STUDENT NUMBER ANALYTIC PLATFORM

SNAP SQUAD

SQUAD

Name	Member Position	Role Position
Navdeep Singh Randhawa	Senior	Backend Developer
John Nguyen	Senior	Frontend Developer
Alfred Yong	Senior	Frontend Developer
Tan Khai Huynh	Senior	Frontend Developer
Anthony Lazos	Junior	Backend Developer
Haley Holloway	Junior	Backend Developer
Madhura Rangna	Junior	Frontend Developer
Subash Madawa	Junior	Frontend Developer

Product overview

- The aim of this project is to build an analytics platform for DISC professional staff to provide insight on student numbers and enrolled in School of Information Technology.

The main question SNAP's project is trying to solve

- DISC staff able to upload updated student enrolment list to have insight of student enrolment.
- DISC Staff can have insight of current student enrolment based on student's Course/Major , mode of study and based on course location.
- DISC staff can predict how many students are going to enrol in coming trimester and able to have clear insight of number of students from different courses.

DELIVERABLES OF OVERALL PROJECT

Front-end tasks:	Creation charts showing important feature using Lassio algorithm	Ability to export graphs for sharing	Have predicted insights of future student enrolment based on seniors and juniors	Show when the login is successful or unsuccessful using an alert panel.
Back-end tasks:	Create API functions predict juniors and seniors for next year	Create API to find important features using Lassio algorithm	Create an API to Reset the password for the user.	
Database tasks:	Create csv file for seniors and juniors prediction	Create course recommendation	Change User model to execute the Token logic for resetting the password.	

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Sprint Backlog

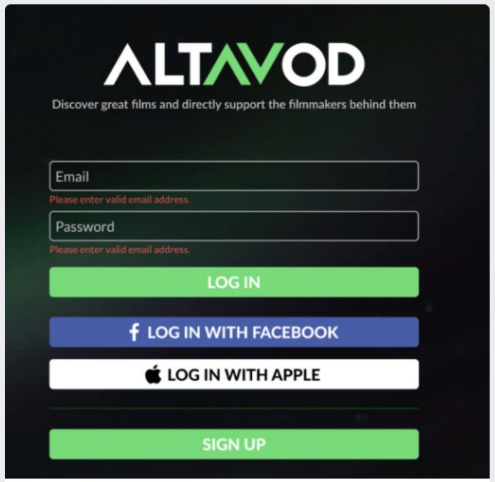
- Create chart and accuracy score for unit code enrolment in next trimester
- Create page showing the recommendation to student for next trimester
- Create page showing the clustering of enrolled student and non-enrolled student
- Create API to give recommendation to student for next trimester
- Create page showing changing password
- Create page for registering new users
- Research on using relevant dataset and plan of generating the business value of the product

+ Add a card

Failed - Iteration 1

+ Add a card

In Progress - Iteration 1



- Create panel showing error on Login page if username or password error (2, 1) NS

+ Add a card

Ready for Review - Iteration 1

+ Add a card

Complete - Iteration 1

- next year AY
- Export graphs
- Create API for changing passwor
- Creating csv file with nominal dat for recommendation DH
- Create API to predict the percentage of senior students ne year DH
- Creating API of the most importa features among all variable

