
SE 492 Bi-Weekly Report 01

Start Date - End Date: Aug 23rd - Sept 13th

Group Number: 19

Project Title: Canvas LTI Student Climate Dashboard

Client: Henry Duwe

Advisor: Nick Fila

Bi-Weekly Summary: The overall goal for this increment was to, 1) starting from scratch, have a solid baseline template UI for our web application to get feedback from our client; 2) Investigate how to work with Canvas in order to retrieve (in an efficient manner) the data that we would like to use in our application; and 3) Define and formulate concrete criteria for creating personas and mapping students to the personas. All of these tasks have been completed with more work being done than originally anticipated and with no current changes to the design of our project.

Past Week Accomplishments:

In this report's time period the group has made substantial progress in three key areas defined in the first week of this semester. Starting from nothing, our team broke our project up into functional components and then split apart to divide and conquer. There were three teams corresponding to each of the three key areas:

1. ***UI Team (Kira, Emma)*** - This team's goal was to create a solid, interactive baseline UI for our home page to our application. A screenshot of this page is shown below in Figure 1. Additionally, we took the time to investigate and get familiar with our tools and refresh on , as we expect to use them intensively throughout the semester
    a. Description of work done:
        i. Set up two initial webpages, classes.html and surveys.html, with basic UI components.
        ii. Formatted elements using the Bootstrap framework, and added a Sass file for future custom CSS needs.
        iii. Added introductory Bootstrap/Sass resources to the repository for other teammates.
        iv. Investigated potential frameworks to enable communication between the user-facing service and other microservices.
        v. Researched front end responsibilities and common issues for cyber security.
    b. Individual Contributions:
        i. Kira - (iv), (v)
        ii. Emma - (i), (ii), (iii), (iv)

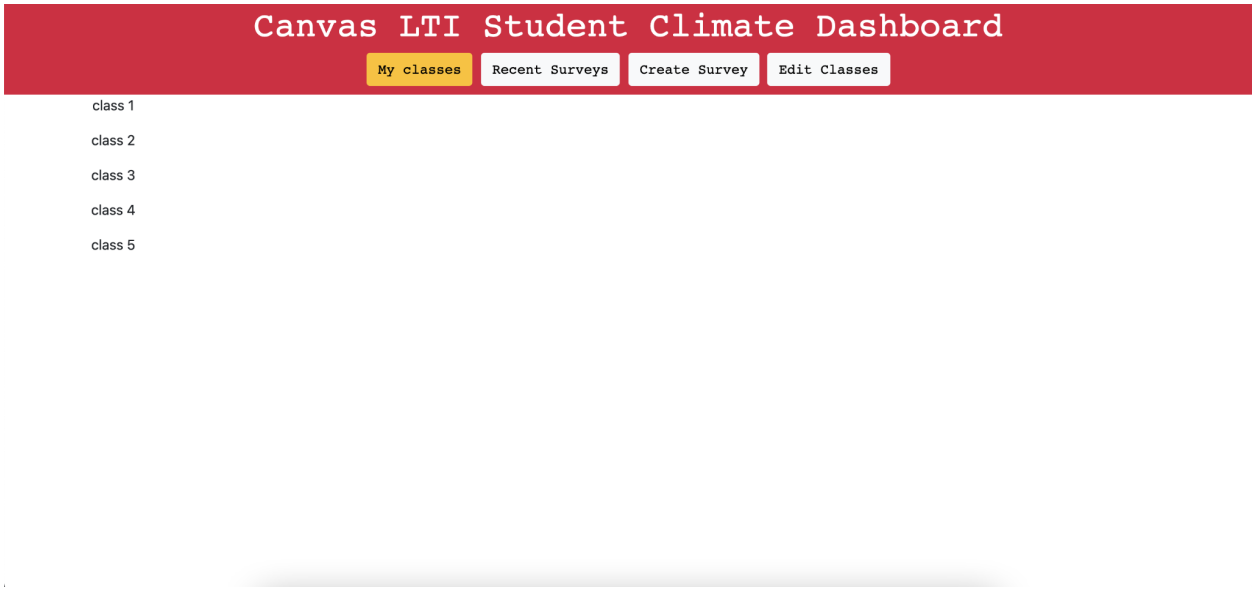

Figure 1. Screenshot of our Homepage Baseline Webpage

2. ***Canvas API Team (Andrew, Emma)*** - This teams goal was to investigate how to access canvas's data using a dummy class provided to us by our Client.

a. Description of work done:
    i. C# wrapper for the canvas api
    ii. In memory database for demo/proof of concept
    iii. HTTP endpoints
    iv. Object mappings from canvas responses to application specific context.
    v. Insomnia/postman tutorials in addition to showing team how to run application. (Josh and Emma helped containerize the application)
    vi. Investigated the Canvas token's permissions.
b. Individual Contributions:
    i. Andrew - i,ii,iii,iv,v
    ii. Emma - v, vi

