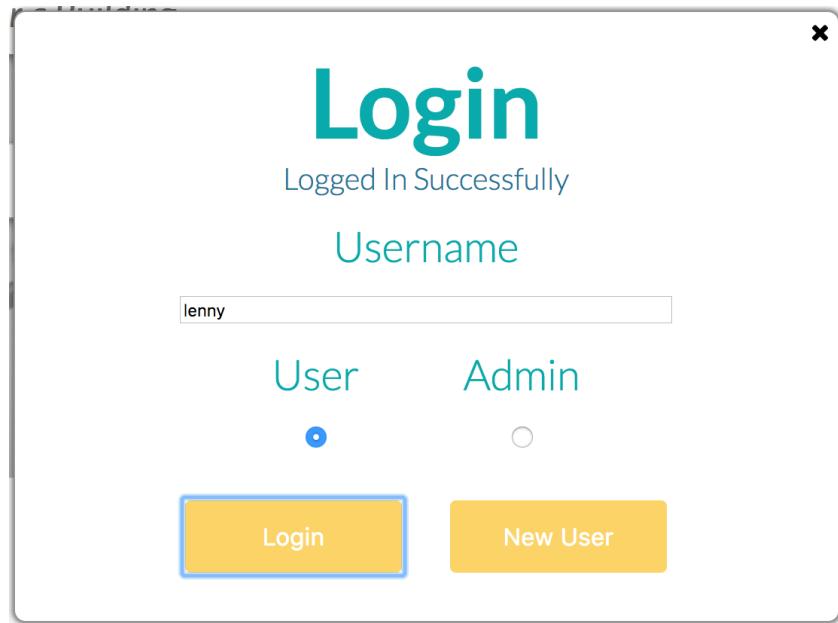
Initially, when we try to log in, the username is not registered in the database, so we receive an error message.



Instead, we must first create an account with the username AwesomeBathroomRater, by selection the CreateUser option.

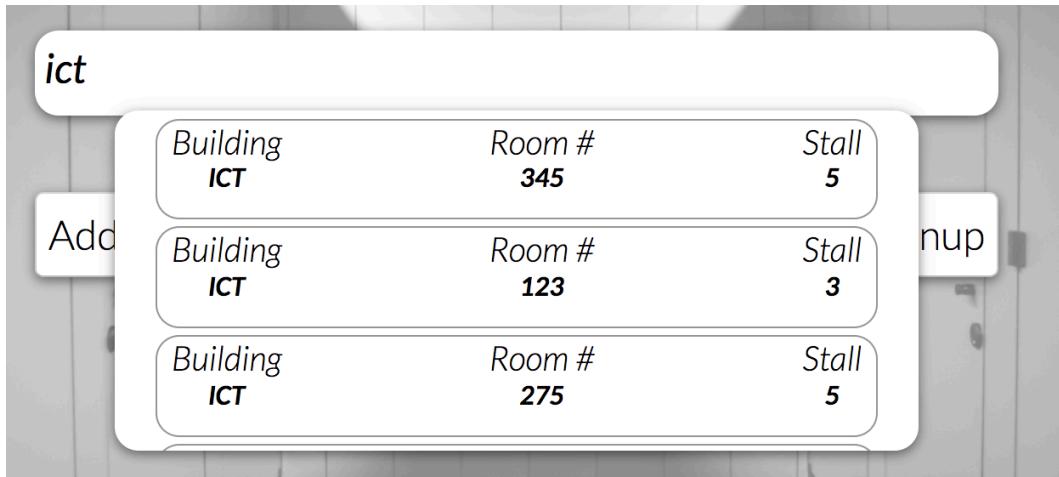


Now, when we try to log in, it is successful.