+ Add a card

PRODUCT BACKLOG

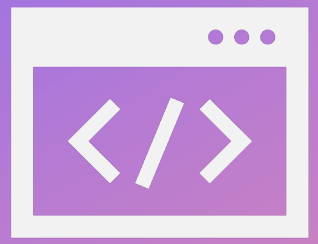
TECHNOLOGY STACK

- React.JS
- Node.JS
- HTML/CSS
- MongoDB
- Python
- Flask
- Express Framework

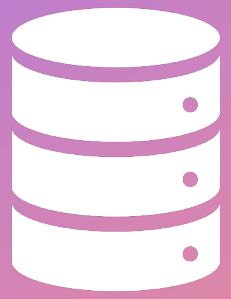
Algorithms

- K-Means Algorithm
- SVC Algorithm
- Random Forest Classifier
- Lasso Algorithm

PROJECT COMPONENTS



Website



Database

Machine learning

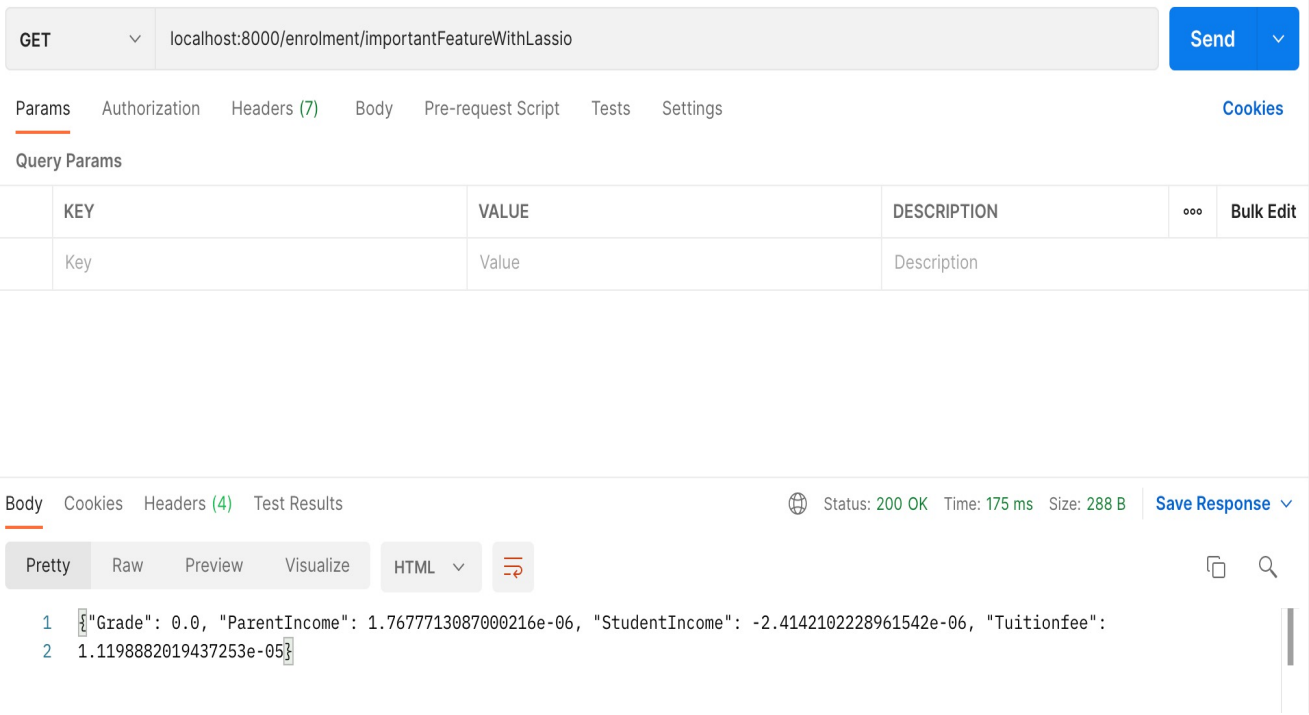
Deliverables for this iteration

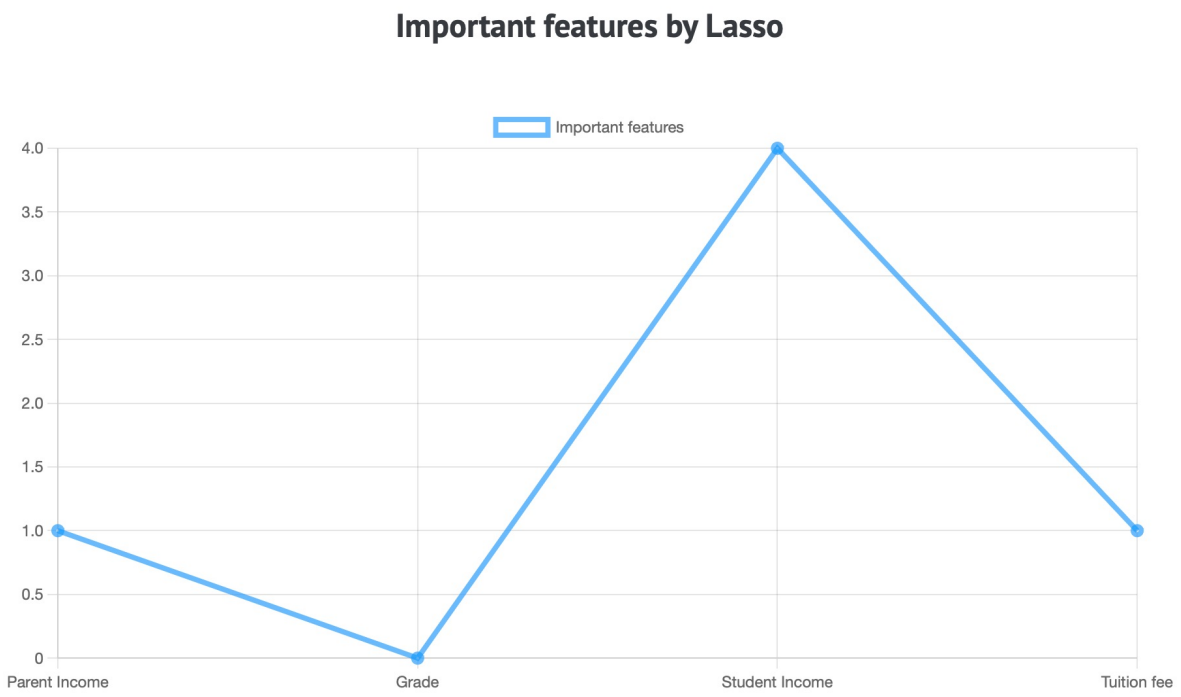
- Research and get more data from open source such as Kaggle
- Create Database for prediction
- Create charts showing the number of enrolled students and the percentage of juniors and seniors next year
- Create charts showing important features by Lassio
- Create APIs to find the most important features among all variables using Lassio algorithm
- Creating Unique Scenarios for prediction
- Export graphs for sharing
- API to Change password
- Alert for successful and unsuccessful login.

