PearScale

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CS340 Final Project

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Introduction

PearScale is a website designed by and for members of the Pear Community. PearScale allows users to create an account to share images of pears online, and then to have them rated on a scale of 1-15 by other users. New pears can be seen on the 'Fresh' page, while the lucky top-rated pears can be viewed on the 'Ripe' page. Users may use the search bar to find a pear posted by a specific user, or with a specific title, description, or score. Users may add tags to their pears, and may also delete their own pears as well (if for some reason they decide to do that).

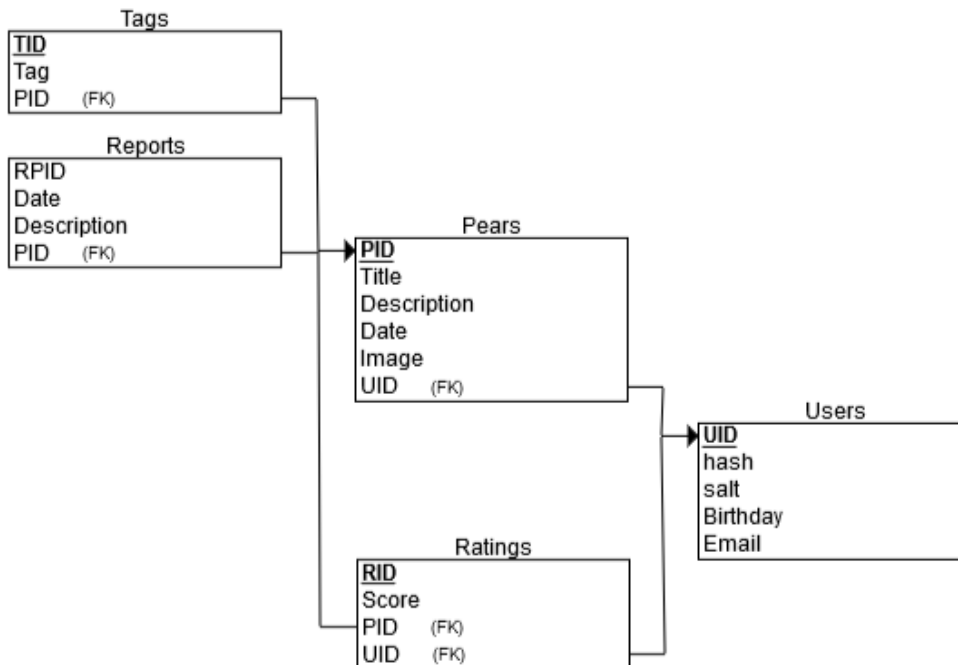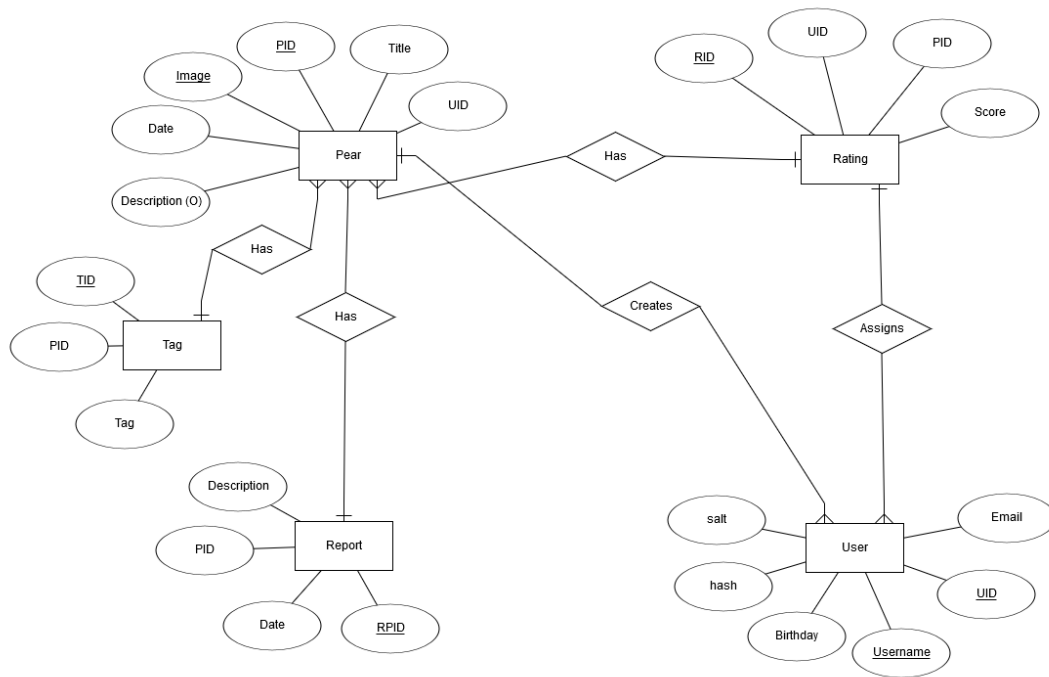## Detailed Functionality & Requirements

Functionality

- Any page visitor can view Fresh (newest) or Ripe (top rated) pears on the homepage
- A user may create an account
- Registered users may post a photo of a pear with a title, description, and tags
- Registered users can rate other users' pear pics
- A user may delete a pear they have posted
- Any page visitor can submit a report on a pear if they feel like it.
- Any page visitor can search for pears by title, description, author, rating, or tags

Business rules:

- ABSOLUTELY NO NON-PEAR PHOTOS PERMITTED
- Pears are ranked on a scale of 1-15
- Only one rating per user per pear is allowed

Database Design

Entity-Relationship diagram:

Pear entity with attributes: PID, Title, Image, Date, Description (O), UID
Rating entity with attributes: RID, UID, PID, Score
Tag entity with attributes: TID, PID, Tag
Report entity with attributes: Description, PID, Date, RPID
User entity with attributes: salt, hash, Birthday, Username, UID, Email

Relationships: Has, Creates, Assigns

Tags
- **TID**
- Tag
- PID (FK)

Reports
- RPID
- Date
- Description
- PID (FK)

Pears
- **PID**
- Title
- Description
- Date
- Image
- UID (FK)

