ACCENTURE

TICKETING SYSTEM

50.003 ELEMENTS OF SOFTWARE CONSTRUCTION

BRYAN PHANG

Coder 1

Frontend Coding
Frontend Testing
Integrate frontend and backend

CHLOE ZHENG

Coder 2

Email Template Designs
Frontend Testing

SEE YI JIE

Coder 3

Backend Coding
Backend Testing
Integrate frontend and backend

Problem statement by Accenture

To build a Modern Support Ticket System

Our goal :

- Create a tracker for both Administrator and Customer

- Able to communicate/ follow up through our platform (easier to track and update as compared to using email)

- Multiple Administrator can attend to one ticket (to ensure faster response to the customer)

Stack

MONGODB
A popular open source database for modern apps

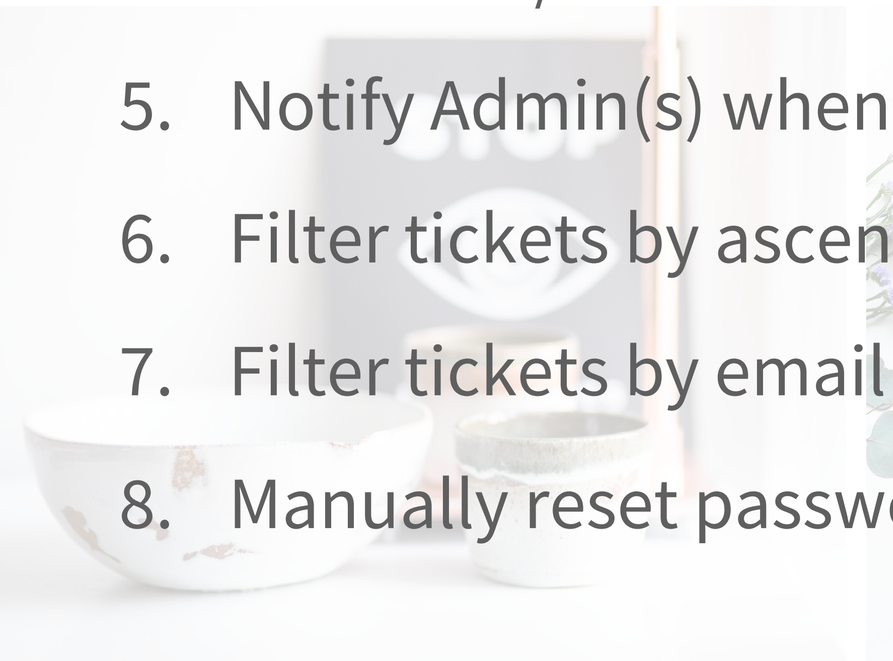
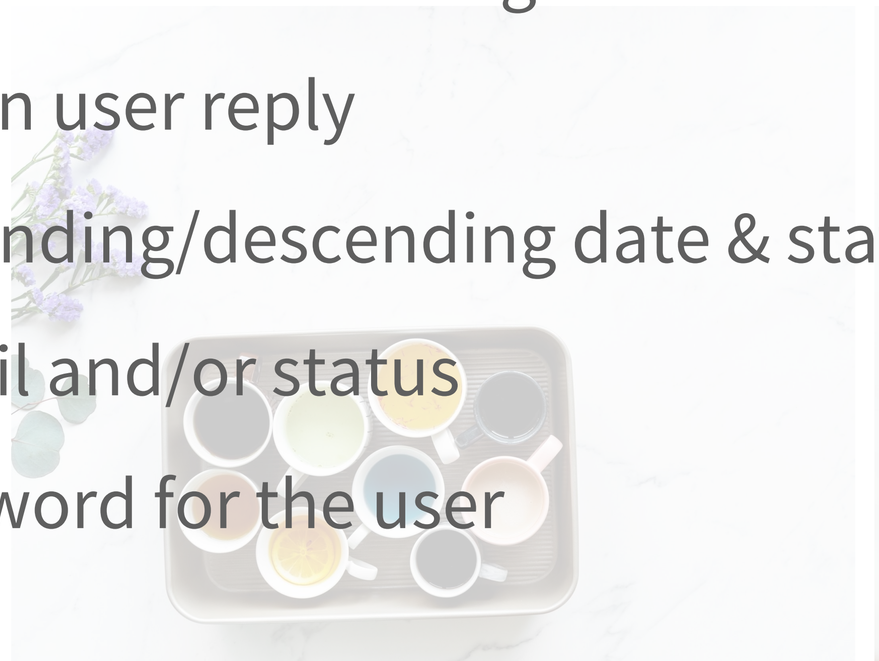
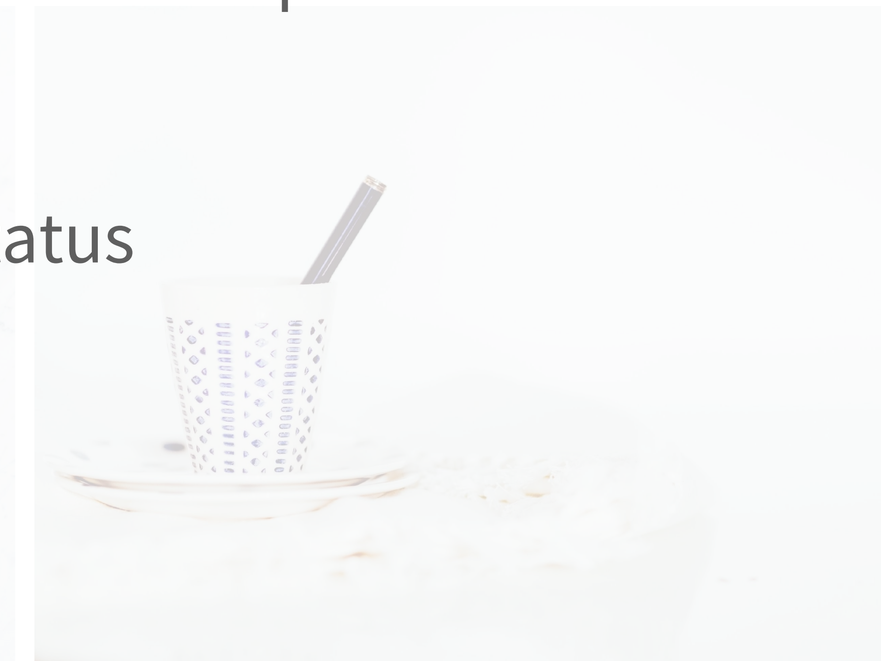
EXPRESSJS
Fast, unopinionated, minimalist web framework

