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What is JHUsed ?

- Problem

JHU has a large 2nd hand goods market, but no good software platform to facilitate buying & selling

- Solution

✗ Facebook Free & For Sale

✓ JHUsed

- Pros

By & for Hopkins students & staff!

Easy searching & filtering!

Wishlist!

Demo



Search for posts



Login

ALL

▼ Most Recently Updated ▼



FIRE
\$0.05

📍 Marylander



test grabcut
\$111

📍 aaa



test
\$12

📍 tttt



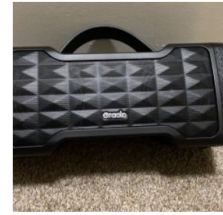
Desk for presentation
\$9

📍 Homewood



iphone 12
\$600

📍 homewood



portable speaker
\$39

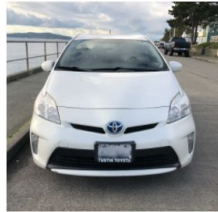
📍 homewood



macbook pro



Standing L-Desk Leas



prius



Samsuna TV brand new



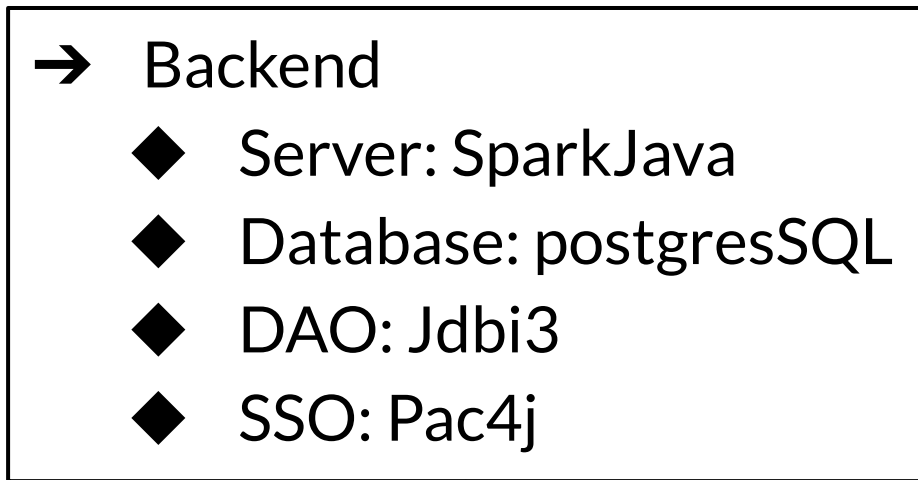
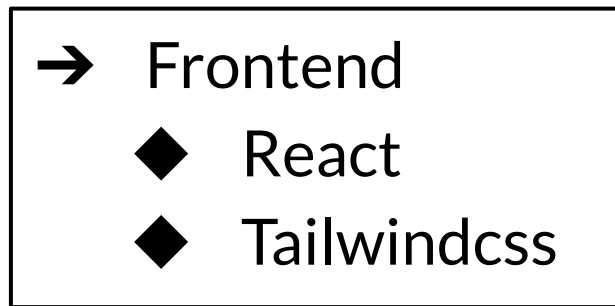
table ikea md