Users
- **UID**
- hash
- salt
- Birthday
- Email

Ratings
- **RID**
- Score
- PID (FK)
- UID (FK)

Tables

Pears

	PID	Date	Time	Description	Title	Image	UID
☐ 🖉 Edit 👥 Copy 🚫 Delete	1	2019-11-19	00:00:00	A nice juicy one ;)	LOOK AT THIS PEAR	https://usapears.org/wp-content/uploads/2018/10/ba...	4
☐ 🖉 Edit 👥 Copy 🚫 Delete	2	2019-11-19	00:00:00	OH LAWWWDDD	SHE THICCCC	https://i.redd.it/h5x6pd4ztw321.jpg	1
☐ 🖉 Edit 👥 Copy 🚫 Delete	4	2019-11-19	00:00:00	see title	This one's ripe	https://cmkt-image-prd.freetls.fastly.net/0.1.0/ps...	8
☐ 🖉 Edit 👥 Copy 🚫 Delete	7	2019-11-19	00:00:00	dummy thicc	fat pear	https://i.redd.it/pckr8ndxcn131.jpg	2
☐ 🖉 Edit 👥 Copy 🚫 Delete	8	2019-11-19	00:00:00	please be gentle	Here's a thin one for you guys	https://usapears.org/wp-content/uploads/2007/11/se...	7
☐ 🖉 Edit 👥 Copy 🚫 Delete	9	2019-11-19	00:00:00	rate 15 for 100 years of good luck	blessed pear	https://i.dailymail.co.uk/i/pix/2016/01/26/16/3098...	6
☐ 🖉 Edit 👥 Copy 🚫 Delete	10	2019-11-19	00:00:00	very spookey	cursed pear	https://previews.123rf.com/images/bufka/bufka1209/...	7
☐ 🖉 Edit 👥 Copy 🚫 Delete	12	2019-11-20	00:00:00	Test pear please ignore	Test pear please ignore	https://www.bortonfruit.com/cache/img/5/5/8/c/9/55...	11
☐ 🖉 Edit 👥 Copy 🚫 Delete	62	2019-12-07	13:33:50	:(	swag	https://usapears.org/wp-content/uploads/2018/10/ba...	1
☐ 🖉 Edit 👥 Copy 🚫 Delete	69	2019-12-10	23:10:00	:)	A Nice Basket	https://upload.wikimedia.org/wikipedia/commons/thu...	13
☐ 🖉 Edit 👥 Copy 🚫 Delete	72	2019-12-11	16:09:10	whys he on his side? what the heck? rate 15 please	sideways pear	https://images.amcnetworks.com/bbcamerica.com/wp-c...	29

Users

	UID	Username	hash	salt	Birthday	Email
☐ 🖉 Edit 👥 Copy 🚫 Delete	29	a	SpJ2StezJ28DjtZl5weS/wfWcXueDRQu1giocmEBkBQ79cWLlC...	TvUp5rOL065PLg1Y4tIMpfnkunWN6svbSWE14+o7NV0S9QEMKA...	2019-11-24	a
☐ 🖉 Edit 👥 Copy 🚫 Delete	25	gamer	PGs1+K4Zw15twk36v4Jh60clEga2lxPhXDEg6ywjvdgwlYvi4V...	rV6pgwlXH7iTQUI3l0Jy0uTrlQ5v3GgNr4BQEabBMF8HUMnGGW...	0000-00-00	swag
☐ 🖉 Edit 👥 Copy 🚫 Delete	24	marissa	bAQqmZRAGH0Akpy4mAexOmGisk1NW0dUYE7n7NWACOcG5P5WmF...	4VtD0VqCiFkq0km/tiyuHXtQxkmnUrjJwWeSGkOtRyC7S3aWHq...	2019-11-24	cool
☐ 🖉 Edit 👥 Copy 🚫 Delete	23	swag commander	FQmP4lvcb5yL/wF8zED8Wk7zkQgdgfbOyYb3ejTGj9BCdPaA6C...	YeRurXD91maWWMYR5BQWCDWZWxVQ7zL055X6uTVUlwRXAjRo3r...	2019-11-27	2
☐ 🖉 Edit 👥 Copy 🚫 Delete	22	epic guy	ycMhapKiwr/aB62XEoZrfqJrnLO43nfGnWOpJt/q/k9QSnJED3...	QKlmisZk0LWLlBldJQOr4DwABy7Cs5oq1esfl0/ZwpDi0cV1xA...	2019-11-24	1
☐ 🖉 Edit 👥 Copy 🚫 Delete	21	swagger	QNglkpT7lny3PiNNvZVjGQlfmgr6+Z8OXHkJPBfj5XHPqth7pz...	e4iojAfyqpZUkLoGjK02SQDO8mxC9vslu8oPsOmYd52D/VeSwX...	2019-11-30	test
☐ 🖉 Edit 👥 Copy 🚫 Delete	20	abcd	4CgJjfZPLL4qLaRS9lMHfqNj9Z4zXxrBIW0jgw3T/peTy+ktM6...	62T8w3xy6qwwD63hLJBv1LqOFTwtgN5DymKpl695EOOZAXTyxX...	2019-11-27	test
☐ 🖉 Edit 👥 Copy 🚫 Delete	19	swagman	BBR+xHlKOi0Ckn52bGpaXJZaOOwjsCnuAEBNyFSAP+JjP2Vjn3...	aPZliBkWPcQCSLEuu8M53mwQMjjWZFwLihxYUyihjRqV9Ej4j6...	2019-11-26	a
☐ 🖉 Edit 👥 Copy 🚫 Delete	18	epicson	LPgf/1OpAwcJy6RBl00zORwj2etFwHb8/JR52Ab+x5bBSmy24t...	UaJWAi3LAwwFbNX+xoEsvKHzTgjO9ZMMylUig2iAbc6qNh9wji...	2019-12-04	test@test.com
☐ 🖉 Edit 👥 Copy 🚫 Delete	17	comma_kaze	o+0fxhGYwg5et2D+pGnZ4Uwsf0I79JwP0GoLq3WYhEPAnjnQws...	FiQ1yc/AkDvHVYM6xJ/ewupcRu7z8N2GsK1E6wHWlOFlFZx+xX...	1926-12-01	kyle@kyle.com
☐ 🖉 Edit 👥 Copy 🚫 Delete	16	pear_god	0GP60iYTFmRz/8MEPQ1m03Qw73xDFK/l8Q+15dYi2oQ1ms4VWS...	pwrOH/fqzYBO913EBNajb1D6FRsK4RLHtd9ue0nYm7P7OfjDob...	2019-12-01	lilb@gmail.com
☐ 🖉 Edit 👥 Copy 🚫 Delete	13	testUser	1uDa5j7dqdYoNnVt9iET57p4TVA0fnwbR6ZdRZN0iVJ1lTObHB...	ZdtZhlp167KEDt3o2vyEBU2ICecl7tJn6cCDWSg5iRqC+Ftsti...	2019-01-01	test@gmail.com