TASKS COMPLETED IN ITERATION 0

Creating API of the most important features among all variable using Lassio

- Sending all the important features to frontend as JSON values object

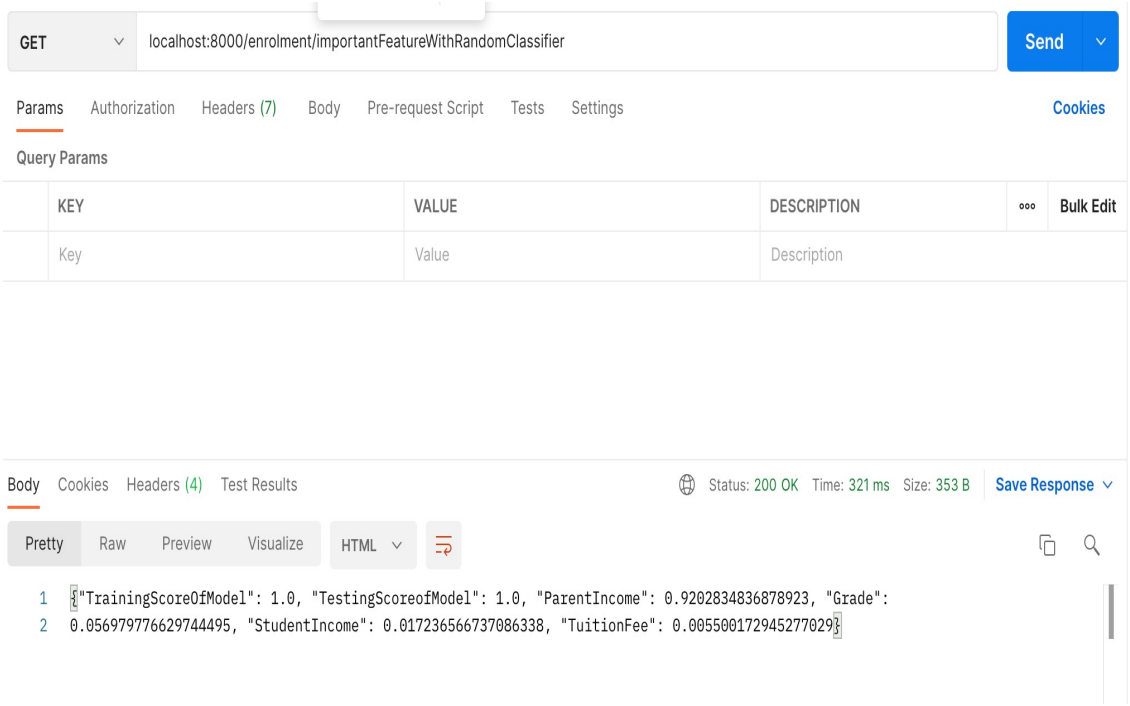


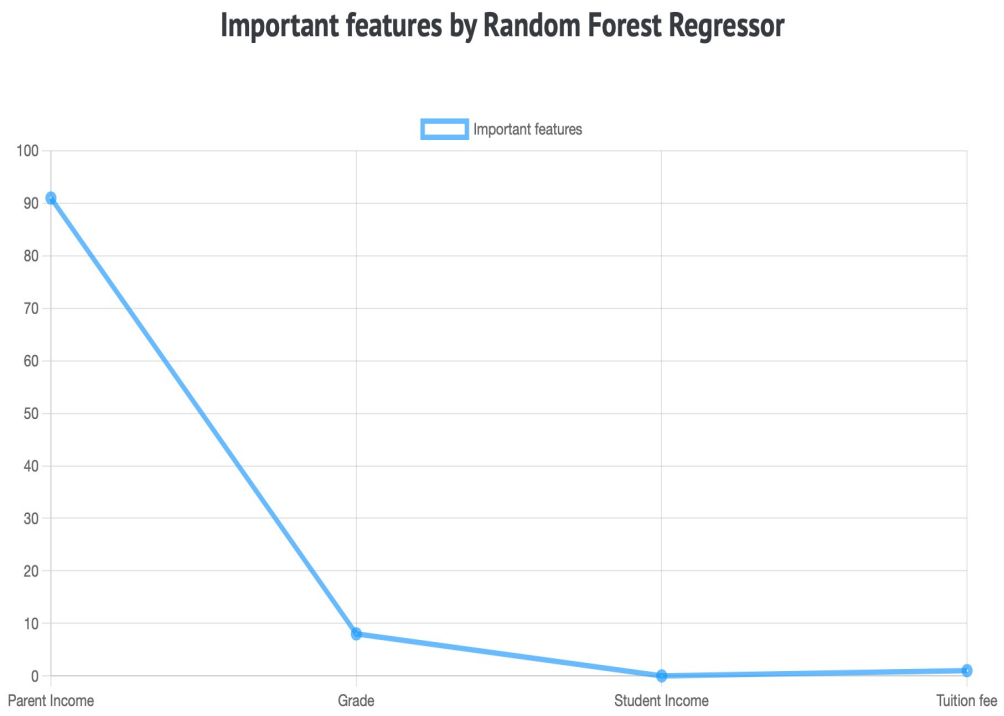


Create chart showing important feature with Lassio algorithm

Creating API of the most important features among all variable using Random Forest Regressor

- Sending all the important features to frontend as JSON values object





Create chart showing important feature with Random Forest Regressor algorithm

Creating new csv file for different years enrolment of Junior and Senior for prediction

