VIRGIL'S TRAVELS

CECS 445: Software Design and Architecture

Team: UTI
Product: ***Virgil's Travels*** *(Web Application)*
Professor: Hubert Huynh
Deliverable: ***Sprint 1 and 2 Documentation***

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1) Executive Summary

Project Vision

- Our application, Virgil's Travels, aims to provide an interactive, all encompassing travel site that provides users with various options other sites may lack. We aim to make our application as social as possible by having users create profiles and see what other users have purchased, reviewed, and shared about their trips.
- Virgil's Travels is a Web Application. Ideally we would develop both a web application and a mobile application but for the scope of the class it is best to choose a web application for the following reasons.
    - Webapps work on smartphones and computers
    - No need to worry about developing the application twice. (Once for IOS devices and another time for Android OS devices)
- We plan on utilizing a great variety of technologies. Below we list the various technologies and their uses.
    - React will be used for front-end and it'll be used as the view of our application.
        - JavaScript will be used to utilized the React framework.
    - Flask will be utilized to create a restful API for all our back-end queries and requests.
        - Python will serve as the language that is required to use the Flask framework.
    - Cloud based MySQL database will be used to store our data.
    - Docker will be used for creating a container that serves as a virtual machine for our application deployment to AWS.

    - AWS will be our cloud service utilized for hosting our database on the cloud, deployment, domain routing, and computational services.
- The Scrum development process framework model will be adhered to in order to promote an agile work environment that optimizes work flow for small software development teams.

Target Audience

- Our target audience encompasses any and all demographics in need of travel tickets, event tickets, and advice on planning for foreign locations/destinations. This may involve individuals in search of new locales to travel, families on vacation, or even business people in search of certain amenities.

Risks/Opportunities

- Risks
    - Not delivering on the entire scope of the project by the project's due date
    - Not delivering a minimal viable product
    - Exposing user information that is meant to be private and therefore unexposed to outside viewing
- Opportunities
    - Expand knowledge related to software development in a professional environment using various technologies
    - Practice and perfect scrum development framework methods
    - Create comprehensive and useful software and deploy on the market

Conclusion

- We aim to design, document, and deploy a median to maximal viable product by the end of our four sprints. Given the scope of our project, the effort required to be put forth will be more than minimal. However, given that we believe in the usefulness and demand for our web application, we look forward to proving we are capable of meeting the requirements all the while learning about software design and architecture.

2) Software Mission

- The goal of this application is to provide a tool that hosts a wide variety of ticketing purchasing and review hosting/accessing services for those who are planning a trip to a destination.
- Our development team strives to produce a medium to maximum viable product (in the form of a web application) that will be painless to use, intuitive, useful, and feature rich.
- Our hope is to release a product that will be good enough to publish and obtain a sizeable following due to our product's quality.
- Virgil's Travels should work well with any computer and smartphone given that it will come in the form of a web application and will thusly support both platforms.

3) Pointage Methodology

- The items that are placed on a backlog are often aspects of the application that are being developed by the team as features of the app in question. These features are often pulled from user stories, which serve as descriptions of features from the point of view of a user/potential clients of said application.
- As can be seen in the table graphic below (Figure 3b), the ideal story size is anything that lasts between 1-12 hours to develop or create.
- In terms of pointage, we will stick to a 1-10 rating scale where each point value is assigned based on the estimated on a function of estimated time for completion and difficulty. The table below (Figure 3a) shows how each point on the 10 point scale relates to estimated duration of item completion and difficulty.

Point Value	Approx. Days / Hours
1 pt.	1 Day ~ 6 hours or less
2 pts.	2 Days ~ 12 hours or less
3 pts.	3 Days ~ 18 hours or less
5 pts.	4 Days ~ 30 hours or less
8 pts.	5 Days (week) ~ 48 hours or less
13 pts.	10 Days (2 weeks) ~ 78 hours or less
20 pts.	15 Days (3 weeks) ~ 120 hours or less
40 pts.	40 Days (6 weeks) ~ 240 hours or less