Ratings

	RID	Score	PID	UID
☐ 🖉 Edit 👥 Copy 🚫 Delete	21	1	1	24
☐ 🖉 Edit 👥 Copy 🚫 Delete	25	12	1	29
☐ 🖉 Edit 👥 Copy 🚫 Delete	13	15	2	13
☐ 🖉 Edit 👥 Copy 🚫 Delete	1	4	2	9
☐ 🖉 Edit 👥 Copy 🚫 Delete	8	15	2	1
☐ 🖉 Edit 👥 Copy 🚫 Delete	6	6	4	6
☐ 🖉 Edit 👥 Copy 🚫 Delete	2	15	4	9
☐ 🖉 Edit 👥 Copy 🚫 Delete	11	6	5	1
☐ 🖉 Edit 👥 Copy 🚫 Delete	23	9	7	13
☐ 🖉 Edit 👥 Copy 🚫 Delete	9	3	8	4
☐ 🖉 Edit 👥 Copy 🚫 Delete	3	14	8	2
☐ 🖉 Edit 👥 Copy 🚫 Delete	10	4	9	5
☐ 🖉 Edit 👥 Copy 🚫 Delete	16	6	9	13
☐ 🖉 Edit 👥 Copy 🚫 Delete	12	8	10	13
☐ 🖉 Edit 👥 Copy 🚫 Delete	4	8	10	6
☐ 🖉 Edit 👥 Copy 🚫 Delete	7	4	11	10
☐ 🖉 Edit 👥 Copy 🚫 Delete	15	8	12	13
☐ 🖉 Edit 👥 Copy 🚫 Delete	19	4	62	18
☐ 🖉 Edit 👥 Copy 🚫 Delete	22	1	62	13
☐ 🖉 Edit 👥 Copy 🚫 Delete	14	7	65	13

Reports

					RPID	Date ▾ 1	PID	Description
☐	Edit	Copy	Delete		29	2019-12-10	65	report_nsfw
☐	Edit	Copy	Delete		21	2019-12-10	2	report_nsfw
☐	Edit	Copy	Delete		22	2019-12-10	2	report_notPear
☐	Edit	Copy	Delete		23	2019-12-10	2	report_hatecrime
☐	Edit	Copy	Delete		24	2019-12-10	2	report_hatecrime
☐	Edit	Copy	Delete		25	2019-12-10	2	report_hatecrime
☐	Edit	Copy	Delete		26	2019-12-10	2	report_hatecrime
☐	Edit	Copy	Delete		27	2019-12-10	9	report_nsfw
☐	Edit	Copy	Delete		28	2019-12-10	65	report_hatecrime
☐	Edit	Copy	Delete		20	2019-12-09	10	report_hatecrime

Tags

					TID	Tag	PID
☐	Edit	Copy	Delete		1	good	1
☐	Edit	Copy	Delete		2	thicc	2
☐	Edit	Copy	Delete		3	juicy	1
☐	Edit	Copy	Delete		4	cursed	10
☐	Edit	Copy	Delete		5	lucky	9
☐	Edit	Copy	Delete		6	fat	7
☐	Edit	Copy	Delete		7	old	11
☐	Edit	Copy	Delete		8	skinny	8
☐	Edit	Copy	Delete		9	mysterious	10
☐	Edit	Copy	Delete		10	moldy	10
☐	Edit	Copy	Delete		11	test	72
☐	Edit	Copy	Delete		12	good	72
☐	Edit	Copy	Delete		13	juicy	72
☐	Edit	Copy	Delete		14	bowl	69

Views

highestRatedPears

PID	Date	Time	Description	Title	Image	UID	Username	Average
69	2019-12-10	23:10:00	:)	A Nice Basket	https://upload.wikimedia.org/wikipedia/commons/thu...	13	testUser	15.00
2	2019-11-19	00:00:00	OH LAWWWDDD	SHE THICCCC	https://i.redd.it/h5x6pd4ztw321.jpg	1	swetti_boy	11.33
4	2019-11-19	00:00:00	see title	This one's ripe	https://cmkt-image-prd.freetls.fastly.net/0.1.0/ps...	8	Kanye	10.50
7	2019-11-19	00:00:00	dummy thicc	fat pear	https://i.redd.it/pckr8ndxcn131.jpg	2	cheesedon	9.00
8	2019-11-19	00:00:00	please be gentle	Here's a thin one for you guys	https://usapears.org/wp-content/uploads/2007/11/se...	7	JimmyNeutron	8.50
12	2019-11-20	00:00:00	Test pear please ignore	Test pear please ignore	https://www.bortonfruit.com/cache/img/5/5/8/c/9/55...	11	bobby_basketball_1999	8.00
10	2019-11-19	00:00:00	very spookey	cursed pear	https://previews.123rf.com/images/bufka/bufka1209/...	7	JimmyNeutron	8.00
72	2019-12-11	16:09:10	whys he on his side? what the heck? rate 15 please	sideways pear	https://images.amcnetworks.com/bbcamerica.com/wp-c...	29	a	8.00
1	2019-11-19	00:00:00	A nice juicy one ;)	LOOK AT THIS PEAR	https://usapears.org/wp-content/uploads/2018/10/ba...	4	Cool Guy	6.50
9	2019-11-19	00:00:00	rate 15 for 100 years of good luck	blessed pear	https://i.dailymail.co.uk/i/pix/2016/01/26/16/3098...	6	Jeffery E	5.00
62	2019-12-07	13:33:50	:(		swag	https://usapears.org/wp-content/uploads/2018/10/ba...	1	swetti_boy	2.50