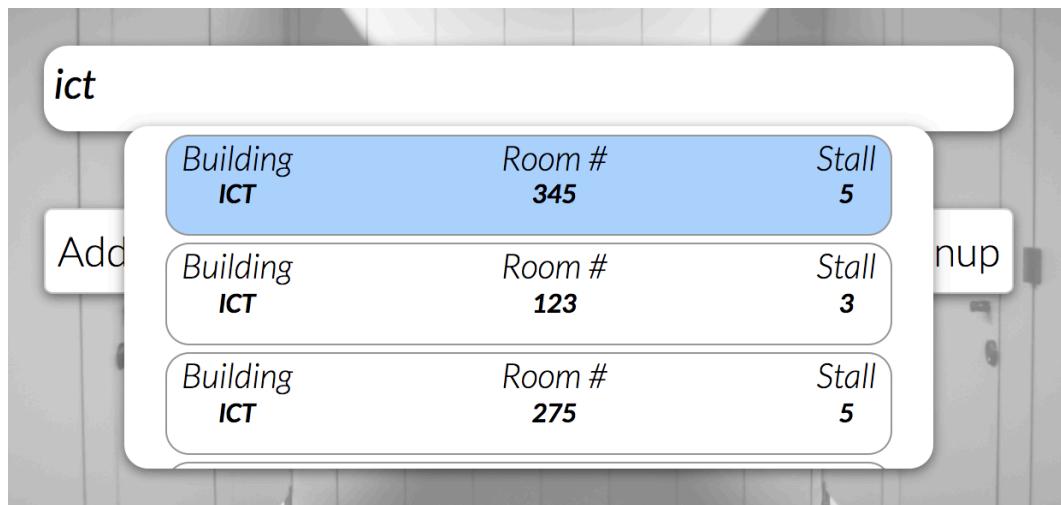


Basic Search

Our next step is to look for some bathrooms. We are looking for facilities in the ICT building, so we type in ICT



A bunch of facilities in the area show up that we can choose from. Let's pick the first bathroom.



A screen shows up, detailing the bathroom ratings, some basic facts, as well as all the user ratings. (Appears on next page.)

X

ICT 345

Status	Wheelchair	Gender	Amenities
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Location	Smell	Cleanliness	
★★★★★	★★	★★	
Maintanence	Wait time	Privacy	
★★	★★★★★	★★★★★	
<input style="background-color: #f0ad4e; color: white; border: none; padding: 5px 15px; border-radius: 5px; font-weight: bold; font-size: 1em;" type="button" value="New Rating"/>			

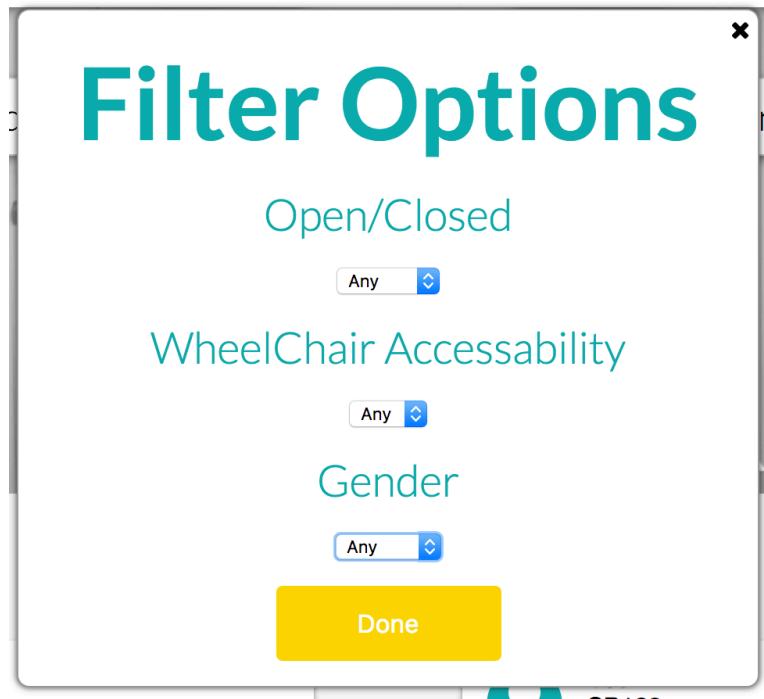
Guest
ICT 345

Location	Smell	Cleanliness
★★★★★	★★	★★
Maintanence	Wait Time	Privacy
★★	★★★★★	★★★★★