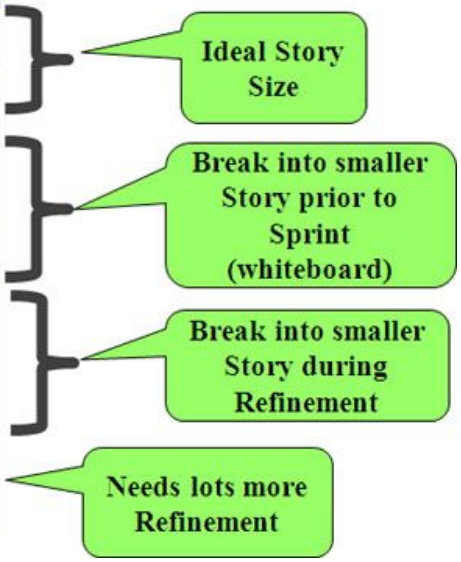


Figure 3a

Points	Estimated time for completion	Difficulty
1	1-2 hours	Easy
2	3-4 hours 1-2 hours	Easy Medium
3	5-6 hours 3-4 hours	Easy Medium
4	7-8 hours 5-6 hours 1-2 hours	Easy Medium Hard
5	9-10 hours 7-8 hours 3-4 hours	Easy Medium Hard
6	11-12 hours 9-10 hours 5-6 hours	Easy Medium Hard
7	13-14 hours 11-12 hours 7-8 hours	Easy Medium Hard
8	15+ hours 13-14 hours 9-10 hours	Easy Medium Hard
9	15+ hours 11-12 hours	Medium Hard
10	13+ hours	Hard

Figure 3b

4) Project Backlogs

Sprint 1 Backlog

Sprint	Size (Pointage)	Backlog Item	Owner	Estimated Hours	Actual Hours
1	3	Learn Python	All	6	6
1	3	Learn HTML/CSS	All	3	4
1	3	Learn JavaScript	All	6	6
1	5	Learn React JS Framework	All	8	7
1	3	Learn Flask Python Framework	All	4	5
1	3	Learn about RESTful API's	All	4	4

Sprint 2 Backlog

Sprint	Size (Pointage)	Backlog Item	Owner	Estimated Hours	Actual Hours
2	3	Frontend: Create UI	BR	4	4.5
2	2	Frontend: Ensure UI is mobile browser compatible	HM	4	3
2	4	Frontend: User Registration form	HM, CA	2	3
2	4	Frontend: User login form	BR	2	2
2	5	Frontend: User profile page	DI, BM	4	5
2	5	Frontend: User landing page	DI	4	4
2	5	Frontend: Guest landing page	HM	4	5
2	4	Backend: Set up cloud database	CA	2	3.5
2	3	Backend: User login/logout	BM	3	4
2	6	Backend: User signup	BM	6	7.5
2	2	Backend: get user data	CA	2	1

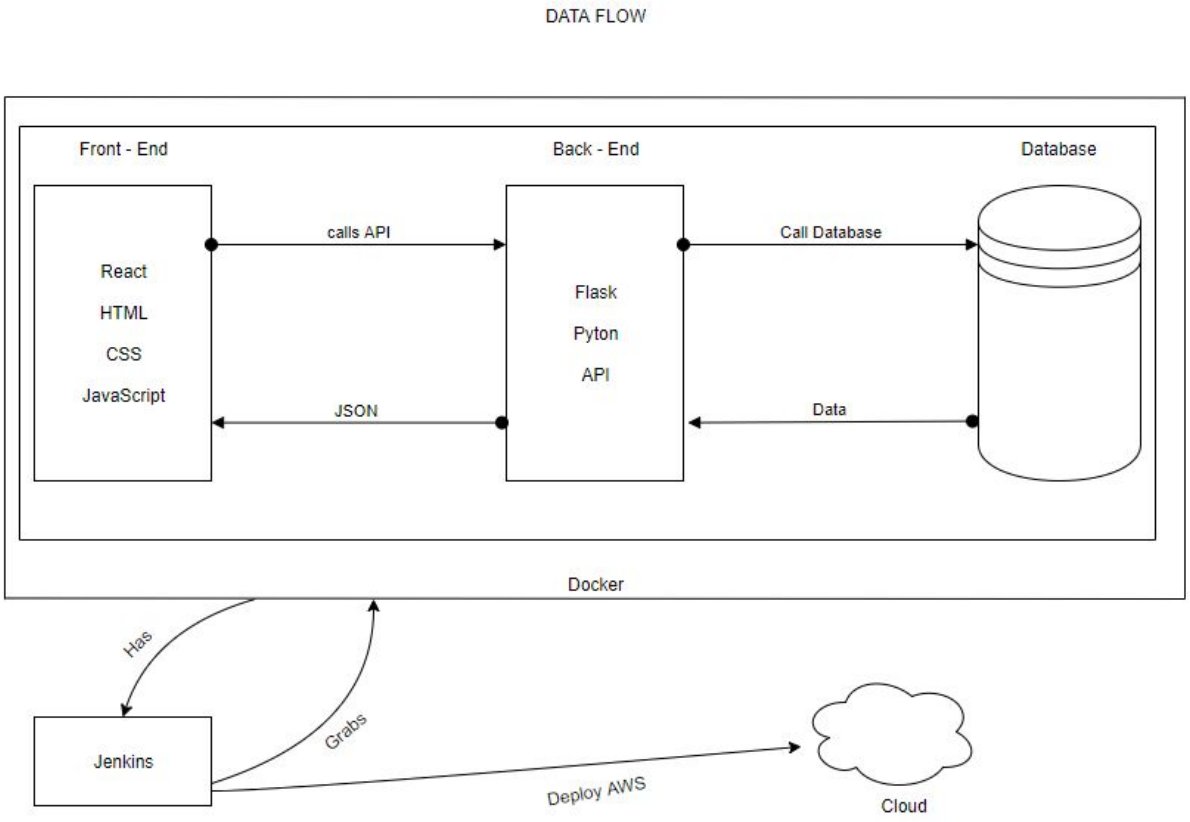
2	3	Backend: Password encryption	DI	3	3
2	6	Backend: Docker container	BR	6	10