newestPears

PID	Date	Time	Description	Title	Image	Username	Average
72	2019-12-11	16:09:10	whys he on his side? what the heck? rate 15 please	sideways pear	https://images.amcnetworks.com/bbcamerica.com/wp-c...	a	8.00
69	2019-12-10	23:10:00	:)	A Nice Basket	https://upload.wikimedia.org/wikipedia/commons/thu...	testUser	15.00
62	2019-12-07	13:33:50	:(	swag	https://usapears.org/wp-content/uploads/2018/10/ba...	swetti_boy	2.50
12	2019-11-20	00:00:00	Test pear please ignore	Test pear please ignore	https://www.bortonfruit.com/cache/img/5/5/8/c/9/55...	bobby_basketball_1999	8.00
10	2019-11-19	00:00:00	very spookey	cursed pear	https://previews.123rf.com/images/bufka/bufka1209/...	JimmyNeutron	8.00
9	2019-11-19	00:00:00	rate 15 for 100 years of good luck	blessed pear	https://i.dailymail.co.uk/i/pix/2016/01/26/16/3098...	Jeffery E	5.00
8	2019-11-19	00:00:00	please be gentle	Here's a thin one for you guys	https://usapears.org/wp-content/uploads/2007/11/se...	JimmyNeutron	8.50
7	2019-11-19	00:00:00	dummy thicc	fat pear	https://i.redd.it/pckr8ndxcn131.jpg	cheesedon	9.00
4	2019-11-19	00:00:00	see title	This one's ripe	https://cmkt-image-prd.freetls.fastly.net/0.1.0/ps...	Kanye	10.50
2	2019-11-19	00:00:00	OH LAWWWDDD	SHE THICCCC	https://i.redd.it/h5x6pd4ztw321.jpg	swetti_boy	11.33
1	2019-11-19	00:00:00	A nice juicy one ;)	LOOK AT THIS PEAR	https://usapears.org/wp-content/uploads/2018/10/ba...	Cool Guy	6.50

pearsByUser

| PID	Date	Time	Description	Title	Image	Username	Average
72	2019-12-11	16:09:10	whys he on his side? what the heck? rate 15 please	sideways pear	https://images.amcnetworks.com/bbcamerica.com/wp-c...	a	8.00
69	2019-12-10	23:10:00	:)	A Nice Basket	https://upload.wikimedia.org/wikipedia/commons/thu...	testUser	15.00
12	2019-11-20	00:00:00	Test pear please ignore	Test pear please ignore	https://www.bortonfruit.com/cache/img/5/5/8/c/9/55...	bobby_basketball_1999	8.00
4	2019-11-19	00:00:00	see title	This one's ripe	https://cmkt-image-prd.freetls.fastly.net/0.1.0/ps...	Kanye	10.50
8	2019-11-19	00:00:00	please be gentle	Here's a thin one for you guys	https://usapears.org/wp-content/uploads/2007/11/se...	JimmyNeutron	8.50
10	2019-11-19	00:00:00	very spookey	cursed pear	https://previews.123rf.com/images/bufka/bufka1209/...	JimmyNeutron	8.00
9	2019-11-19	00:00:00	rate 15 for 100 years of good luck	blessed pear	https://i.dailymail.co.uk/i/pix/2016/01/26/16/3098...	Jeffery E	5.00
1	2019-11-19	00:00:00	A nice juicy one ;)	LOOK AT THIS PEAR	https://usapears.org/wp-content/uploads/2018/10/ba...	Cool Guy	6.50
7	2019-11-19	00:00:00	dummy thicc	fat pear	https://i.redd.it/pckr8ndxcn131.jpg	cheesedon	9.00
2	2019-11-19	00:00:00	OH LAWWWDDD	SHE THICCCC	https://i.redd.it/h5x6pd4ztw321.jpg	swetti_boy	11.33
62	2019-12-07	13:33:50	:(	swag	https://usapears.org/wp-content/uploads/2018/10/ba...	swetti_boy	2.50

pearTags

Tag	TID	PID	UID	Title	Description	Image	Date	Time	Username	Average
good	1	1	4	LOOK AT THIS PEAR	A nice juicy one ;)	https://usapears.org/wp-content/uploads/2018/10/ba...	2019-11-19	00:00:00	Cool Guy	6.50
juicy	3	1	4	LOOK AT THIS PEAR	A nice juicy one ;)	https://usapears.org/wp-content/uploads/2018/10/ba...	2019-11-19	00:00:00	Cool Guy	6.50
thicc	2	2	1	SHE THICCCC	OH LAWWWDDD	https://i.redd.it/h5x6pd4ztw321.jpg	2019-11-19	00:00:00	swetti_boy	11.33
fat	6	7	2	fat pear	dummy thicc	https://i.redd.it/pckr8ndxcn131.jpg	2019-11-19	00:00:00	cheesedon	9.00
skinny	8	8	7	Here's a thin one for you guys	please be gentle	https://usapears.org/wp-content/uploads/2007/11/se...	2019-11-19	00:00:00	JimmyNeutron	8.50
lucky	5	9	6	blessed pear	rate 15 for 100 years of good luck	https://i.dailymail.co.uk/i/pix/2016/01/26/16/3098...	2019-11-19	00:00:00	Jeffery E	5.00
cursed	4	10	7	cursed pear	very spookey	https://previews.123rf.com/images/bufka/bufka1209/...	2019-11-19	00:00:00	JimmyNeutron	8.00
mysterious	9	10	7	cursed pear	very spookey	https://previews.123rf.com/images/bufka/bufka1209/...	2019-11-19	00:00:00	JimmyNeutron	8.00
moldy	10	10	7	cursed pear	very spookey	https://previews.123rf.com/images/bufka/bufka1209/...	2019-11-19	00:00:00	JimmyNeutron	8.00
bowl	14	69	13	A Nice Basket	:)	https://upload.wikimedia.org/wikipedia/commons/thu...	2019-12-10	23:10:00	testUser	15.00
test	11	72	29	sideways pear	whys he on his side? what the heck? rate 15 please	https://images.amcnetworks.com/bbcamerica.com/wp-c...	2019-12-11	16:09:10	a	8.00
good	12	72	29	sideways pear	whys he on his side? what the heck? rate 15 please	https://images.amcnetworks.com/bbcamerica.com/wp-c...	2019-12-11	16:09:10	a	8.00
juicy	13	72	29	sideways pear	whys he on his side? what the heck? rate 15 please	https://images.amcnetworks.com/bbcamerica.com/wp-c...	2019-12-11	16:09:10	a	8.00