	Grade	Year	Parent Income (AUD)	Student Income (AUD)	Tuition fee	Type	Student Type
0	0.8	2022	700000	10000	40000	Seniors	Y
1	0.8	2022	650000	19000	45000	Seniors	Y
2	0.95	2022	100000	11000	40000	Juniors	N
3	0.8	2022	100000	17000	40000	Juniors	N
4	0.75	2022	450000	17000	40000	Seniors	Y
5	0.8	2022	850000	15000	45000	Seniors	Y
6	0.6	2022	350000	14000	40000	Juniors	N
7	0.8	2022	550000	16000	40000	Seniors	Y
8	0.94	2022	650000	12000	45000	Seniors	Y
9	0.8	2022	650000	12000	40000	Seniors	Y
10	1.0	2022	650000	17000	40000	Seniors	Y
11	0.8	2022	200000	15000	40000	Juniors	N
12	0.56	2022	600000	15000	40000	Seniors	Y
13	0.32	2022	400000	16000	40000	Juniors	N
14	0.46	2022	450000	19000	40000	Seniors	Y
15	0.8	2022	550000	14000	45000	Seniors	Y
16	0.59	2022	250000	14000	45000	Juniors	N
17	0.8	2022	150000	13000	40000	Juniors	N
18	0.46	2022	100000	14000	40000	Juniors	N
19	0.8	2022	600000	17000	45000	Seniors	Y
20	0.6	2022	450000	14000	40000	Seniors	Y
21	0.8	2022	850000	14000	45000	Seniors	Y
22	0.68	2022	800000	11000	45000	Seniors	Y
23	0.68	2022	100000	18000	45000	Juniors	N

	Grade	Year	Parent Income (AUD)	Student Income (AUD)	Tuition fee	Type	Student Type
0	0.8	2021	750000	12000	45000	Seniors	Y
1	0.8	2021	800000	11000	45000	Seniors	Y
2	0.95	2021	250000	16000	40000	Juniors	N
3	0.8	2021	850000	16000	45000	Seniors	Y
4	0.75	2021	850000	13000	45000	Seniors	Y
5	0.8	2021	750000	12000	40000	Seniors	Y
6	0.6	2021	200000	16000	40000	Juniors	N
7	0.8	2021	650000	16000	45000	Seniors	Y
8	0.94	2021	600000	17000	40000	Seniors	Y
9	0.8	2021	750000	14000	45000	Seniors	Y
10	1.0	2021	700000	12000	45000	Seniors	Y
11	0.8	2021	300000	18000	40000	Juniors	N
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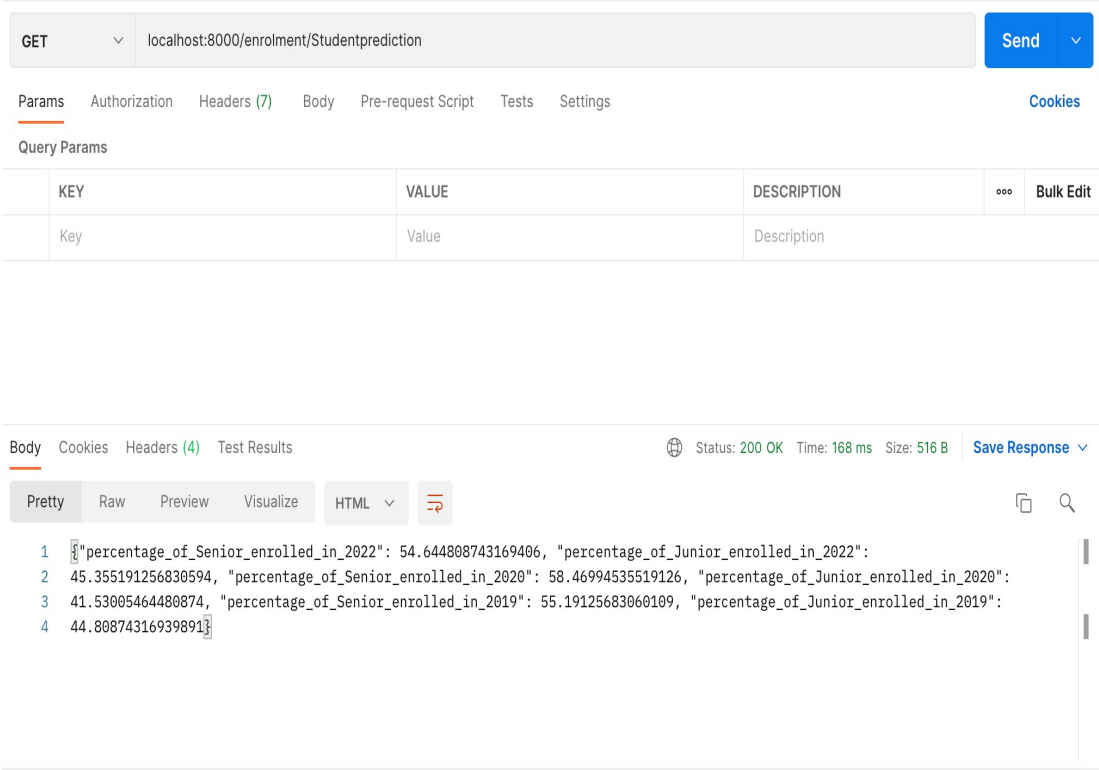
16	0.59	2021	250000	10000	45000	Juniors	N
17	0.8	2021	450000	14000	45000	Seniors	Y
18	0.46	2021	150000	18000	45000	Juniors	N
19	0.8	2021	250000	19000	40000	Juniors	N
20	0.6	2021	100000	18000	45000	Juniors	N
21	0.8	2021	500000	18000	40000	Seniors	Y
22	0.68	2021	450000	11000	45000	Seniors	Y
23	0.68	2021	150000	15000	45000	Juniors	N
24	0.68	2021	800000	17000	40000	Seniors	Y
25	0.68	2021	350000	19000	40000	Juniors	N