5) Sprint 1

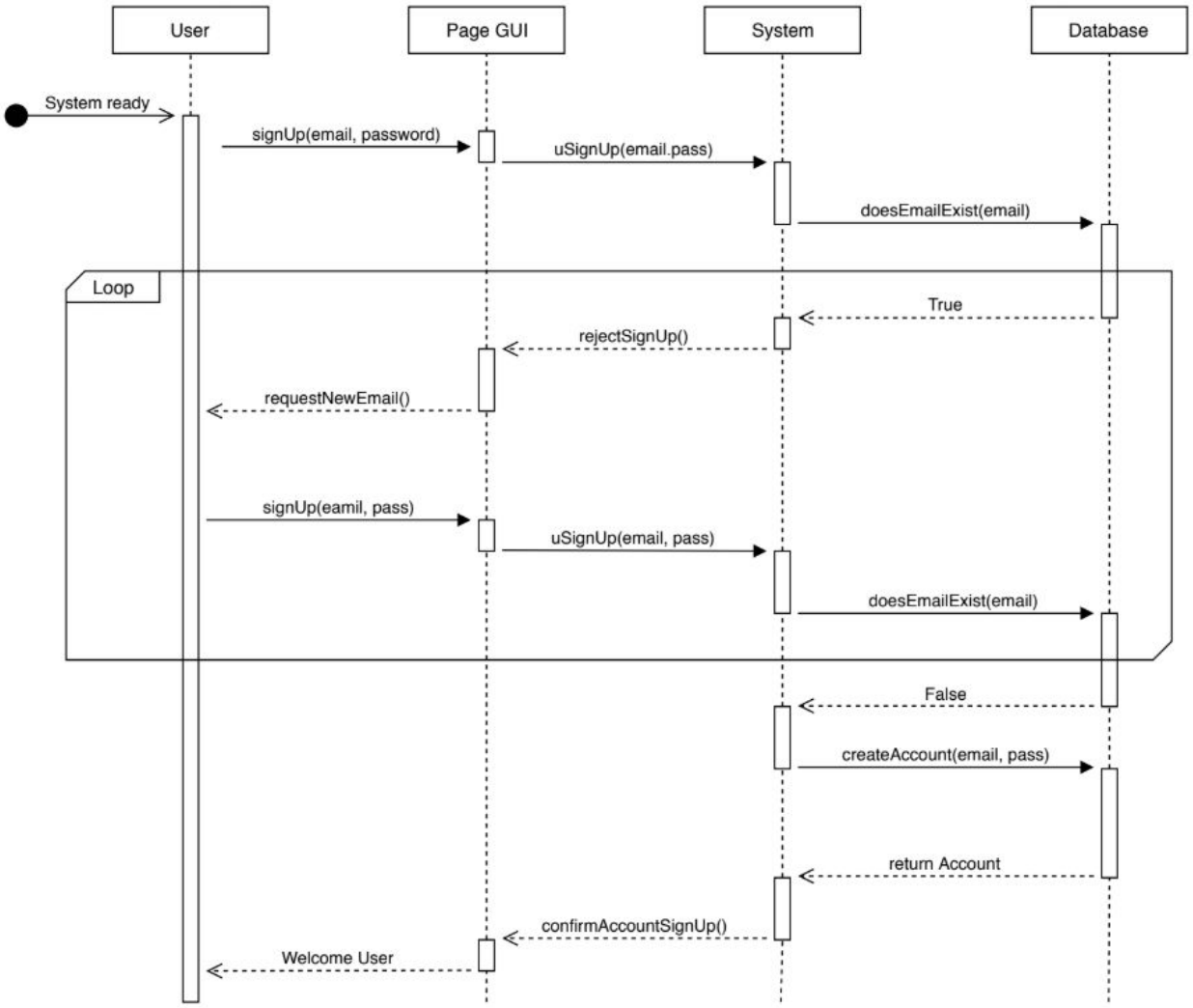
5a) Process: Scrum documentation

- In regards to our first sprint, we decided to use our time to familiarize every group member with the tools that we will be using throughout the project. The reason we chose to do our first sprint in this manner is because we are aware that some of us specialize better on backend rather than front end and vice versa. We wanted to keep the group onboard with everything that's going on within our project. The way we set this up was to assign points through each platform that the group was spending time to learn throughout the two weeks that the sprint lasted. As each member got more comfortable with the material, we would then move on to the next platform. The group decided that if one person wasn't onboard, it would lead to problems later on in the project that could have been prevented.