Website Design

There are 3 main pages on PearScale: The home page, the pear page, and the user page.
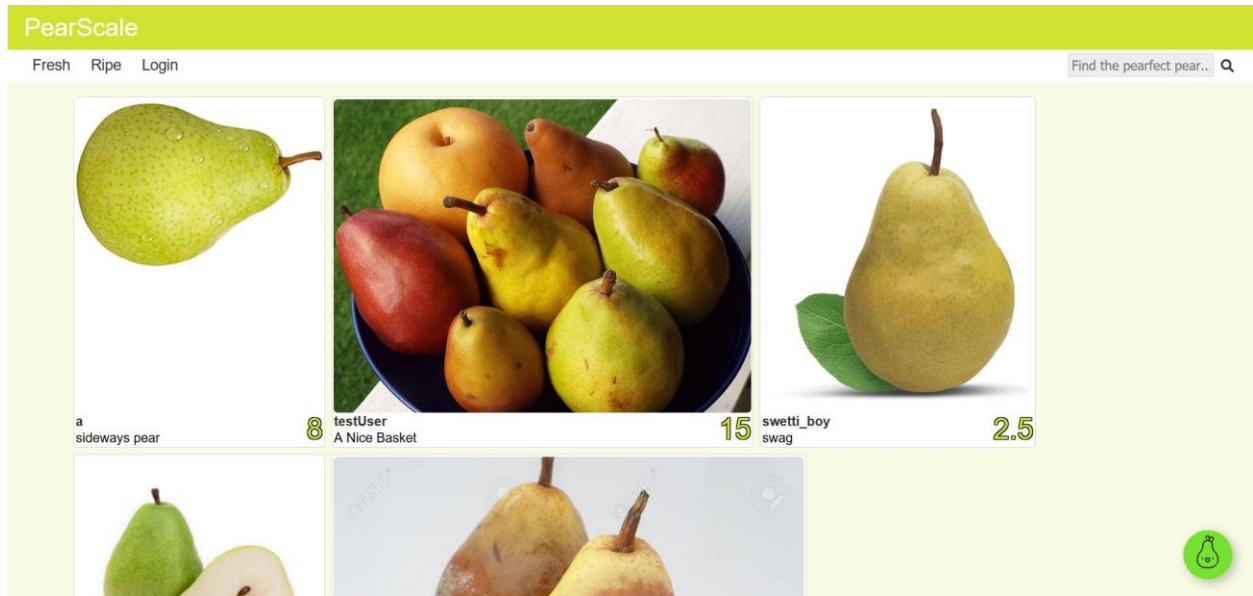
On the home page, Fresh and Ripe pears may be viewed. By default, Fresh pears are shown. The pear posting button is visible in the bottom right corner of the screen, and it is only available on the home page. Clicking it brings up a modal prompting the user to submit a pear.