	A	B	C	D	E	F	G	H
1		Grade	Year	Parent Income (AUD)	Student Income (AUD)	Tuition fee	Type	Student Type
2	0	0.8	2020	250000	10000	45000	Juniors	N
3	1	0.8	2020	700000	10000	40000	Seniors	Y
4	2	0.95	2020	650000	10000	45000	Seniors	Y
5	3	0.8	2020	350000	15000	45000	Juniors	N
6	4	0.75	2020	200000	17000	45000	Juniors	N
7	5	0.8	2020	350000	18000	40000	Juniors	N
8	6	0.6	2020	400000	16000	40000	Juniors	N
9	7	0.8	2020	750000	13000	40000	Seniors	Y
10	8	0.94	2020	200000	16000	40000	Juniors	N
11	9	0.8	2020	400000	15000	45000	Juniors	N
12	10	1.0	2020	700000	14000	40000	Seniors	Y
13	11	0.8	2020	600000	19000	45000	Seniors	Y
14	12	0.56	2020	250000	11000	45000	Juniors	N
15	13	0.32	2020	700000	19000	40000	Seniors	Y
16	14	0.46	2020	150000	16000	45000	Juniors	N
17	15	0.8	2020	550000	14000	40000	Seniors	Y
18	16	0.59	2020	550000	14000	40000	Seniors	Y
19	17	0.8	2020	550000	11000	40000	Seniors	Y
20	18	0.46	2020	200000	11000	45000	Juniors	N
21	19	0.8	2020	550000	19000	45000	Seniors	Y
22	20	0.6	2020	300000	19000	40000	Juniors	N
23	21	0.8	2020	100000	18000	40000	Juniors	N
24	22	0.68	2020	600000	17000	45000	Seniors	Y
25	23	0.68	2020	850000	10000	45000	Seniors	Y
	24	0.68	2020	350000	10000	45000	Juniors	N

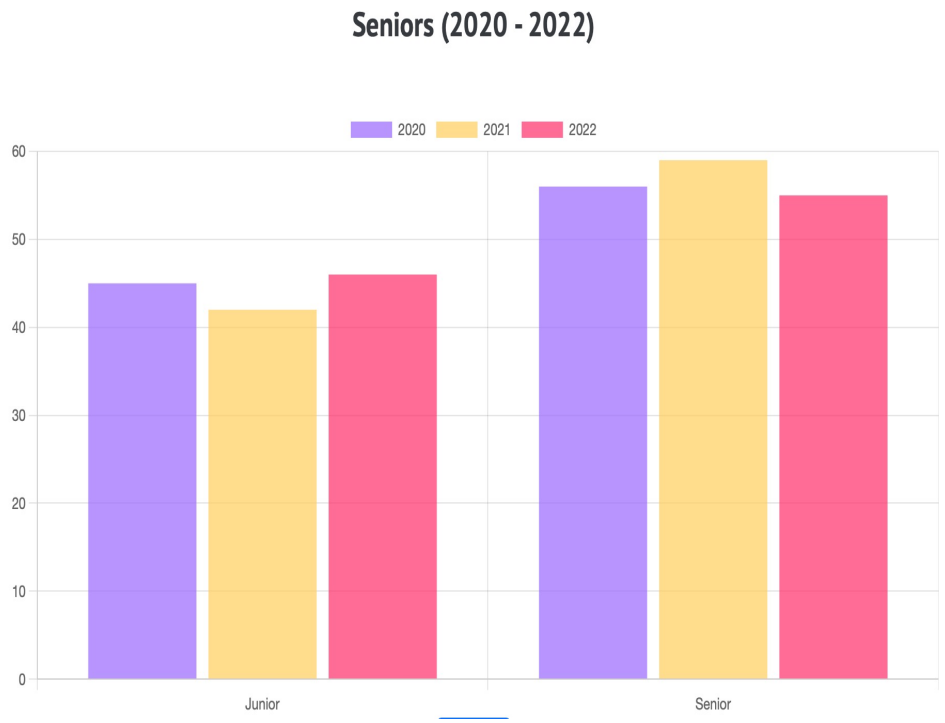
- The CSV files has information regarding students from years of 2020,2021 &2022
- Each CSV files include personal details of the students, tuition fee, enrolment status for that year