Violin for sale

Architecture

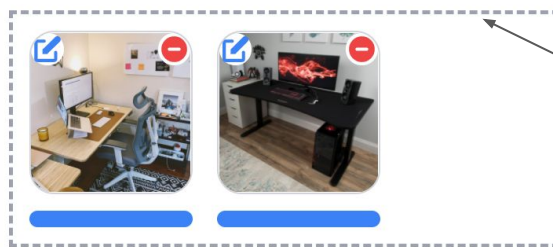
Overview



Frontend

Post editor

1. Formik for data validation
2. Dropzone for drag & drop support



Upload



Firebase



FORMIK

Validate

Price

\$ 29.50

Please give it a price

Backend

API server

DataBase

Controller and jdbciDao

SSO

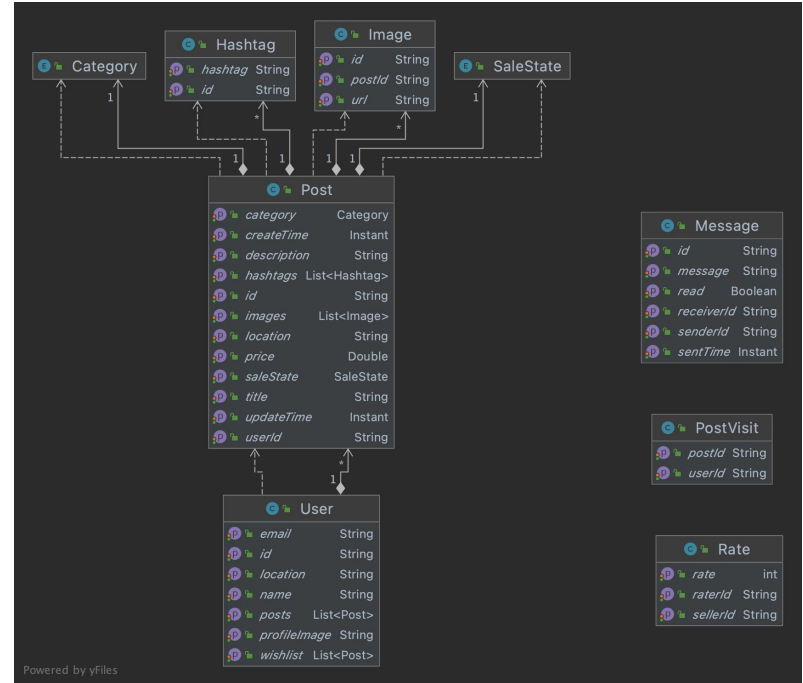
UML for Model

Post model contains:

Hashtag and images

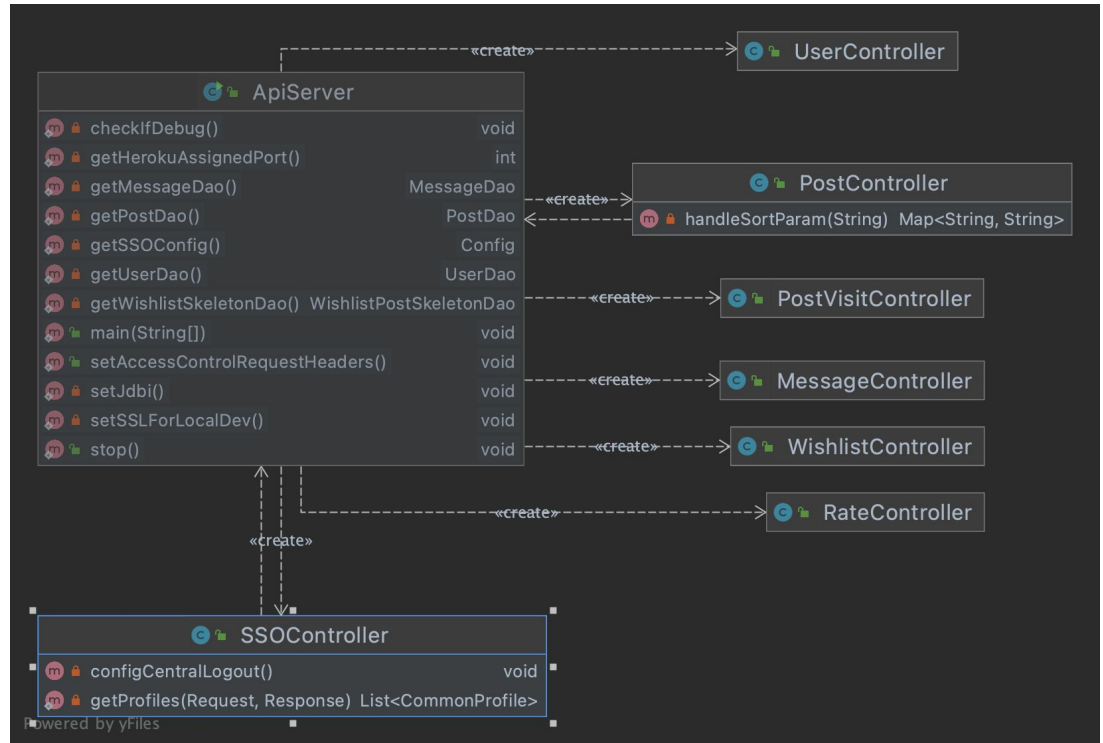
User model contains:

Posts



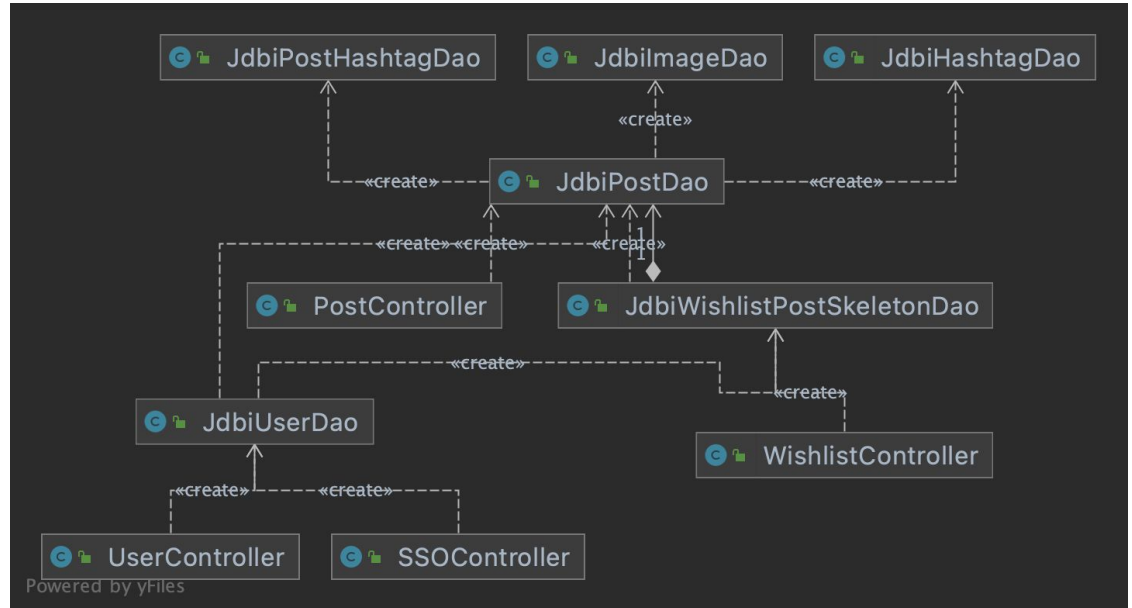
UML for Server and Controllers

ApiServer calls
each controller
which in turn
calls their
respective dao
classes to handle
http request