5b) Software architecture: Diagrams



Development View Sequence Diagram



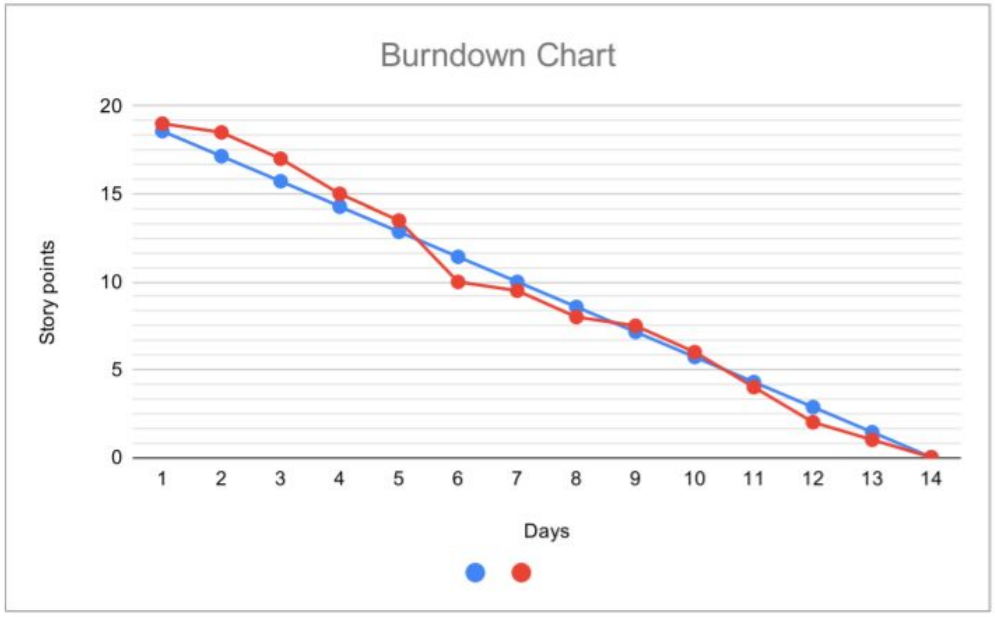
5c) Software Development: Work documents

Sprint Managment Template	
Number of days	14
starting story points	20

Ideal burn-rate	1.43	current day sp	20

Everyday Updates

day	ideal	actual burnt	velocity
1	18.57	19	1
2	17.14	18.5	0.5
3	15.72	17	1.5
4	14.29	15	2
5	12.86	13.5	1.5
6	11.43	10	3.5
7	10.00	9.5	0.5
8	8.58	8	1.5
9	7.15	7.5	0.5
10	5.72	6	1.5
11	4.29	4	2
12	2.86	2	2
13	1.44	1	1
14	0.00	0	1



5d) Sprint Review and Retrospective

Review:

- We reviewed what work was done for sprint 1. The fundamental technologies were learned by the team via LinkedIn Learning and Youtube tutorials. We showed one another which videos were useful and which were lacking in their explanation for the technologies.
- During our two hour sprint review, we did not present any working prototype or features to the rest of the development team. Scrum methodology asserts that no work shall be demonstrated should it be incomplete. During this sprint, none of the core features were worked on in favor of the items listed in the sprint 1 backlog.
- During the collaboration phase we immediately came to a consensus that we should begin work on the features that a user would first see upon loading up our application. The items in our backlog for sprint 2 reflect these user considerations.

Retrospective:

- What went well during the sprint?
    - The sprint allowed all the group members to be in accordance with the platforms being used for the entire application. All participants came to a consensus in the understanding of the basic functions for each of our tools that we plan to implement.
- What did not go well?
    - In terms of product development nothing was completed in sprint one. Sprint one was focused on the team getting up to

speed on web development and the different layers of software needed to create a modern and dynamic website

- What could be improved for better productivity next sprint?
    - Continued study of technologies to increase speed