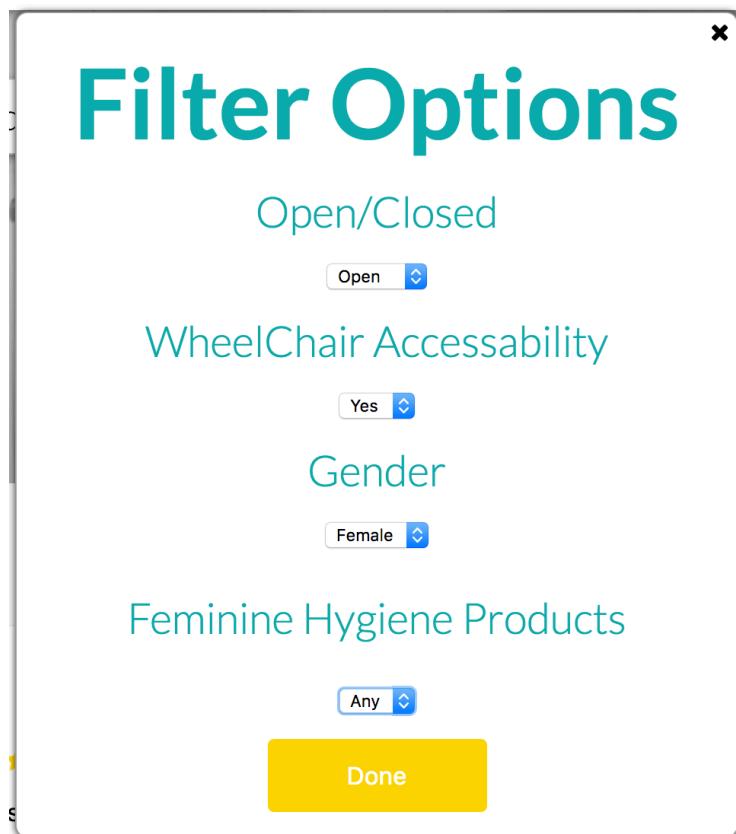
Mixed thoughts!

Advanced Search

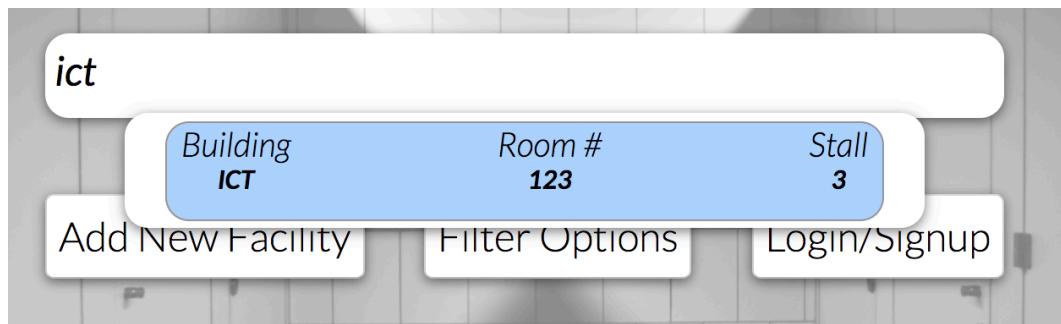
This is great, but we want to be a bit more detailed with our criteria. Lets try the advanced search. Select FILTER OPTIONS.



We are looking for open bathrooms that are wheelchair accessible, and female.