REACTJS
A JavaScript library for building user interfaces

NODEJS
Javascript runtime built on Chrome’s V8 JavaScript engine

Features

1. Create , read and update tickets
2. Notify user(s) when Admin replies
3. Add a reply (comment) to the ticket
4. Subscribe/unsubscribe to a ticket to get notified when replies are received
5. Notify Admin(s) when user reply
6. Filter tickets by ascending/descending date & status
7. Filter tickets by email and/or status
8. Manually reset password for the user

Challenges and Lessons

ENGINEERING CHALLENGES

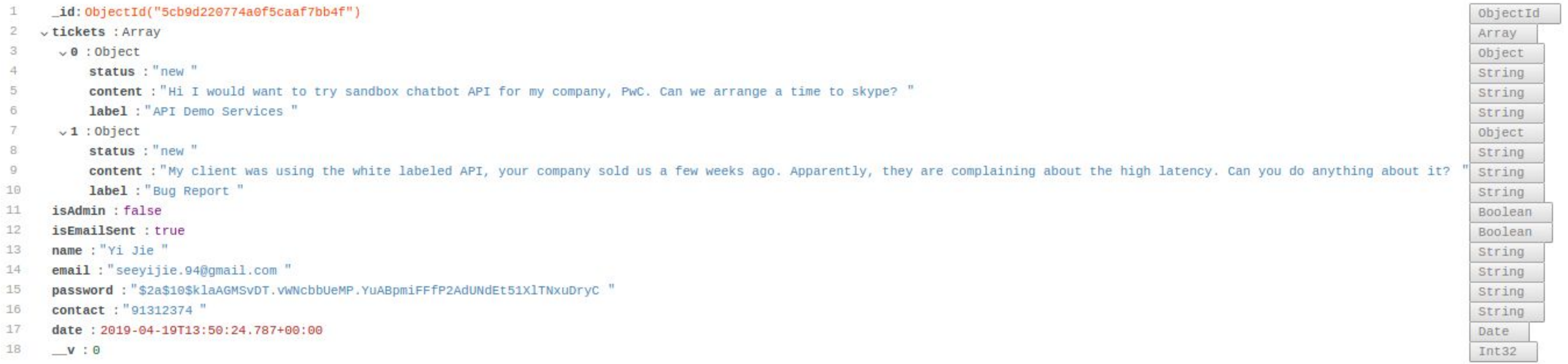
INTEGRATION CHALLENGES

TESTING CHALLENGES

LESSONS LEARNT

Engineering Challenges (Backend)

Engineering Challenges



User Collection V1

TICKETING SYSTEM

Engineering Challenges

```
1   _id: ObjectId("5cb9d220774a0f5caaf7bb4c")                                  ObjectId
2   subscribeTo : Array                                                        Array
3     0 : ObjectId("5cb9d220774a0f5caaf7bb4b ")                                ObjectId
4   isAdmin : true                                                             Boolean
5   isEmailSent : false                                                        Boolean
6   name : "Yi Jie "                                                           String
7   email : "cyberform.jys@gmail.com "                                         String
8   contact : "91234567 "                                                      String
9   password : "$2a$10$m5x3D.YzvbLbxmI89Ri3Te.OrM8Wj2hBHO45tHRCvdOxrTYjj/Nn6 " String
10  date : 2019-04-19T13:50:24.741+00:00                                       Date
11  __v : 0                                                                    Int32
```

User Model V2

Engineering Challenges

```
_id: ObjectId("5cbc7e77b0b8067abd8f09e2")                                    ObjectId
subscribedBy : Array                                                         Array
  0 : ObjectId("5cbc7e77b0b8067abd8f09dd ")                                  ObjectId
subscribedByName : Array                                                     Array
  0 : "Tom Lee "                                                             String
status : "awaitUser "                                                        String
userId : ObjectId("5cbc7e77b0b8067abd8f09db ")                               ObjectId
name : "Yi Jie "                                                             String
email : "seeyijie.74@gmail.com "                                             String
content : "Hi I would like to try the sandbox chatbot API for PwC Singapore "  String
label : "API Demo Services "                                                 String
date : 2019-04-21T14:30:15.614+00:00                                         Date
__v : 0                                                                      Int32
```

Ticket Model

Engineering Challenges

```
1  _id: ObjectId("5cb9d221774a0f5caaf7bb53")                                  ObjectId
2  userId : ObjectId("5cb9d220774a0f5caaf7bb4c ")                             ObjectId
3  name : "Yi Jie "                                                           String
4  message : "Sure. Will you be free later at 1pm? I can share with you over lunch "   String
5  date : 2019-04-19T13:50:25.460+00:00                                       Date
6  ticketId : ObjectId("5cb9d220774a0f5caaf7bb4b ")                           ObjectId
7  __v : 0                                                                    Int32
```

Comment Collection

Engineering Challenges (Frontend)

Engineering Challenges

Client

Admin

/home
/user
/logout

User

/home
/newticket
/logout

Engineering Challenges

Admin folder

/home :

- populating the subscriber feature (map in a map)
- subscriber button

/user :

- nil

/logout :