Creating API of the Student Prediction using K Mean



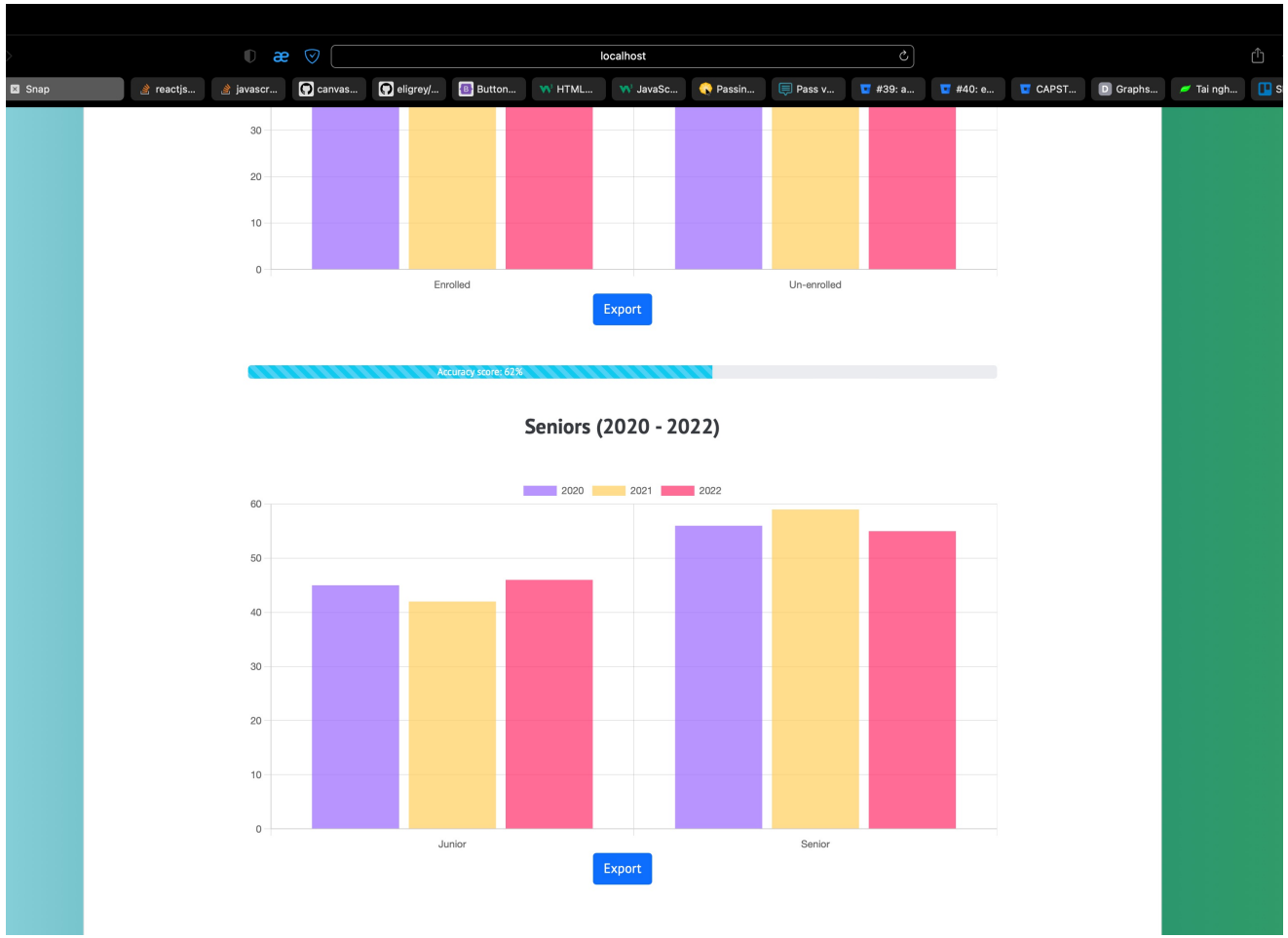
- Creating API in server side to be able to send JSON value of Junior and Senior enrolment to frontend
- Data including of enrolment year from 2020 - 2022

Create charts showing the number of enrolled students and the percentage of enrolments next year



Create page to display the prediction percentage for next year enrolments for juniors and seniors

- Export graphs for sharing



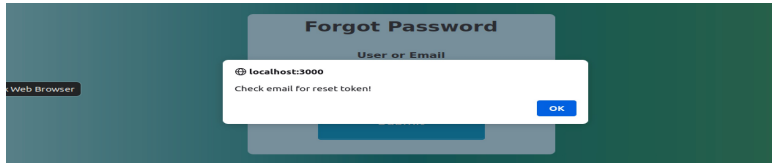
Creating csv file with nominal data for recommendation

```
[4000 rows x 4 columns]
      Unnamed: 0   Student_ID         DOA         DOB Course enrolled
0              0  SID20131143  01/07/2013  05/02/1996          HBS400
1              1  SID20131151  01/07/2013  31/07/1995          HMH402
2              2  SID20131171  01/07/2013  05/09/1995          SIT217
3              3  SID20131176  01/07/2013  12/01/1996          MMK101
4              4  SID20131177  01/07/2013  30/07/1995          MAI010
...          ...          ...         ...         ...             ...
3995        3995  SID20189921  01/07/2018  27/04/2001          MMA104
3996        3996  SID20189926  01/07/2018  10/12/2000          SIT111
ll output; double click to hide SID20189949  01/07/2018  15/04/2001          SIT313
3998        3998  SID20189982  01/07/2018  26/11/2000          SIT210
3999        3999  SID20189989  01/07/2018  05/04/2001          MIS202
```

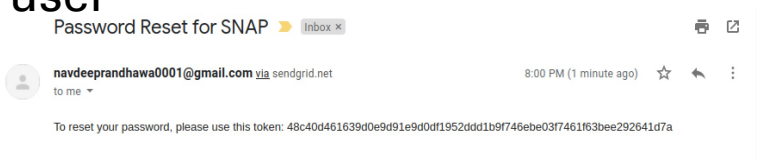
- Generating csv file with mockup data for performing recommendation of SNAP project
- The csv file now including Course Enrolled columns for performing Course recommendation