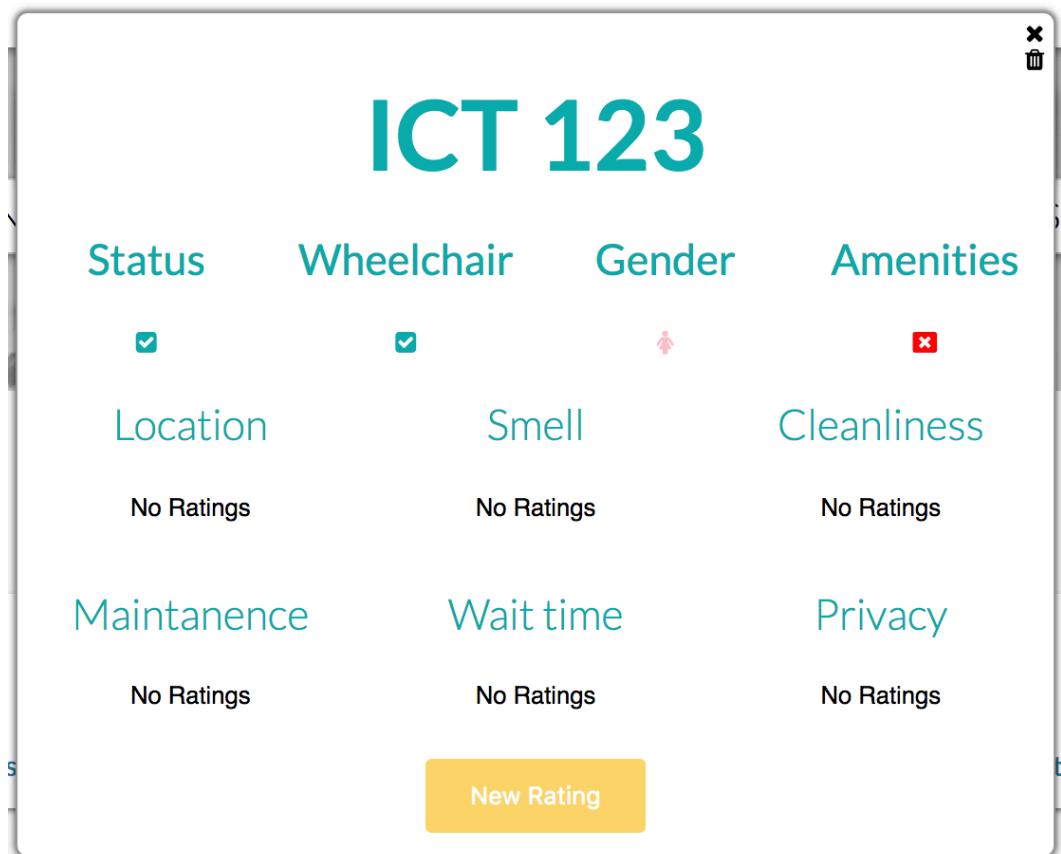
Notice that switching to a female bathroom adds additional criteria for us. Lets apply this filtered criteria and search again for bathrooms in ICT.



Now, we only have one bathroom that fits this filtered criteria!

Adding a Rating

Selecting the bathroom we found with our advanced filtering system, we notice that it doesn't yet have any ratings.



Being a bathroom we are familiar with, lets leave a rating. Select the ADD RATING button.

The screenshot shows a mobile application interface with the title "ICT 123" at the top. Below the title, there are six rating fields arranged in two rows of three. Each field consists of a numerical value (1) followed by a dropdown arrow icon. The first row contains "Location", "Smell", and "Cleanliness". The second row contains "Maintenance", "Wait time", and "Privacy". Below these fields is a large text input box with a blue border and the placeholder text "Enter an optional...". At the bottom of the screen is a yellow rectangular button with the word "Submit" in white text.

Fill out the rating and add a comment

Location Smell Cleanliness

Maintanence Wait time Privacy

This bathroom could really use some improvement!

Submit

Notice that after pressing submit, it has been added to the bathroom, and the user who left the comment is lenny.