3. ***Data Analysis Team (Zach, Josh)*** - This team's goal was to take all of the discussions had with the advisor and client last semester and create a concrete set of rules and criteria for 1) Creating Personas 2) Mapping Students to personas 3) Predicting the persona's resonance with respect to specific events.
    a. Description of work done:
        i. Team broke to individually brainstorm methods of doing each of the three tasks taking into consideration the lengthy discussions with the Client last semester.
        ii. Met up and created a list of data needed for our data analysis pipeline so that the Canvas API team could start targeting those endpoints.
        iii. Presented paths forward to team and decided on the path forward (Link to Plan Flow Charts):
            1. To create the personas we broke our required data into three categories: 1) Grades 2) Class Sentiment 3) Class Engagement; and then split each section into scores of High (3), Medium (2), and Low(1). We then created a cross-product space of 3*3*3 = 27 different combinations and labeled each (not necessarily uniquely) into larger persona categories based on client discussions and experience. The mapping is shown below in Figure 2.
            2. To map the students to the personas, we assigned each of the scores (High, Medium, and Low) a numerical range for which they correspond to (i.e., for Grade it is Low: [0, 50%]; Medium: (50, 80%); High: [80%, 100%]).
            3. To predict the resonance, we plan to create vectors of weights corresponding to how each assignment maps to the three categories. For example, personas with low class participation will likely not resonate well with in class presentations or class participation grades; on the other hand personas who are very engaged with the class are more likely to do well with presenting (we predict).
        iv. Started Inputting and curating data into the Dummy Canvas Class to test our methods on.

v. Started Investigating sentiment analysis packages / libraries for outsourcing text parsing.

b. Individual Contributions:
   i. Zach worked on: (i), (ii), (iii), (iv)
   ii. Joshua - (i), (ii), (iii), (v)

Sentiment	Grade	Engagement	Persona
1	1	1	Ghost
1	1	2	Ghost
1	1	3	struggle
1	2	1	Just Pass
1	2	2	Just Pass
1	2	3	Frustrated
1	3	1	Why am I here?
1	3	2	Wrong Major
1	3	3	Wrong Major
2	1	1	Ghost
2	1	2	Too hard
2	1	3	Too hard
2	2	1	Just pass
2	2	2	Just Pass
2	2	3	Just pass
2	3	1	Too easy
2	3	2	Too easy
2	3	3	Overacheiver
3	1	1	The Optimist
3	1	2	The Optimist
3	1	3	Disjoint
3	2	1	The Optimist
3	2	2	Just pass
3	2	3	Wants to get better
3	3	1	Too easy
3	3	2	Overacheiver
3	3	3	Overacheiver

Figure 2. Persona Mapping from Section Scores

Pending Issues:

- Need to figure out a way to receive representative textual data back from students without identifying past students.

Individual Contribution:

NAME	Individual Contributions	Hours this Increment	HOURS Cumulative
Andrew Dort	• Set up starter application .NET core application for the team • Create endpoints for internal database as well as canvas api • Create Canvas wrapper • Extraction of custom data from canvas into C# object specific to the application • Team pairing on various tasks and discussions • Demonstrated how to setup api key and created a shared README around it	30	30
Kira (Ashley) Pierce	• Researched into Bootstrap toolkit • Reestablished expectations for front end • Researched frontend responsibility for security related to injection attacks to prepare for availability of text input features	10	10
Emma Paskey		18	18
Zachary Borchard	• Outlined Path Forward to define and map personas • Outlined Path to predict resonance • Helped define necessary data for data analysis modules • Populated mock Canvas course with data relating to personas	22	22
Joshua Slagle	• Creating Docker Summary for Team • Outlined Path Forward to	27	27

	define and map personas ● Outlined Path to predict resonance ● Helped map the Canvas Data to endpoints ● Investigated different libraries / packages for sentiment analysis outsourcing		

Comments and Extended Discussion:
We really need to get together and figure out a good time to meet with the advisors.

Plans for the Upcoming Week:

C# Tasks:

- Map out more data that needs to be retrieved from the Canvas api
- Create objects in the C# application around this data
- Set up corresponding endpoints.
- Create a test structure around written logic
- Find a way to send this to the front end side

Misc. tasks:

- Create trello cards for work tracking
- Meet with advisors
- Meet in person on Thursdays (if available)
- Team building
- Weekly zoom meetings as a team

Frontend tasks:

- Determine a data mapping tool to draw our data sets
- Create front end interface to interact with the backend endpoints
- Determine how to display this data
- Dockerize it to interact with our C# application which will allow us decouple our applications and have a separation of concerns
- Have a demo for the Customers

Data Analysis Tasks:

- Prototype Sentiment Analysis pipeline contribution to overall persona creation and mapping.
- Fill out data to specifically target specific students towards personas for testing.
- Prototype Grade mapping pipeline contribution to overall persona creation and mapping using our api endpoints.
- Meet with advisors to receive feedback on our current plan.

- Curate/Recieve a representative dataset for textual responses.