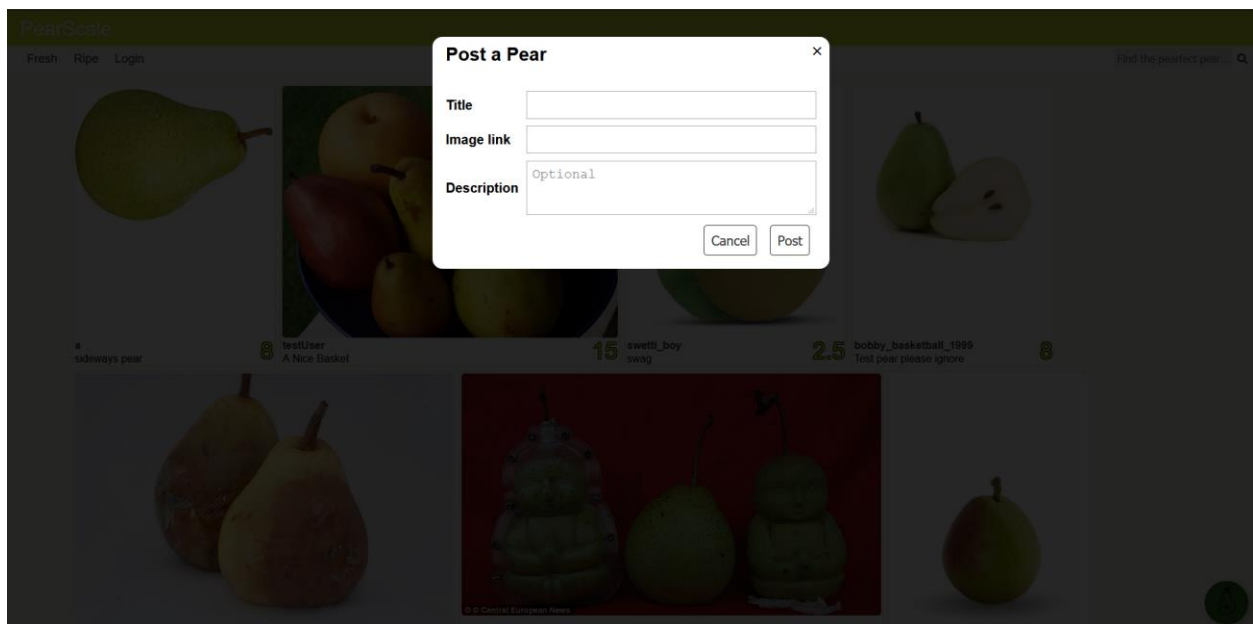
Clicking the login button prompts the user to login, and also gives them an option to create an account, which brings up a second modal.
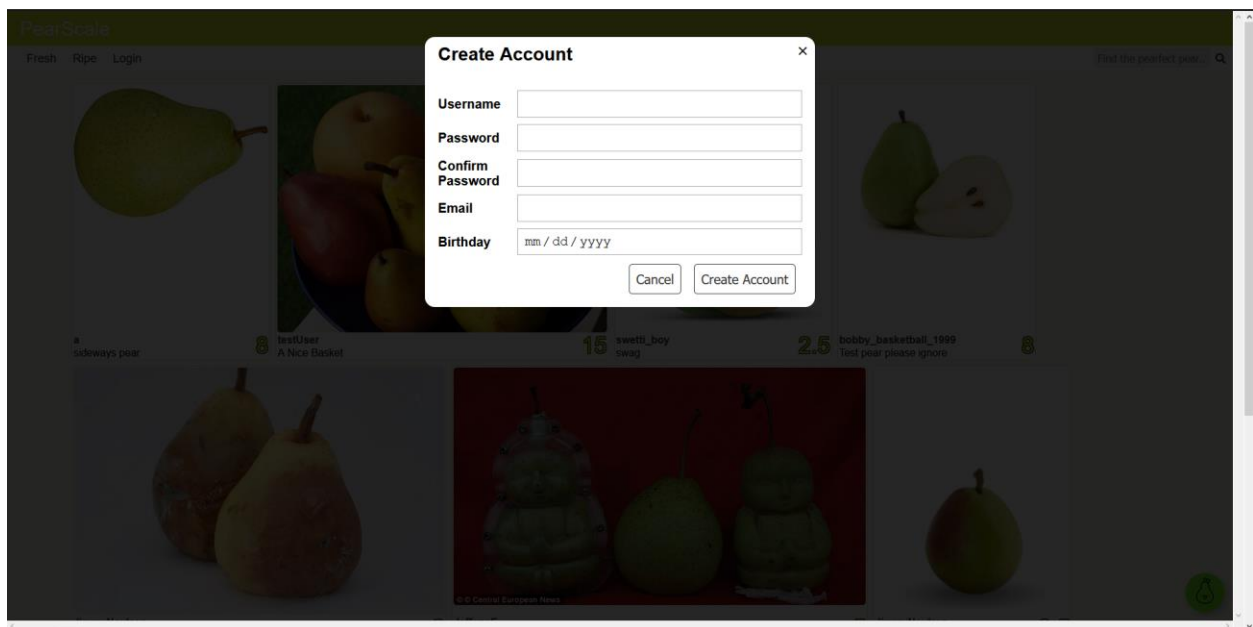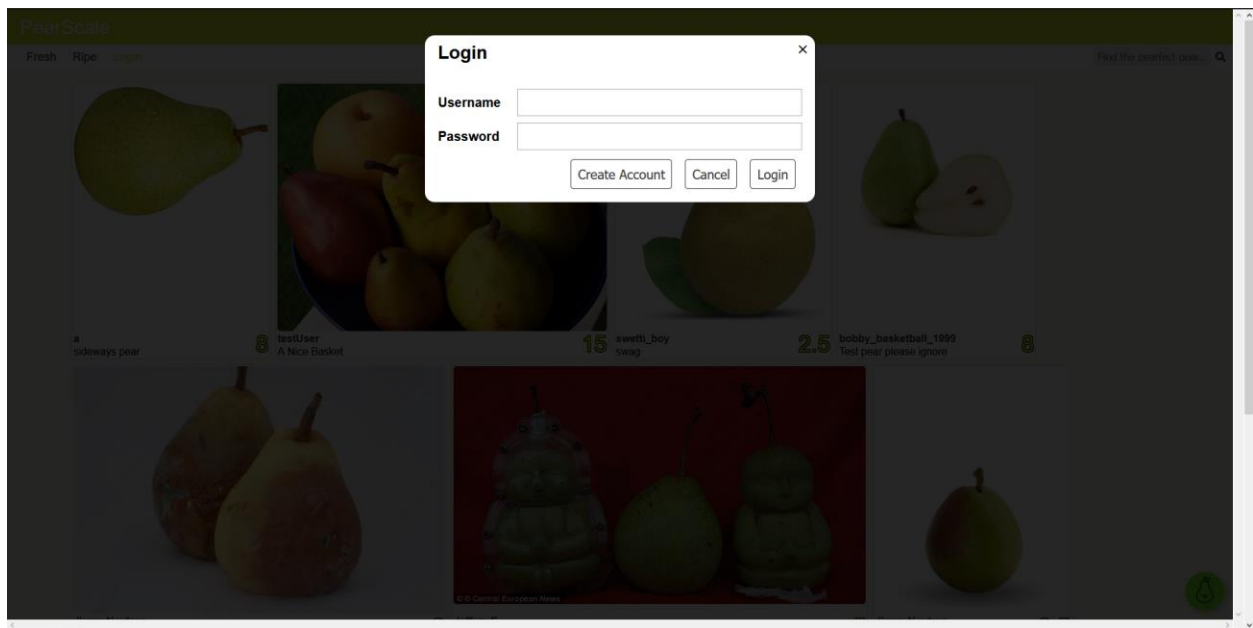
Creating an account automatically logs the user in.
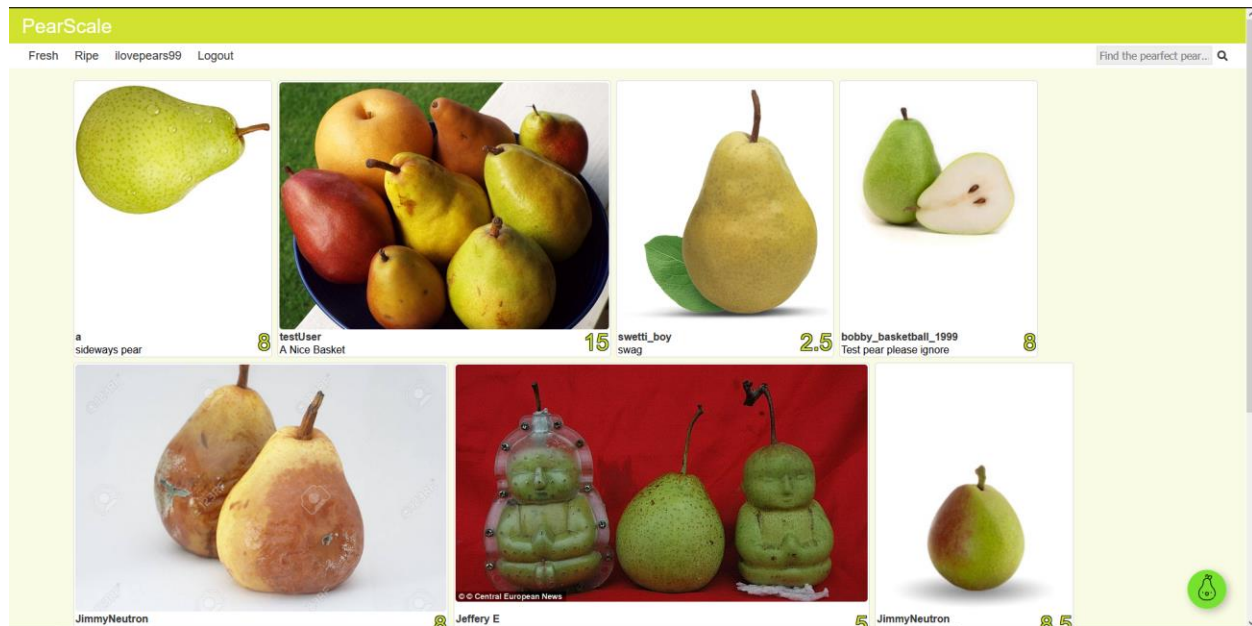
When a user is logged in, the login button is replaced by the username, and an option to log out is added.