ICT 123

Status	Wheelchair	Gender	Amenities
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Location	Smell	Cleanliness	
★★★	★★★★★	★★	
Maintanence	Wait time	Privacy	
★★★	★★★★★	★	
New Rating			

 lenny
ICT 123

Location	Smell	Cleanliness
★★★	★★★★★	★★
Maintanence	Wait Time	Privacy
★★★	★★★★★	★

This bathroom could really use some improvement!

Recent Reviews

Our program includes a section to see the most recent reviews on the page to see which bathrooms are being most talked about at the school at that moment. Notice that after leaving a review, it now shows up in our Recent Reviews section.

Recent Reviews



michaela
MSC231

asdfasdfsadf

★



lenny
ICT123

This bathroom could really use some improvement!

★★★



brody
SB123

Test test test sb

★



marley
SA123

New review for SA

★

Reviews



lenny
ICT123

This bathroom could really use some improvement!

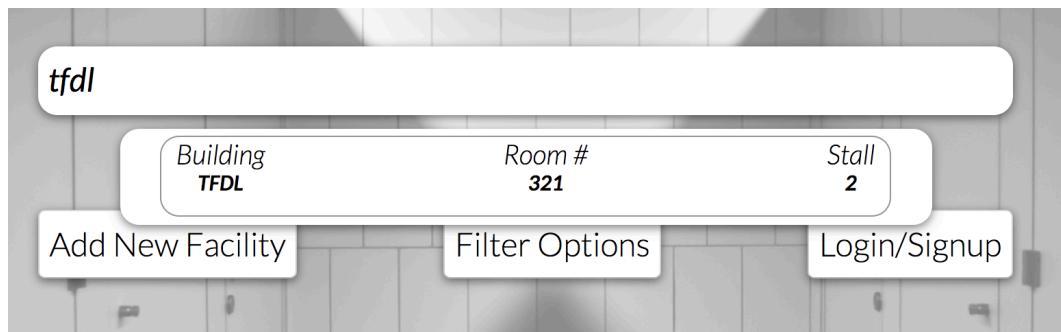
★★★



marley
SA123

Adding a Bathroom

Lets search for a different bathroom in TFDL, making sure to reset our filtering criteria. There is only one registered bathroom there so lets add a new one.



Select ADD NEW FACILITY and fill in the information that is pertinent.

New Washroom

Location Room Number Stall Number

TFDL 260 3

Open Gender

Open Female

WheelChair Accessible Feminine Hygiene Products

No No

Comments

A great little bathroom in the library!