6) Sprint 2

6a) Process: Scrum Documentation

- Moving forward on to our second sprint, this is where we decided to assign roles to a specific person or a pair of people in order to successfully manage each goal set in the 3 week timeframe. We created a task list that would lead to a prototypical creation of our initial web page. The tasks were spread evenly, and were given to each group member based on how comfortable they were with the task. This is also where we took into account what we had learned through sprint one. Since mostly everyone was familiar with everything we would be using, each group member was given an interval of hours in which they could feasibly complete the task they were assigned. For the most part, group members spent the estimated time on their role and if they went over or under the time estimated we asked that they monitor how long it took in order to correctly fill out our burn down chart. In our chart, we can also see that we were stagnant in getting much progress done for the first few days of the sprint, but around day nine everyone did a good job in picking up their slack and completing what they were assigned to do. Then proceeding to the end of the sprint, the workload was managed well and our velocity wasn't excessive to prevent rushing the final touches of our first model.

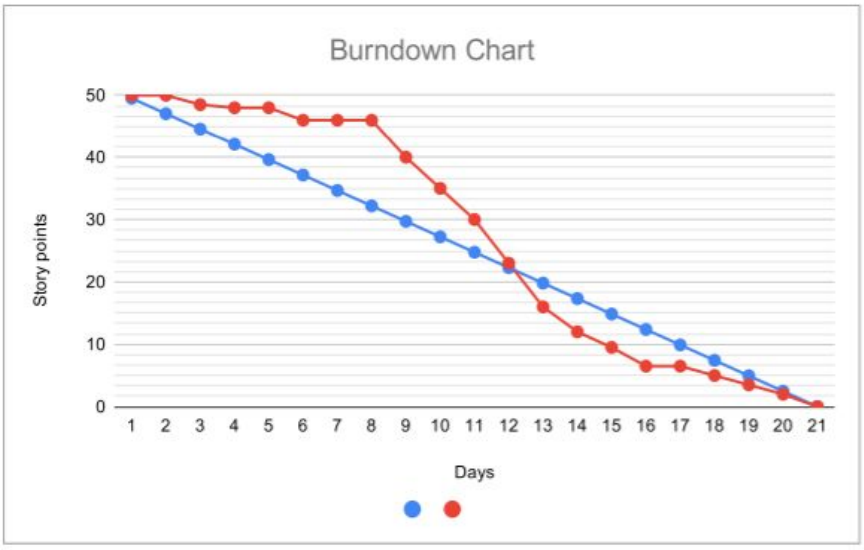
6b) Software Development: Work Documents

Sprint Managment Template	
Number of days	21
starting story points	52

Ideal burn-rate	2.48	current day sp	20

Everyday Updates

day	ideal	actual burnt	velocity
1	49.52	50	1
2	47.05	50	0
3	44.57	48.5	1.5
4	42.10	48	0.5
5	39.62	48	0
6	37.14	46	2
7	34.67	46	0
8	32.19	46	0
9	29.71	40	6
10	27.24	35	5
11	24.76	30	5
12	22.29	23	7
13	19.81	16	7
14	17.33	12	4
15	14.86	9.5	2.5
16	12.38	6.5	3
17	9.90	6.5	0
18	7.43	5	1.5
19	4.95	3.5	1.5
20	2.48	2	1.5
21	0.00	0	2



6c) User Stories

User Roles:

- Guest - Customer/User who has not logged in or even created an account
- Member - Customer/User who has created an account and is logged in
- Administrator - Staff member of the website who has high level privileges

User Stories for Sprint 2

Guest:

- As a guest I want to view flights and their corresponding tickets so that I can plan for the availability, costs, and other related factors that need to be accounted for.
- As a guest I want to view activities and events near destinations so that I can plan for the availability, costs, and other related factors that need to be accounted for.
- As a guest I want to view rental car prices for the visiting area/location so I can plan for the availability, costs, and other related factors that need to be accounted for.
- As a guest I want to view hotel options and prices so that I can plan for the availability, costs, and other related factors that need to be accounted for.
- As a guest I want to view reviews/blogs of locales and activities within visiting areas so that I can determine whether the service in question is desirable.
- As a guest I want to filter hotels, car rental companies, activities, entertainment options by a variety of factors including but not limited to: price, review ratings, distance from stay location, alphabetical, newness so that I can sort the results in a manner that is most helpful to what I want to accomplish.

Member:

- As a member I want to sign in using email address or Profile ID as well as accompanying password, so that I can track all of my trips and search results.

