

JHUsed

# Overview

## Architecture:

- Frontend:
  - React
  - Tailwindcss
- Backend
  - Server: SparkJava
  - Database: postgresSQL
  - DAO: Jdbi3
  - SSO: Pac4j
- Deployment
  - Heroku

# Frontend

## Post editor

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

# Backend

API server

DataBase

Controller and jdbcDao

SSO

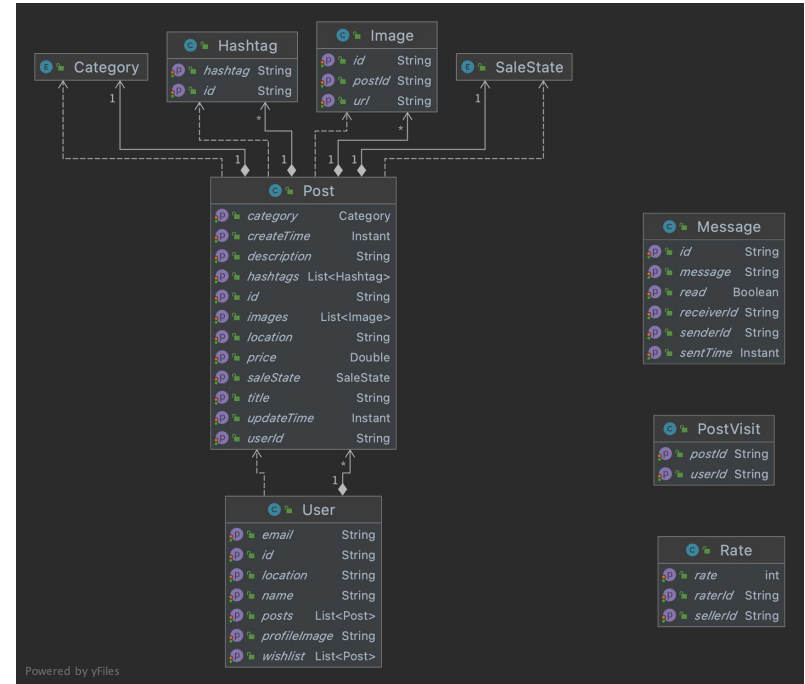
# UML for Model

Post model contains:

Hashtag and images

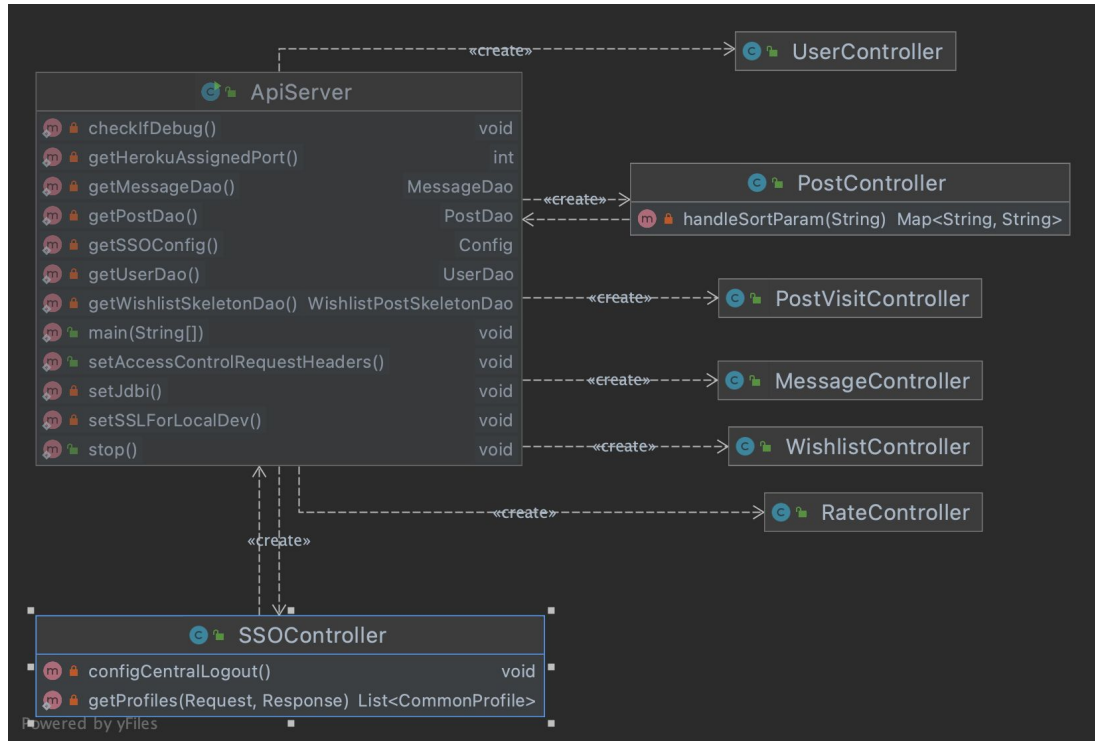
User model contains:

Posts



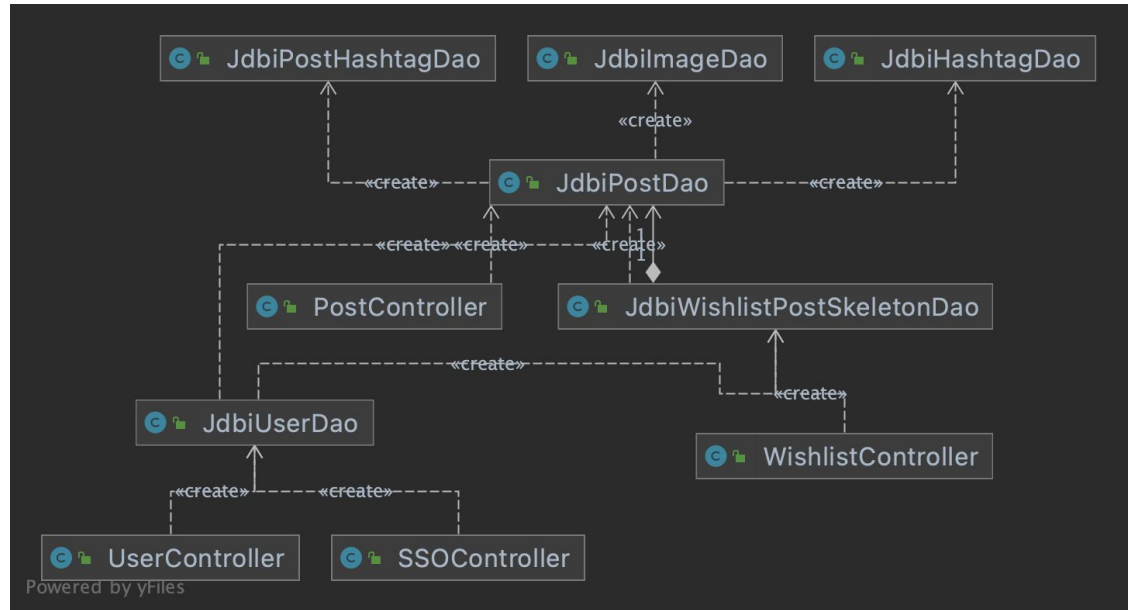
# UML for Server and Controllers

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



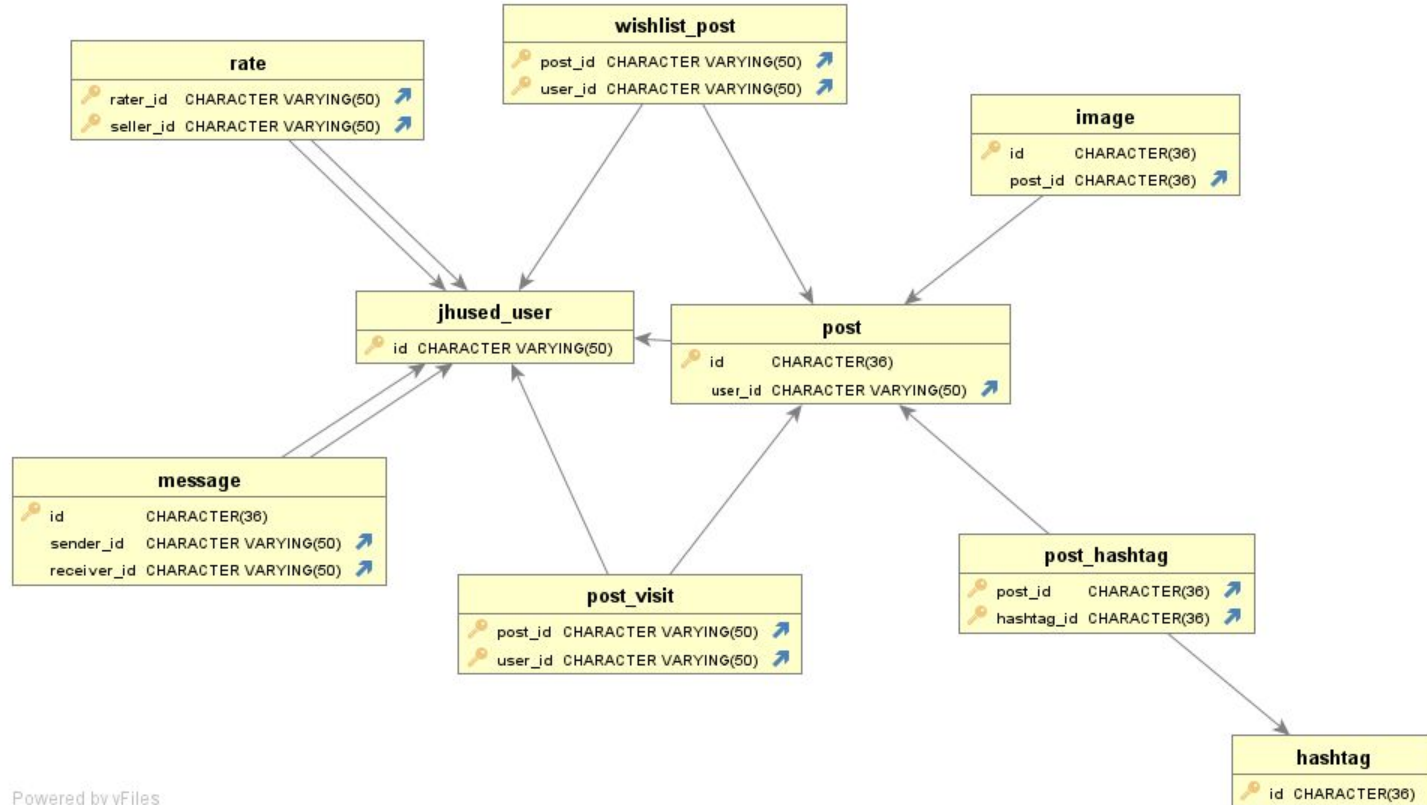
# UML for controllers and dao

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