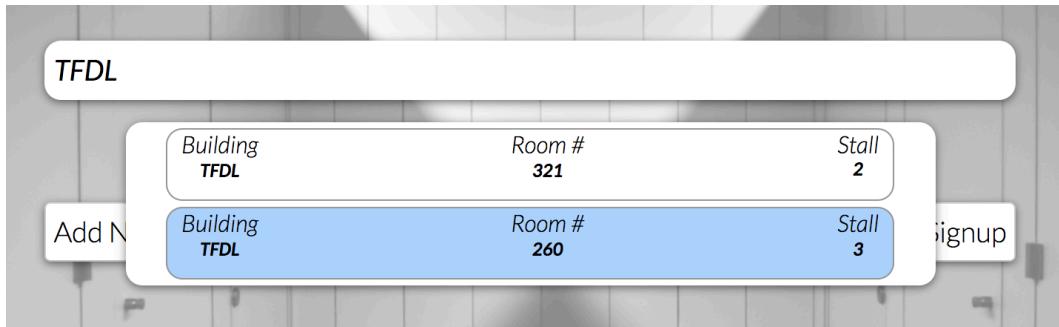
Submit

NEW FOR SA

WOW! What a cle

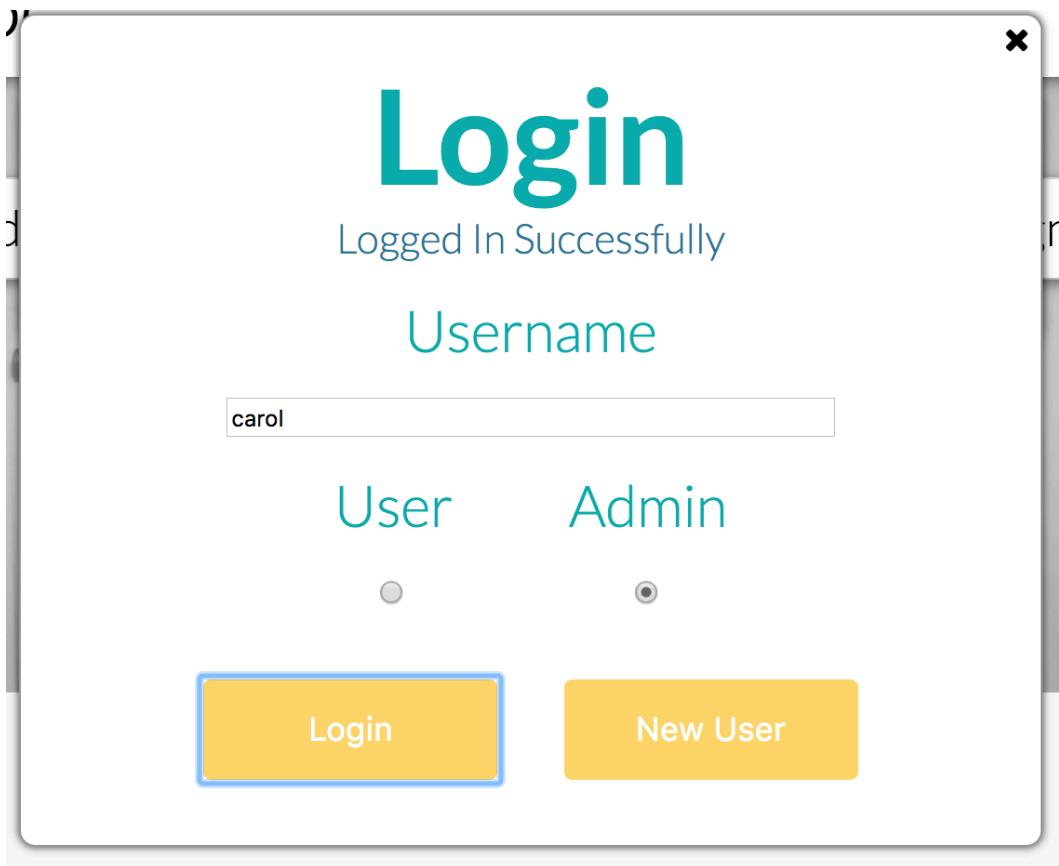
This is a form for adding a new washroom facility. It includes fields for Location (TFDL), Room Number (260), and Stall Number (3). There are dropdown menus for Open status (set to Open) and Gender (set to Female). There are also dropdown menus for WheelChair Accessible (set to No) and Feminine Hygiene Products (set to No). A comments section contains the text "A great little bathroom in the library!". A large yellow "Submit" button is at the bottom. The footer has some partially visible text: "NEW FOR SA" and "WOW! What a cle".

After submitting the new facility, we can search for TFDL bathrooms again, and now our added facility has been included!



Admin Mode

Another feature is being able to delete ratings and bathrooms when logged in as an Admin user. "carol" already has administrative privileges in our database so lets log into that account.



Now lets open any bathroom.

The screenshot shows a mobile application interface for a facility rating system. At the top, the facility name "KNES 221" is displayed in large teal letters. To the right of the name is a red arrow pointing right, followed by a red-outlined trash bin icon.

Status	Wheelchair	Gender	Amenities
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Below the header, there are six rating categories with their respective star ratings:

- Location: 1 star
- Smell: 2 stars
- Cleanliness: 1 star
- Maintainence: 1 star
- Wait time: 1 star
- Privacy: 2 stars

A yellow button labeled "New Rating" is positioned below the ratings.