API for Resetting Password

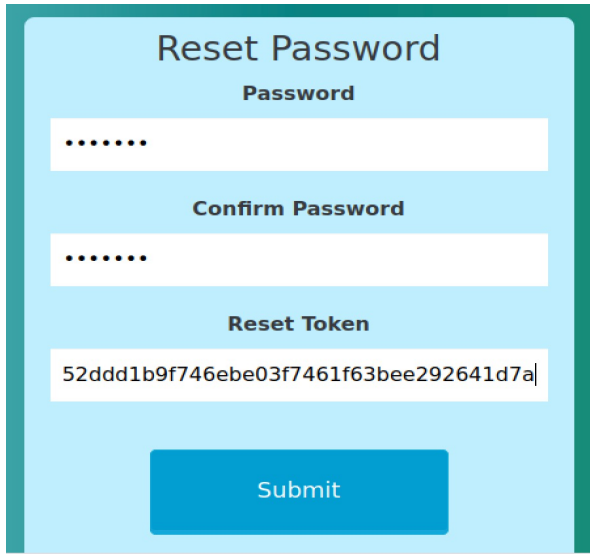
Request Token



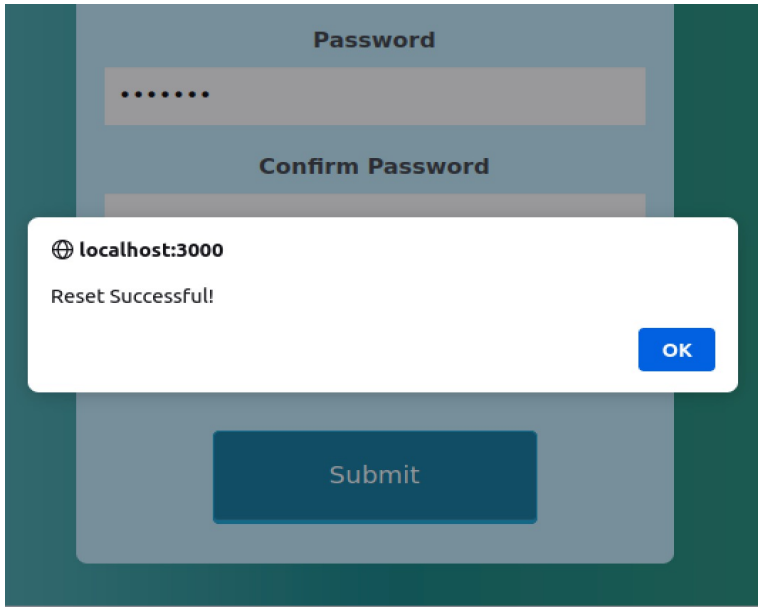
Token received by the user



Reset Password Form

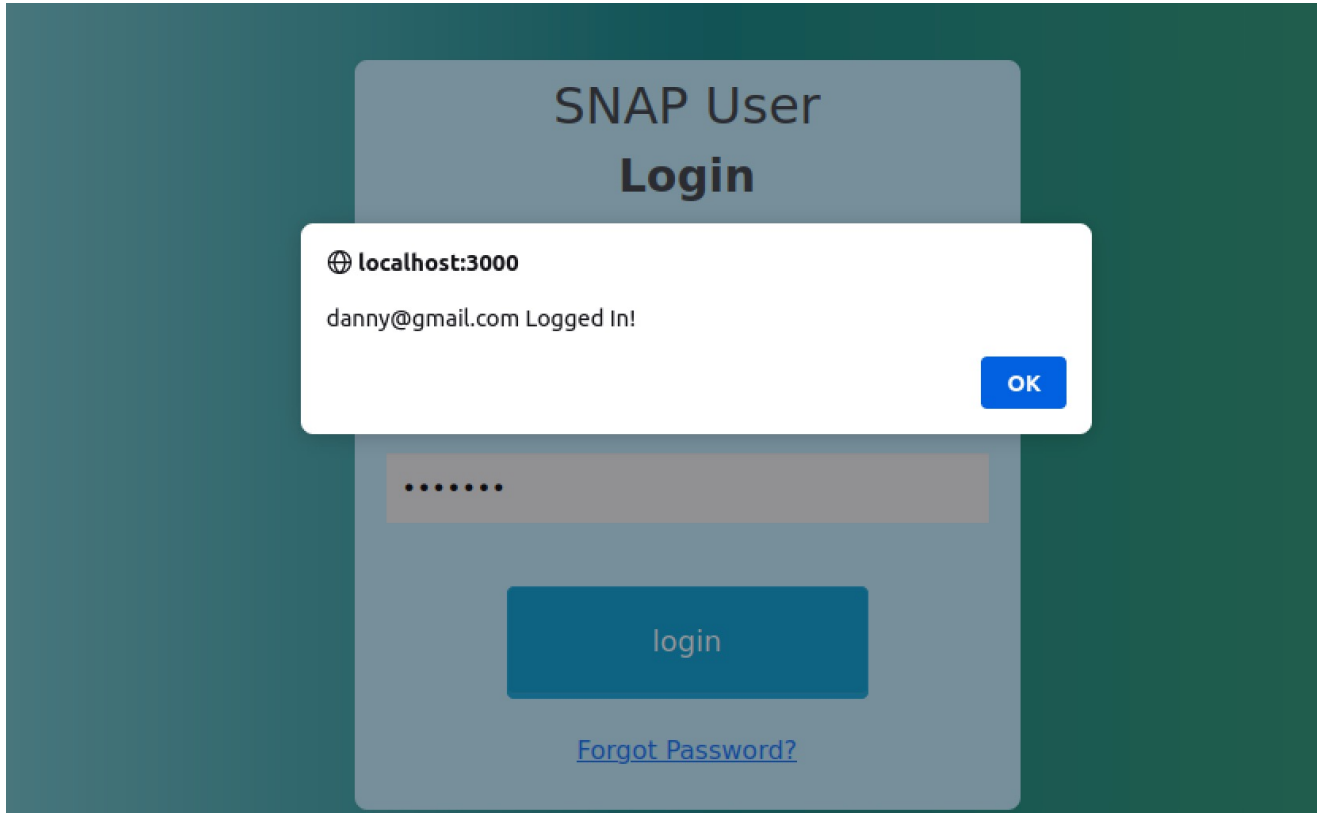


Password Updated



Alert for successful login

- The failure to login renders the login form again. Functionality to alert user to be developed in upcoming iteration



PRODUCT DEMO

VIDEO:
https://youtu.be/KhjQKgcTtIA

TEAM CONTRIBUTIONS

Team Member	Junior / Senior	Major Contribution(s)	Hours Recorded
John Nguyen	Senior	• Attended the lectures, studio sessions and meeting with the client and product owners. • Upskilling on ReactJS, Python • Help Danny create API for showing the most important features by using Lassio algorithm • Create chart showing the important features • Help Danny create API for showing the percentage of seniors and juniors enrolment next year • Create chart showing the percentage of seniors and juniors enrolment next year • Adding export graphs for sharing feature • Help juniors and seniors on cloning and starting the project • Create tasks for team members on Trello • Create a new branch for this year's development	53.3
Tan Khai Huynh (Danny)	Senior	• Attended the lectures, studio sessions and meeting with the client and product owners. • Upskilling. • Helping Junior as well as new Senior for setting up the project • Creating csv file of Junior and Senior enrolment of 2020, 2021, 2022 for prediction • Researched. • Creating API of the most important features among all variable • Create API to predict the percentage of senior students next year • Creating csv file with nominal data for recommendation	40