- nil

Engineering Challenges

User folder

/home :

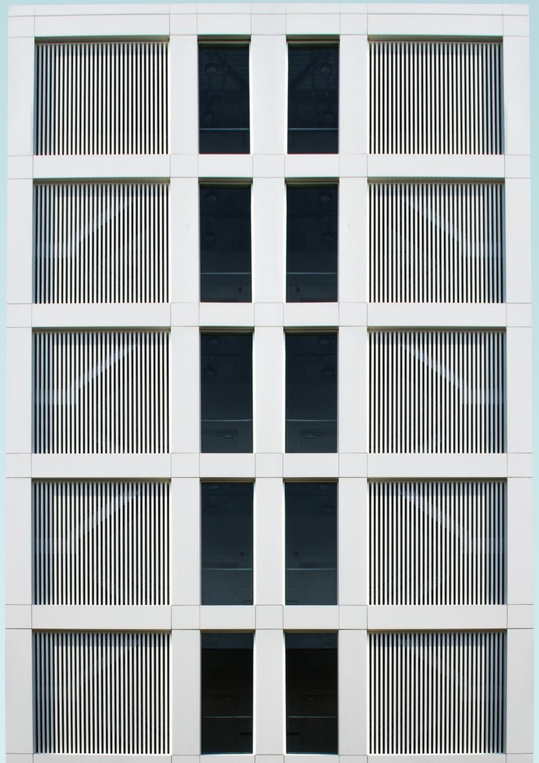
- commenting the ticket and showing it

/newticket :

- nil

/logout :

- nil



TICKETING SYSTEM

Testing Tools

BACKEND

Mocha and Chai

FRONTEND

Jest and Enzyme

SELENIUM

TICKETING SYSTEM

Testing Challenges

Backend

What do we test and how to test our web application?

To mock our database?

To mock GET/POST/PUT/DELETE requests?

TICKETING SYSTEM

Testing Challenges

Frontend

Unit testing

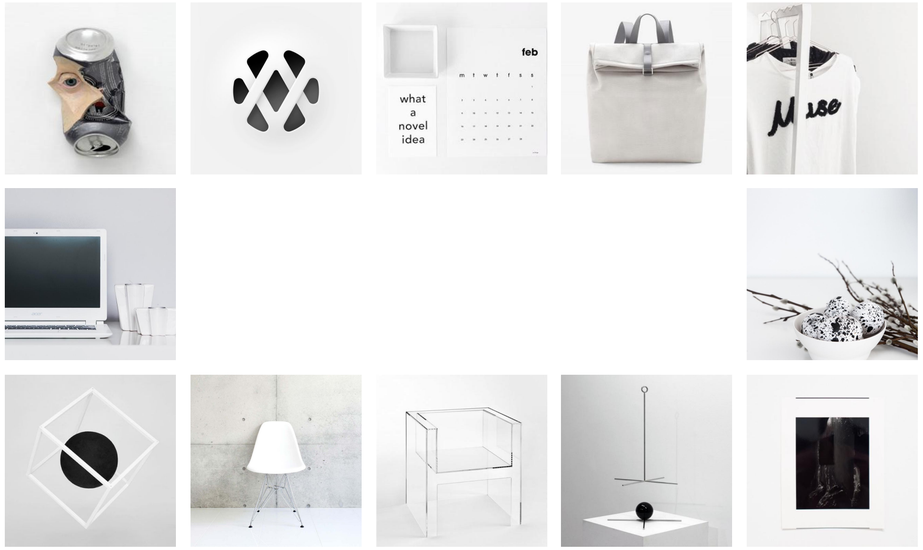
Integration testing

Suitable test cases for front-end testing

TICKETING SYSTEM

Demonstration

1) Submit contact form and logging in
2) Under Admin Dashboard: Ticket filter features
3) Once Admin replies to User’s ticket, user will receives email
4) When User replies, Admin will then receive an email (only when user subscribes to ticket)



THANK YOU