Below the main rating section is a detailed rating card for a guest:

	Guest KNES 221	
Location	Smell	Cleanliness
1 star	2 stars	1 star
Maintainence	Wait Time	Privacy
1 star	1 star	2 stars

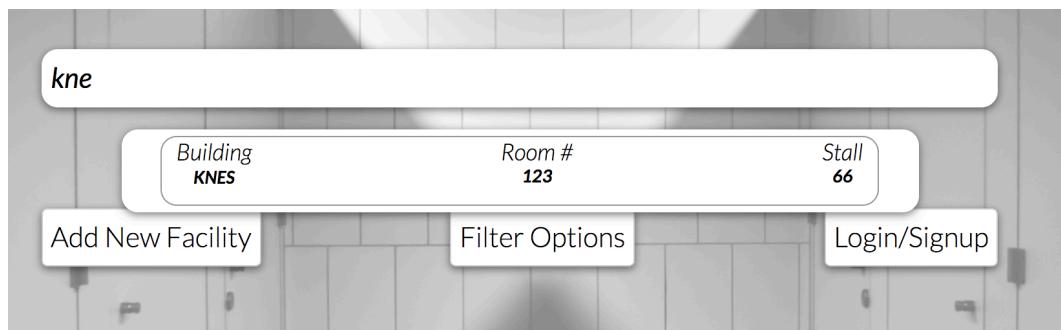
The card also contains the text "BAD LANGUAGE! PROFANITY! LEWD COMMENTS!" at the bottom.

Notice that we have some added functionality as an Admin. Garbage bin icons have showed up on the bathroom page as well as for each rating. This is to give the Administrators some control over the website, primarily for filtering of bad language and profanity on the website. Notice that one of the comments on this facility has inappropriate language. Clicking the delete garbage bin icon deletes this rating.

A screenshot of a facility rating card for 'KNES 221'. The card has a light gray background with a thin gray border. At the top right are two small icons: a red 'X' and a black trash can. Below the title, there are four sections with status icons: a green checkmark for 'Status', a red X for 'Wheelchair', a blue person icon for 'Gender', and a green checkmark for 'Amenities'. The card lists three categories with their respective ratings: 'Location' (No Ratings), 'Smell' (No Ratings), and 'Cleanliness' (No Ratings). Below these are 'Maintanence' (No Ratings), 'Wait time' (No Ratings), and 'Privacy' (No Ratings). A large yellow button at the bottom center contains the text 'New Rating'.

Status	Wheelchair	Gender	Amenities
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Location	Smell	Cleanliness	
No Ratings	No Ratings	No Ratings	
Maintanence	Wait time	Privacy	
No Ratings	No Ratings	No Ratings	
New Rating			

Similarly, we can delete an entire facility if for example it is a bathroom that doesn't actually exist or has been repurposed into another room. Lets try it with this bathroom.



When we search for bathrooms in the KNES building now, the deleted bathroom no longer appears.

7. Appendix A – Tables

Rating

id	bthrm_id	cleanliness	wait_time	user_approval	overall	smell	privacy	location	maintanence
17	463 ➔	2	4	Mike	5	4	5	2	3
58	899 ➔	1	1	Tim	5	1	1	1	1
104	57 ➔	2	2	Pat	5	2	2	2	2
126	937 ➔	2	2	Sue	5	2	2	2	2
146	905 ➔	1	1	Guest	5	1	1	1	1
290	630 ➔	5	5	Sam	5	5	5	5	5
299	813 ➔	3	4	Tim	5	3	3	4	4
302	905 ➔	5	5	Guest	5	5	5	5	5
326	905 ➔	4	4	Guest	5	4	4	4	4
331	58 ➔	1	1	Bob	5	1	1	1	1
428	637 ➔	5	5	Jen	5	5	5	5	5
433	377 ➔	3	3	Bill	5	3	3	3	3
540	361 ➔	5	5	Susy	5	5	5	5	5
576	859 ➔	5	5	Ela	5	5	5	5	5
607	747 ➔	4	4	Brody	5	4	4	4	4
615	881 ➔	2	2	Mike	5	2	2	2	2
757	685 ➔	3	3	Tim	5	3	3	3	3
963	420 ➔	1	1	Pat	5	1	1	1	1