- As a member I want to sign out and save settings upon sign out so that I can track all of my trips and search results.
- As a member I want to edit Profile info that allows for unique personalization, so that I can keep my profile up to date.
- As a member I want to access account information and edit non identifying information, so that I can keep my account up to date.
- As a member I want to view/purchase flights and their corresponding tickets so that I can plan for the availability, costs, and other related factors that need to be accounted for.
- As a member I want to view/purchase activities and events near flight destinations so that I can plan for the availability, costs, and other related factors that need to be accounted for.
- As a member I want to view/purchase rental car prices for the visiting area/location so that I can plan for the availability, costs, and other related factors that need to be accounted for.
- As a member I want to view/purchase hotel stays so that I can plan for the availability, costs, and other related factors.
- As a member I want to find and create traveler reviews of hotels, activities, events, restaurants, and other entertainment options in the destination location so that I can determine whether the service in question is desirable and to share my experiences with others who may want to know what the service was like.
- As a member I want to filter hotels, car rental companies, activities, entertainment options by a variety of factors including but not limited to: price, review ratings, distance from stay location,alphabetical, newness, trending so that I can sort the results in a manner that is most helpful to what I want to accomplish.
- As a member I want to Make and manage a list of places visited and then view sublists of each location's visited entertainment options so that I can track my activity on the website over time.

Administrator:

- As an administrator I want to edit any site member profile so that I can correct problems for members.

- As an administrator I want to restrict access or outright banning accounts for problematic users so that I can make the website a more quality experience.
- As an Administrator I want to moderate reviews for appropriate conduct that are posted within our databases so that I can make the website a higher quality experience.
- As an Administrator I want to perform operations(create, replace, update, and delete) on the database via an administrator panel so that I can edit any listing, hotel, events, etc.

6d) Review and Retrospective

Review:

- We reviewed what work was done for sprint 2. Having learned the fundamentals in sprint 1, we were able to complete all planned work. Conjoining all completed work yielded a functional prototype.
- We presented the product of our man hours in the form of the application and were pleased with the functionalities that we coded and designed for.
- Unlike sprint 1, much time was spent arguing over what to work on next and in the interest of time and in order to de-escalate rising tensions we agreed to table the matter for a later date. Preferably some time closer to sprint 3.

Retrospective:

- What went well during the sprint?
    - During sprint 2, the group was able to progress more in the aspect of implementation of our first draft for the project. We had features that were functioning correctly, such as sign up, login, profile information, and came to an agreement on how our front end should be envisioned.

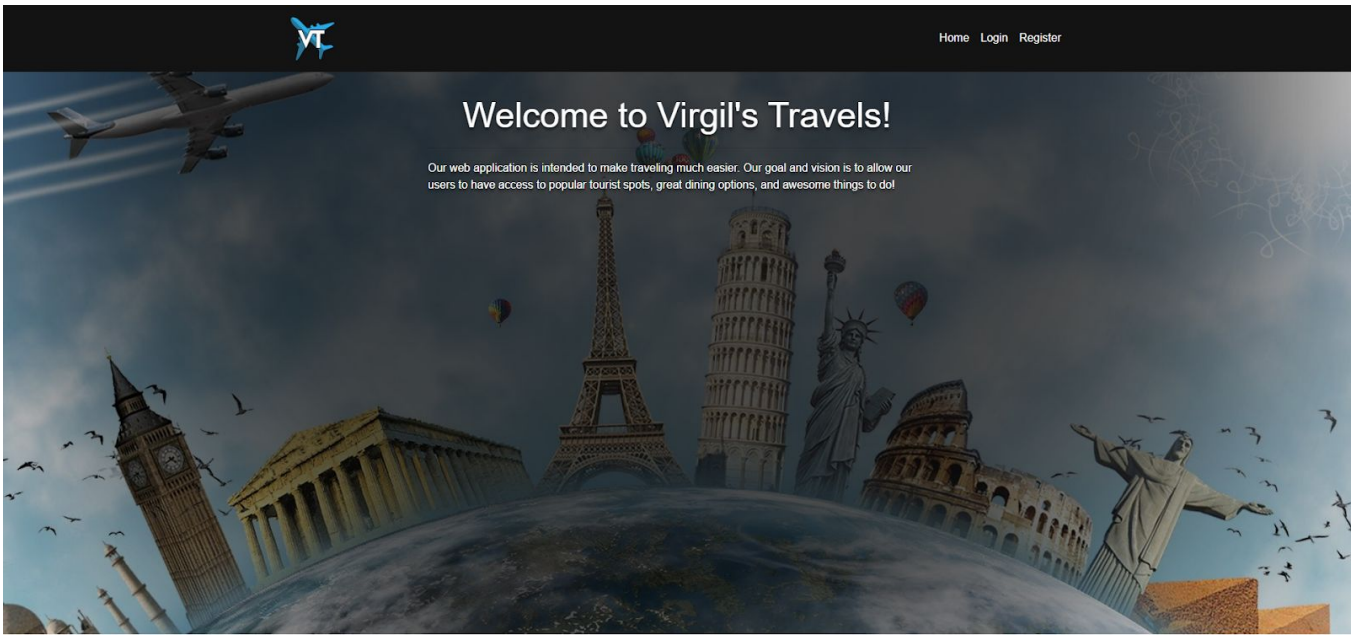
- What did not go well?
    - Back-end development and communication with the database was the most difficult part of this sprint and consumed most of our sprints troubleshooting and research time. In particular, encrypting user passwords with BCrypt, was troublesome due to our collective lack of experience with the software.
- What could be improved for better productivity next sprint?