# Database design

## PostgreSQL





# ORM

Jdbi3

Custom Result set accumulator

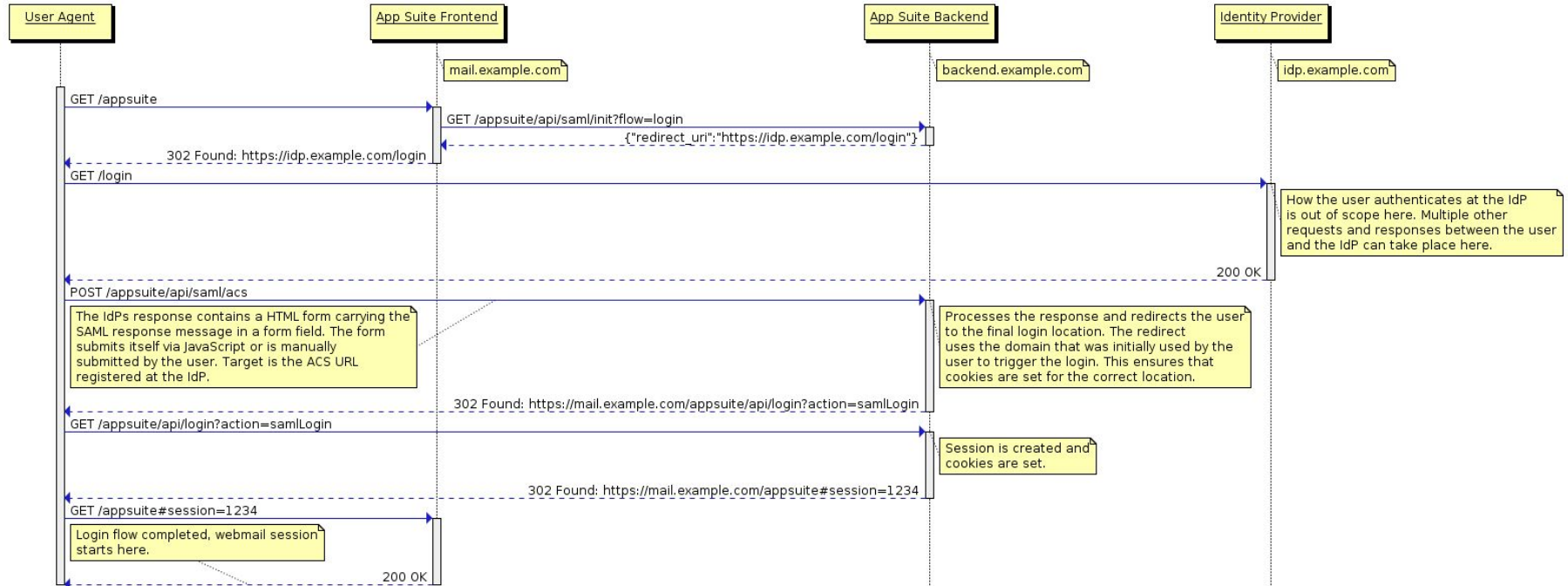
1. Specify model name in SQL.
2. Java Reflection to recursively construct model and its children.
3. LinkedHashMap to preserve order.