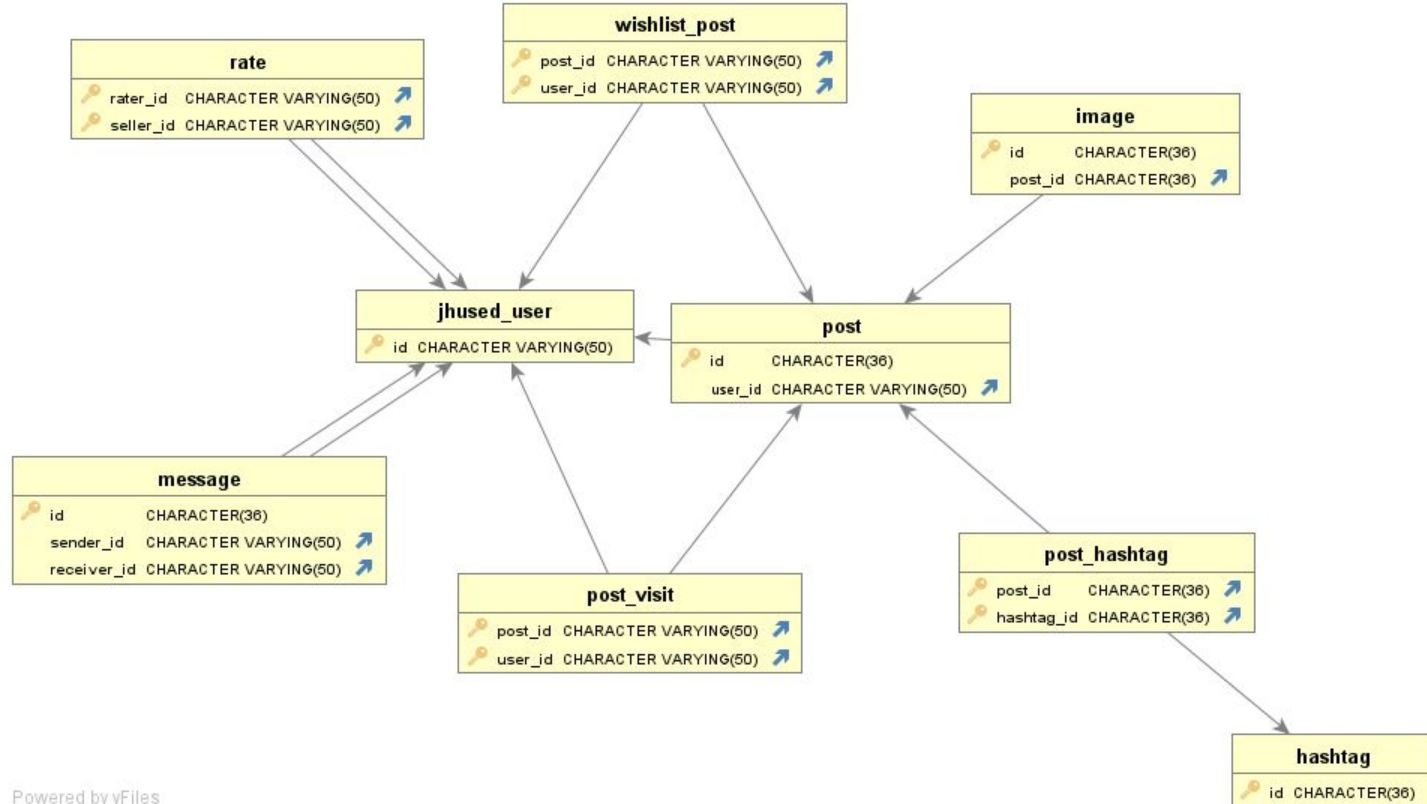
UML for controllers and dao

Controller calls their
matching methods in
the JdbiDao classes
to handles CRUD
functions in database