Comments

id	comment	date	ordering
17 ➔	Really like this building, especially when first years blow stuff up	12/8/2017, 7:31:06 PM	1512786666022
58 ➔	So crapy :)	12/8/2017, 7:44:06 PM	1512787446066
104 ➔	There Isn't actually a 3rd floor In Kines, I'm lost!	12/8/2017, 7:21:41 PM	1512786101114
126 ➔	Haskayne Sucks!	12/8/2017, 7:46:19 PM	1512787579131
146 ➔	Not a huge fan!	12/8/2017, 7:56:27 PM	1512788187147
290 ➔	Love the 6th floor, theres nobody ever around	12/8/2017, 7:32:50 PM	1512786770293
299 ➔	Asbestus in the walls!	12/8/2017, 7:19:44 PM	1512785984310
302 ➔	My favourite washroom ever!!!	12/8/2017, 7:55:49 PM	1512788149304
326 ➔	The best, Very Private	12/8/2017, 7:56:09 PM	1512788169327
331 ➔	This is such a useless building, I only went here because I really had to go	12/8/2017, 7:23:07 PM	1512786187332
428 ➔	One time I really had to go while I was speed skating, this washroom saved...	12/8/2017, 7:33:53 PM	1512786833433
433 ➔	Meh, pretty average	12/8/2017, 7:27:13 PM	1512786433437
540 ➔	Wonderful experience	12/8/2017, 7:24:50 PM	1512786290543
576 ➔	Some biology went down in here	12/8/2017, 7:36:54 PM	1512787014583
607 ➔	I had to climb way to many stairs to get here	12/8/2017, 7:36:00 PM	1512786960610
615 ➔	I engineered some stuff	12/8/2017, 7:43:16 PM	1512787396624
757 ➔	Super crowded, but pretty decent overall	12/8/2017, 7:35:27 PM	1512786927761
963 ➔	This Place has been closed for months!	12/8/2017, 7:28:34 PM	1512786514969

Bathroom

id	stall_num	description	open	wheelchair	building	room_num
57	2	Kines	0	0	KNB	323
58	2	In a stupid building	1	1	TI	145
361	1	IN DA LIBRARY	0	1	TFDL	123
377	2	A great washroom, had an awesome time!	1	1	CHC	341
420	5	Engineering	0	1	ENF	333
463	2	Near the labs	1	1	EEEL	323
630	2	Great location	0	1	TFDL	651
637	2	Oval	1	1	OO	323
685	1	Washroom near the large science theatres	1	0	ST	213
747	2	Lots of stairs to get here	0	1	SS	341
813	1	In Craigie	0	0	MFH	342
859	2	In Bio sciences	1	1	BI	111
881	2	Wonderful spot for engineers	1	0	ENG	222
899	20	Under construction currently	0	0	ART	621
905	1	The best washroom ever	1	1	MSC	231
937	2	In haskayne	1	1	SH	222

Male Bathroom

id	urinals
58	1
361	0
377	1
420	1
463	1
630	1
685	1
859	0
899	0
937	1

Female Bathrooms

id	feminine
57	0
637	0
757	1
813	1
881	1
905	1

Users

id	name	password	admin
155	Pat	123	0
282	Sue	123	0
331	Mike	123	0
367	Sam	123	1
368	Brody	123	1
586	Tim	123	1
754	Bob	123	0
786	Ela	123	0
797	Jen	123	0
804	Bill	123	0
894	Susy	123	0