Clicking any pear brings the user to the pear page.

Pear page:
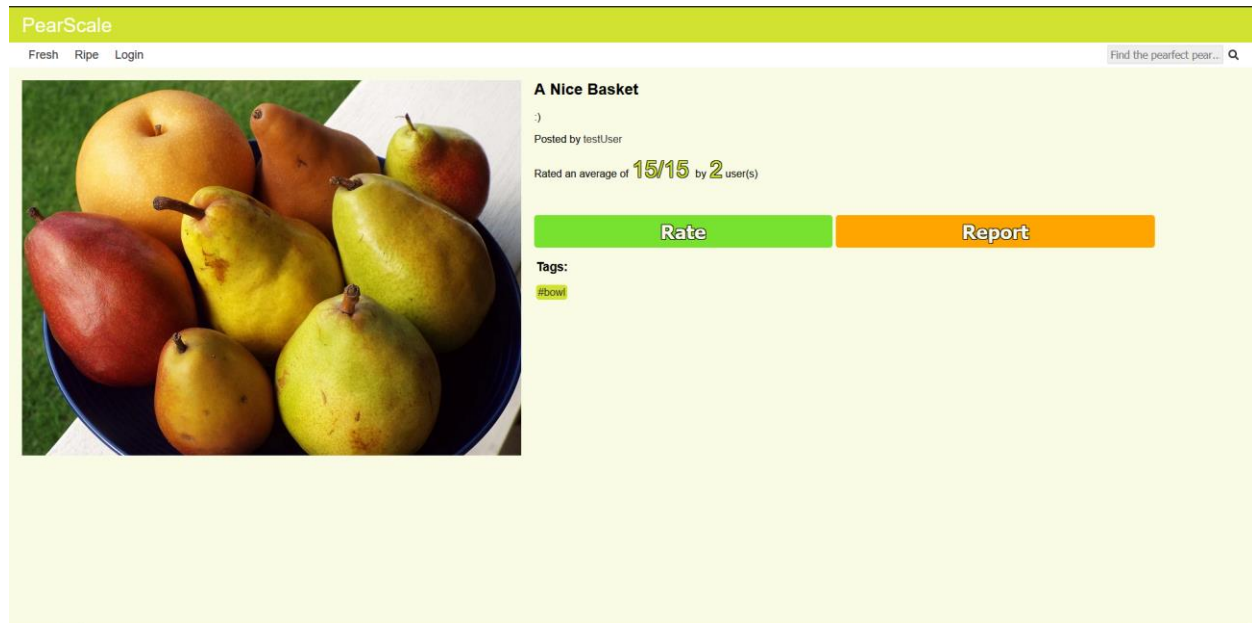
Here the title and description can be viewed, as well as the number of users who have rated the pear. The user may rate or report the pear, both of which have their own modals. Tags are visible.

If the pear was posted by the user, the Report button is replaced with a delete button. Owners of a pear may also add tags.
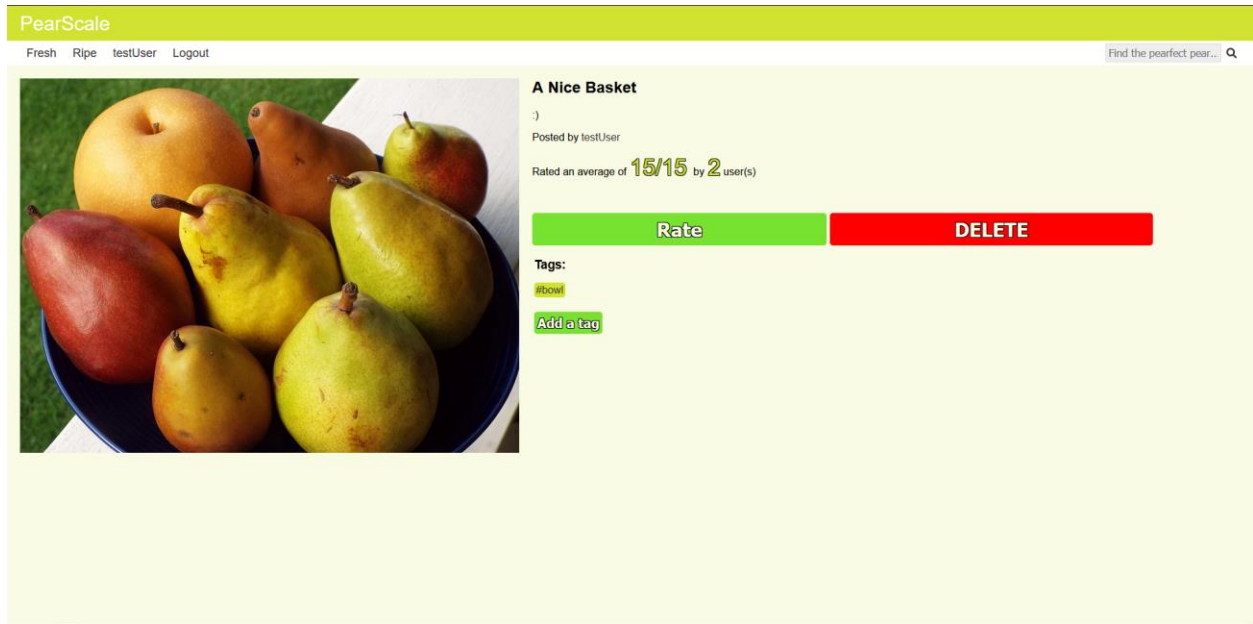
Clicking on a username brings the user to that user's page.