Database design

PostgreSQL



ORM

Jdbi3

Custom result set accumulator

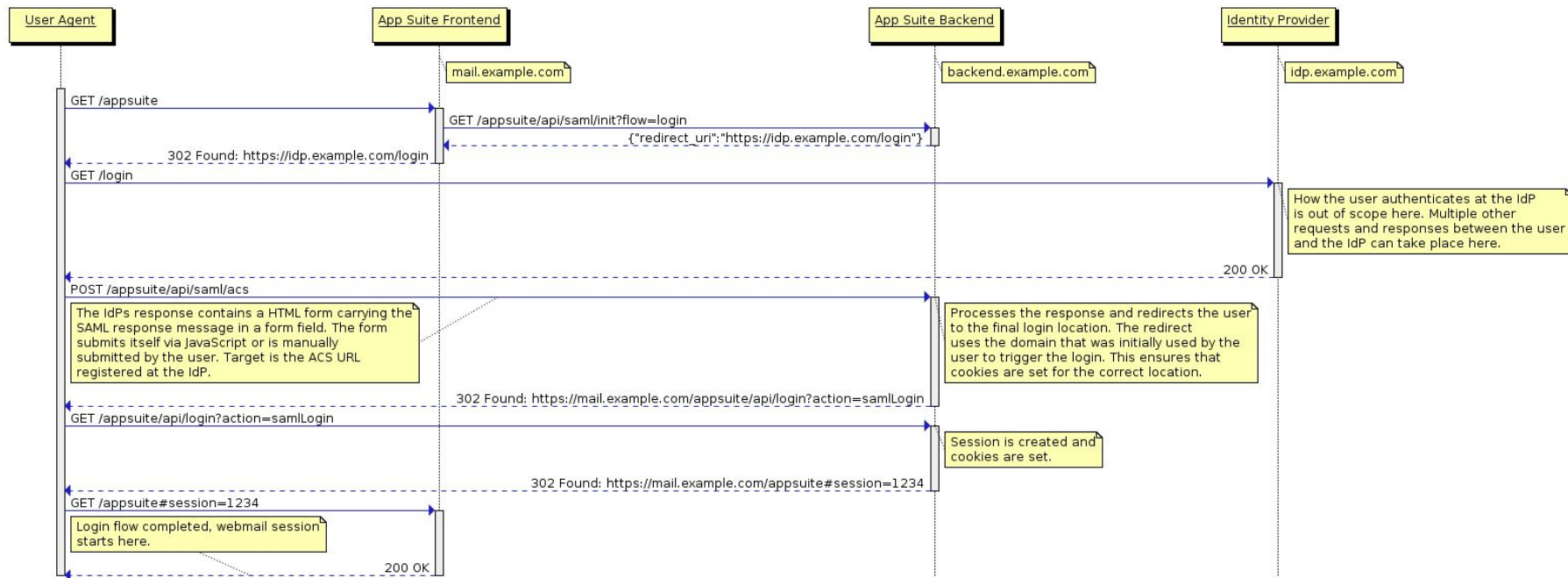
1. Specify model's field names in SQL.
2. Java Reflection to recursively construct the model and its children.
3. LinkedHashMap to preserve order.

	id	user_id	images_post_id	images_id	hashtags_id	hashtags_hashtag
1	000000000000...	001111111111...	000000000000000000...	11111111111111...	6666666666666666...	table
2	000000000000...	001111111111...	000000000000000000...	00000000000000...	6666666666666666...	table
3	000000000000...	001111111111...	000000000000000000...	11111111111111...	7777777777777777...	coffee
4	000000000000...	001111111111...	000000000000000000...	00000000000000...	7777777777777777...	coffee
5	111111111111...	002111111111...	1111111111111111...	3333333333333333...	0000000000000000...	samsung
6	111111111111...	002111111111...	1111111111111111...	2222222222222222...	0000000000000000...	samsung
7	111111111111...	002111111111...	1111111111111111...	3333333333333333...	1111111111111111...	4k
8	111111111111...	002111111111...	1111111111111111...	2222222222222222...	1111111111111111...	4k
9	333333333333...	003111111111...	3333333333333333...	5555555555555555...	2222222222222222...	lexus
10	333333333333...	003111111111...	3333333333333333...	4444444444444444...	2222222222222222...	lexus
11	333333333333...	003111111111...	3333333333333333...	5555555555555555...	3333333333333333...	toyota
12	333333333333...	003111111111...	3333333333333333...	4444444444444444...	3333333333333333...	toyota

JHU SSO Integration

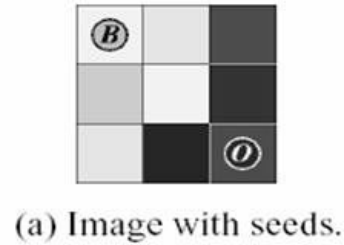
Separate backend and frontend.
Cross site issues.

Pac4j as security plugin.
Add comment in cookies.

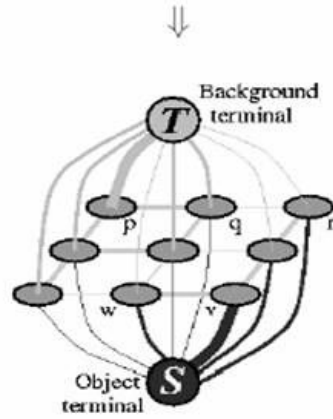


GrabCut

1. Use grabcut algorithm provided by OpenCV.js
2. Overlay canvas on top of image
3. Support interactive selection of foreground and background
4. Light and can run on cpus.