  Our documentation can be improved, as well as a more efficient use of some of the technologies.

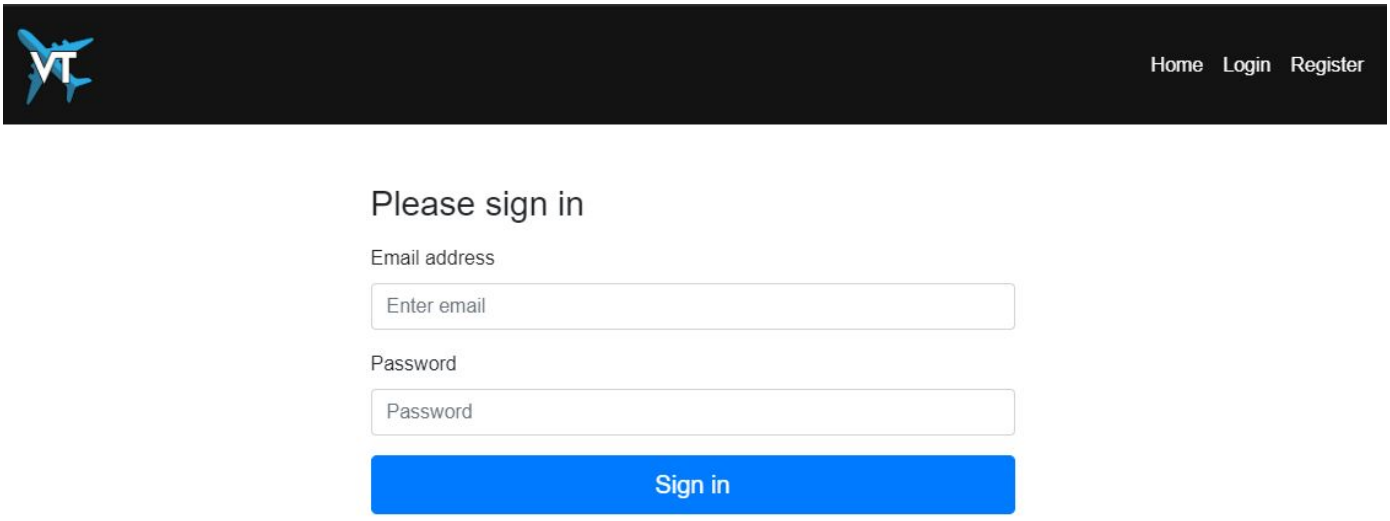
7) Screenshots - Prototype Display

Mobile Views

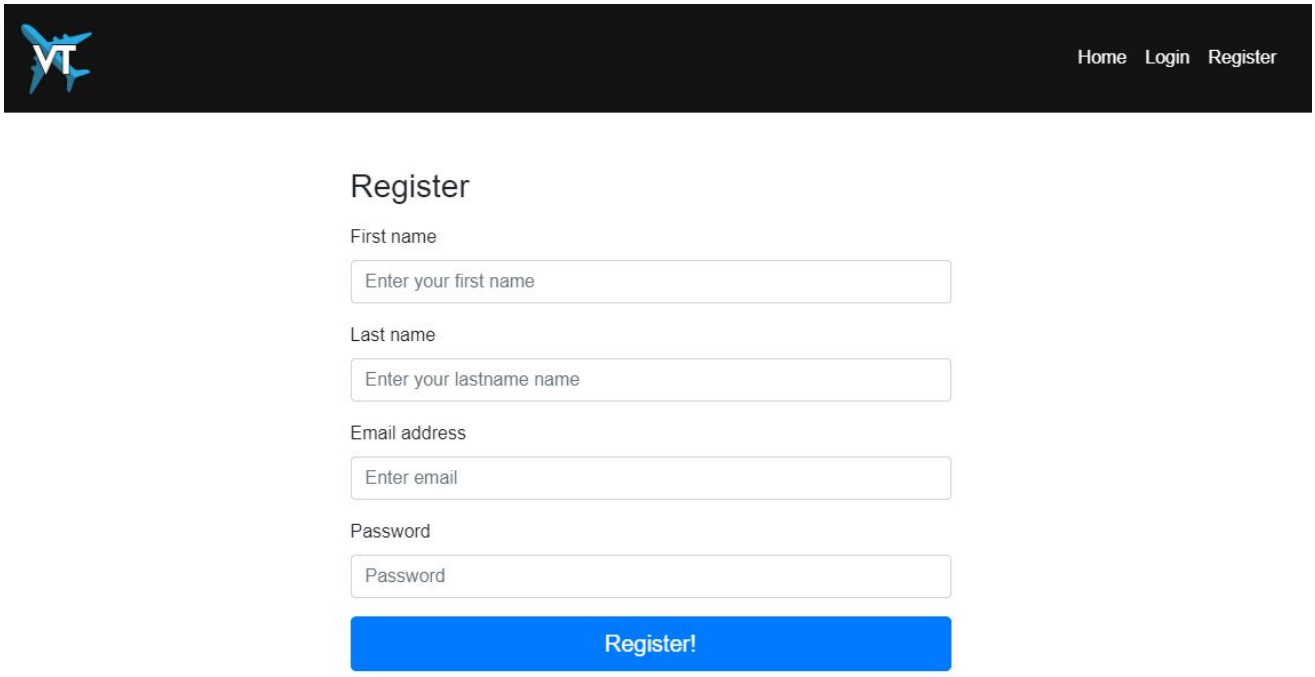
Landing Page View



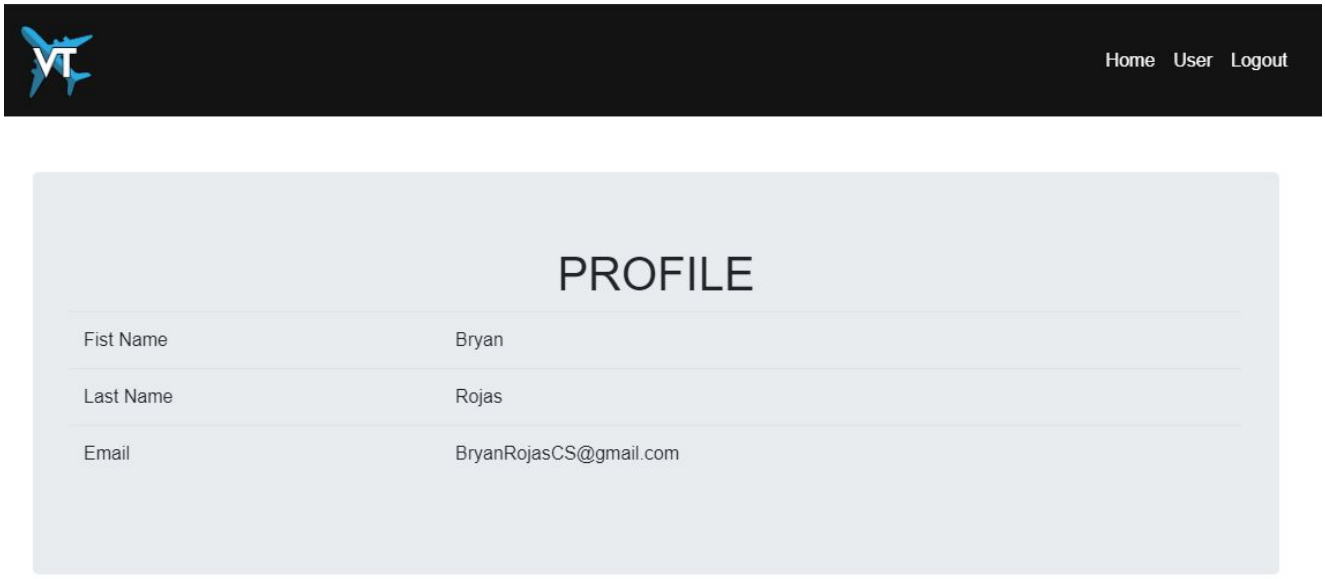
Sign In Page View



Register Page View



Profile Page View



8) Reflections

- For the first sprint we studied and at least gained an introduction to the technologies that we are using to implement our travel website. We studied Python, the Python Flask framework, and RESTful API for the backend of our project. For the front end of our project we studied HTML/CSS, JavaScript, and the React JavaScript framework. This was necessary since each team member had different strengths and weaknesses with the different technologies that would be required to complete this project. We made sure we at least had enough of an introduction to these technologies to get the project started. Despite the learning curve for some of these technologies, we felt we had enough of a base of knowledge to begin the project. We will continue learning and practising the different technologies as we continue with the project.

- For the second sprint we began creating the project. On the frontend we created the user interface making it mobile browser compatible. We also created the user registration form, user login form, user profile page, user landing page, and the guest user landing page. On the backend we set up the cloud database, user login, user logout, user signup, password encryption, and the Docker container. The Docker container took more time than expected to create, but turned out well.