User page:
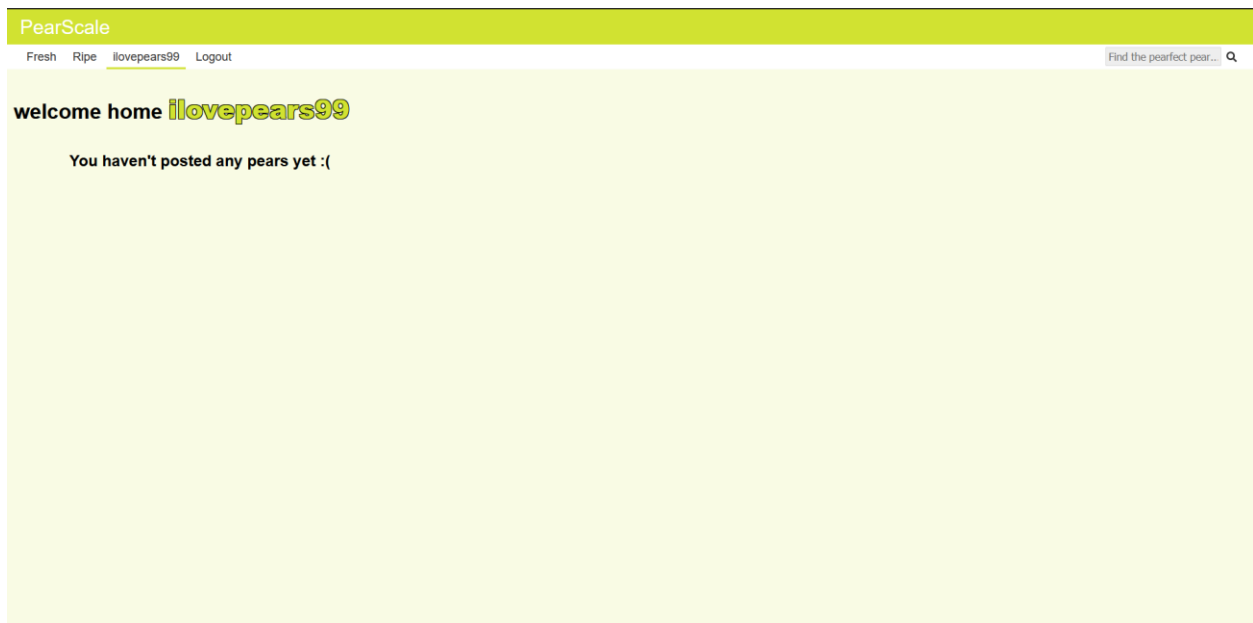
The user's personal page looks different from other user's pages.

Clicking on a tag or searching for anything brings the user to the search page where the results are shown. Here is the result of clicking on the #THICC tag.

Implementation

We used 3 main programs to run the website.

DAO (Data Access Object)
- Acts as interface between database and server
- Handles all SQL queries to database and returns queried data
- Examples:
  - ▶ getPearById() executes the query `SELECT * FROM Pears WHERE PID = ?`
  - ▶ ratePear() executes the query `SELECT * FROM Ratings WHERE (PID = ? AND UID = ?)` to first check if the user has rated the pear yet. If they haven't, the query `INSERT INTO Ratings (Score, PID, UID) VALUES (?)` is executed. Otherwise if the user has rated the pear before, `'UPDATE Ratings SET Score = ? WHERE (PID = ? AND UID = ?)'` is executed.

Server
- Node.js Express routing
- Express sessions for session management
- Handles user authentication & password hashing
- Calls DAO functions when endpoint is requested by client

Client
- Pages templated by Handlebars
- Queries server endpoints
- Handles/displays responses from server

Evaluation

To test PearScale, each feature was gone through one by one. Each possible situation was tested for each feature (logged in, logged out, leaving fields blank, overflowing fields, refreshing the page, etc), and when an error was found we would go back in and fix it. This was done during the development phase as each feature was implemented, and if a new feature was added that interacted with an old one, we would go back and confirm that everything still worked as expected.

For example, the first major feature we implemented was the ability to post pears, which we added before the ability to create an account and log in. After we implemented the ability to log in, we had to go back through and make sure there was no way to post a pear without already being logged in.

After showing several of our friends and peers the site, we have determined that its usability is very high. No one had any trouble figuring out how to post a pear, and the site navigation is very intuitive. If they were asked to navigate anywhere on the site, they had no trouble getting there within a couple clicks.

Future work + Lessons learned

For the most part all the backend work is complete. Almost everything we want to develop further is on the frontend. Other than styling, some features we would like to add include:

- More detailed user pages
  - ▶ Include more information about the user. How many times have they rated a pear? What is their average rating on their own posts? How many times have their posts been reported?
- More detailed pear pages
- Rate pears from the home page
- View tags from the home page
- Comments
- More robust search function

Appendix – Team Report

Zach Kauffman: UI/UX, frontend JS, SQL query formulation

David Kalcic: DAO functions, server code, SQL query formulation