Navdeep Singh Randhawa	Senior	• Mentored juniors and other team members to setup the project. • Worked on front end: improving the workflow of login functionality. • Created an API to reset password. • Research about use case of institutional data. • Created tasks on Trello board.	47
Alfred Yong	Senior	• Organsied and squad meetings and communicated with mentor and product owner regarding task progress. • Help juniors and upskilling front-end required stacks • Communicated and update user stories on Trello board to fit the new features. • Summarised feedback from mentor and product owner during meetings for squad members' referral.	42

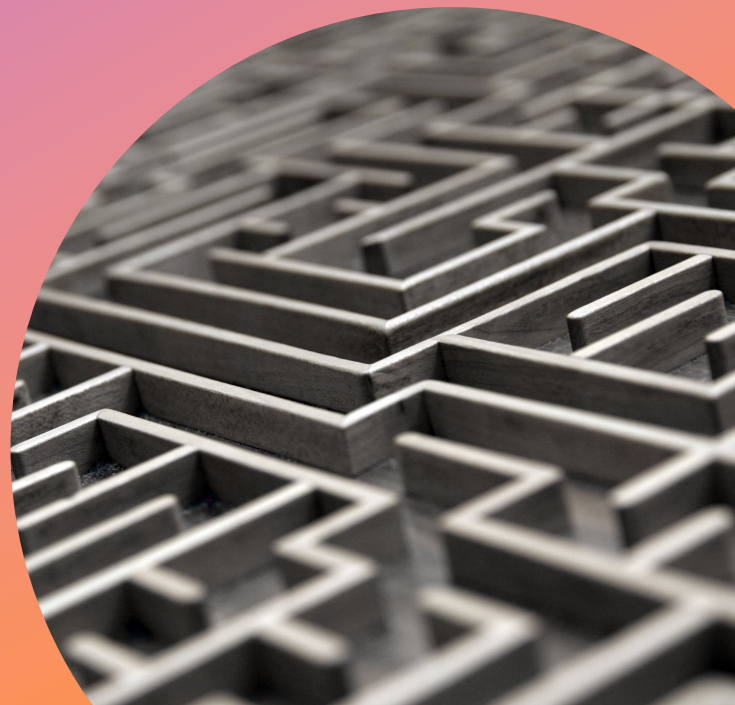
CHALLENGES

Challenge: Product owner highlighted that the mock data used to simulate the enrollment charts were not sufficient in terms of quantity.

Solution: We have researched into finding online sources of real school student data and have planned on implementing it into the next iterations.

Challenge: Having some members struggling to clone and run project on their local systems.

Solution: Reached out to Deakin's IT support to solve technical difficulties.



Plans for Iteration 1

- Relevant Dataset
- Continue application development on both front-end and backend.
- Research on business value of the product.
- Follow up with the product owner about the dataset and research.
- Assign development tasks to the juniors.