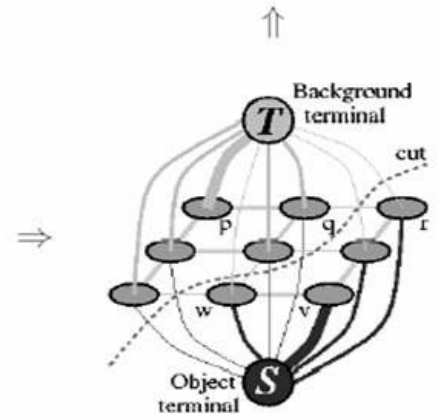
(a) Image with seeds.



(b) Graph.



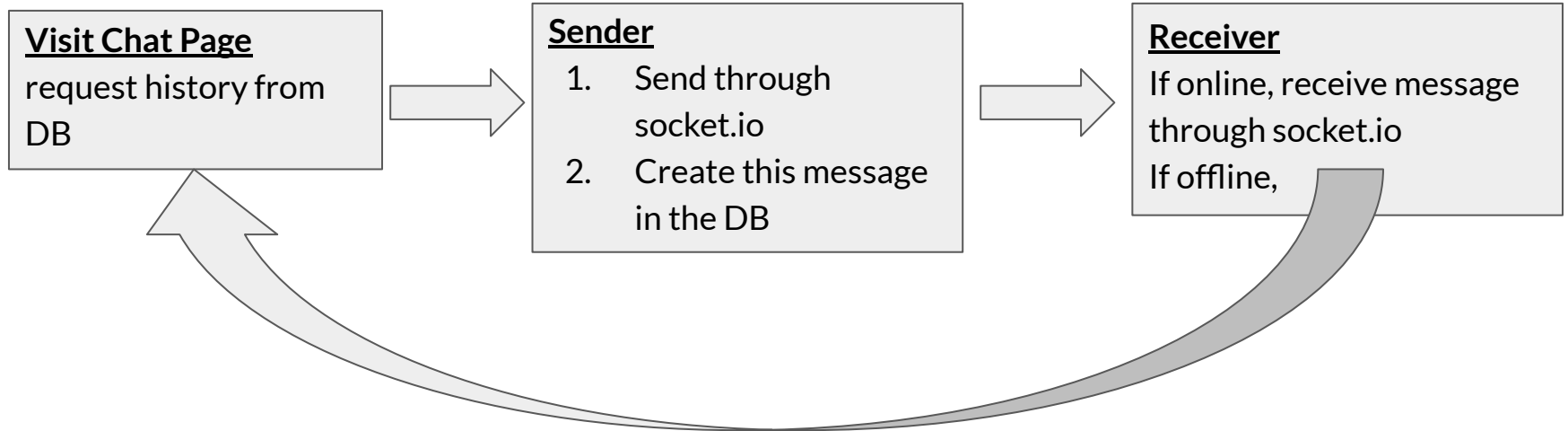
(d) Segmentation results



(c) Cut.

How does chat work?

1. Instant chatting – socket.io
2. Offline messaging – CRUD



Emails? How do they work?

- SendGrid API integrates well with heroku
- Sends welcome email to new users, wishlist emails based on updates, and email change confirmation emails.
- Wishlist notification email flow:
 - A post is updated
 - Wishlist table searched for all user ids that have that post wishlisted
 - Grab all of those user emails
 - Create email using hard-coded template email and send off to each user.

Closing remarks

Limitation:

- No payment system
- No delivery
- Anyone can rate
- Contacts search --- Not prepared for a large amount of users

Future work:

- Look for cheap and reliable hosting
- Locations — Google map
- Wishlist notification emails should be sent in bulk rather than one at a time.

Reflection:

- Use non-relational DB for better flexibility
- Consider front end corner cases outside planned use cases
- Swap front end & back end team