	id	user_id	images_post_id	images_id	hashtags_id	hashtags_hashtag
1	000000000000...	001111111111...	0000000000000000...	11111111111111...	6666666666666666...	table
2	000000000000...	001111111111...	0000000000000000...	0000000000000000...	6666666666666666...	table
3	000000000000...	001111111111...	0000000000000000...	11111111111111...	7777777777777777...	coffee
4	000000000000...	001111111111...	0000000000000000...	0000000000000000...	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

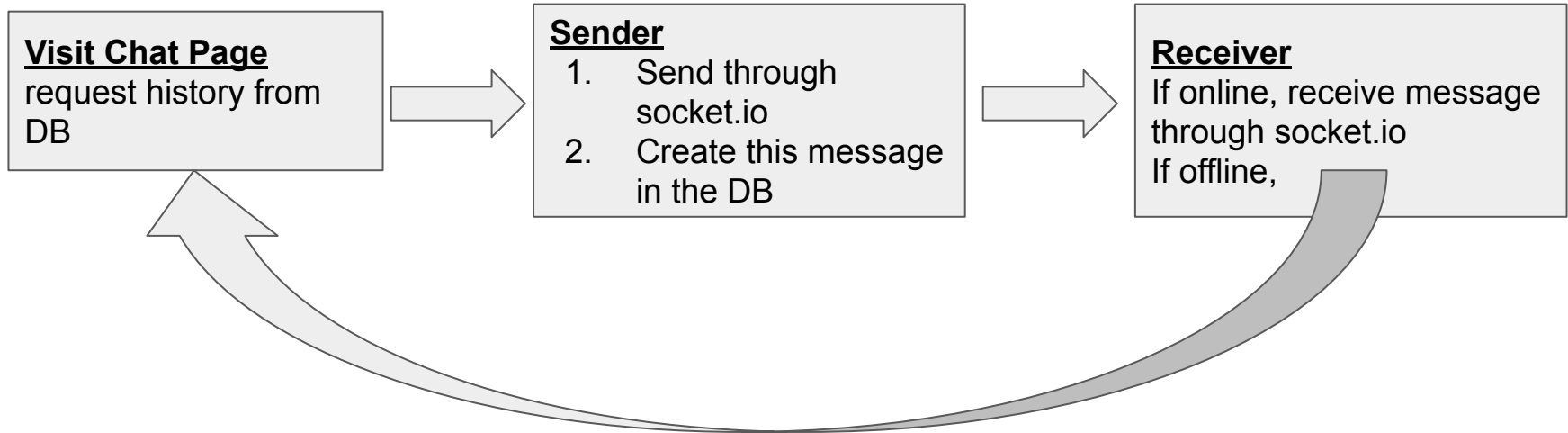
Separate backend and frontend.  
Cross site issues.

Pac4j as security plugin.  
Add comment in cookies.



# 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, and wishlist emails based on updates.
- 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.