The first segment of my write-up will focus on my experiences learning Ruby, Rails, Git, familiarizing myself with a Linux system and command line, and the myriad of things this assignment has taught me, while the second portion shall be reserved for a user manual for my web app. A copy of the user manual is also available within the app itself, under the 'About' tab and in the README.

Firstly, I would like to make comparisons between what I felt I could achieve (as stated in the mid-assignment submission, where I had no progress yet in terms of code), and what I did achieve. Despite having no prior programming experience before university, I managed to create a working app that can keep track of current tasks, their deadlines and perform basic searching based on task name, or tags to help the user keep track of their tasks. Task history is implemented by hiding completed tasks from ordinary users while allowing admins to reference them for record keeping purposes. A form of 'quality control' has also been implemented, where an admin must verify that a task has been completed satisfactorily after users mark it as completed. Miscellaneous information which is relevant, but not crucial enough to be in the task description can be added in the form of tags, to help the user (or admins) search for the task. While I was unable to successfully implement shared tasks (has_many_and_belongs_to_many relationships between tasks and users), each task must be tagged to a user, thus allowing us to keep track of who completed what. Unfortunately, there were a few things I had hoped to be able to implement but could not. Personally, I feel that a proper sorting system with clearly defined categories would have made my app far more useful, especially when the number of tasks begins to grow rather large, otherwise the effectiveness of the app will be reliant upon users entering sensible and helpful data into the tags field. Additionally, I had implemented prompts in the form of flash notices to inform the user of their failed login attempts or that they did not have the permission to view certain pages, but I could no longer get them to display after reformatting the page using HTML/CSS. Pop-up prompts to inform users of impending deadlines as well as colour coded deadlines that would turn from green to progressively redder as the deadline neared were also ideas I had but could not bring to fruition. I also attempted but could not implement a way for admins to create tasks for their users (akin to a manager assigning work to subordinates).

Despite these setbacks, I feel I have learnt a great deal from this assignment, not just about Ruby or Rails. Initially, I used a VM to run Ubuntu as several reviews stated Ruby ran faster and was easier to work with on a UNIX system. However, the VM was extremely slow and crashed often, which prompted me to install Ubuntu on a partition of my hard drive. Having been a Windows user for my entire life, I initially found it challenging to adapt to the drastically different UI and especially the different set of keyboard shortcuts for the UNIX Terminal. However, I now find it more comfortable to be using a UNIX system and run tasks from the command line, a fact that I will surely be thankful for as I undertake CS2030 and CS2040 this semester.

Learning Git was a fun experience for me as I had a run in with it during my time in HacknRoll2019. While it was relatively straightforward to use, I did run into some issues which frustrated me deeply as I could not figure out why it refused to allow me to revert a commit. I assumed I knew Git well enough to use it with no issues, but this assignment made me realise I still had more to learn.

I do not find learning HTML to be particularly fun. To me, it is a huge collection of tags used to alter the appearance of text or display a picture. Perhaps this viewpoint stems from my newness to HTML and I do not yet respect all that it has to offer. Though it is still rather confusing for me, I am very proud that I was able to make my web app look decent, with what little HTML knowledge I had. Perhaps I will begin to enjoy HTML a lot more once I gain greater mastery over it.

By far the greatest frustration I faced during this assignment is attempting to deploy the app to Heroku, a feat which I which could not achieve despite countless attempts. I suspect the problem may lie in my database, whether the fault lies in how it was configured or perhaps that something has gone awry in the database itself. After trying to deploy it on AWS Elastic Beanstalk and still receiving no reward for my efforts, I decided to switch back to sqlite3 and save the database locally. Clearly, I have much more to learn about relational databases.

This assignment, together with my first ever Hackathon experience at HacknRoll2019, where my team and I created a bot that allowed students to report campus amenity faults via Telegram, has stirred in me an interest in software and application engineering. It was a fun, challenging (and at times frustrating) adventure and I do hope to be able to continue this adventure with the CVWO project in Summer.

User Manual:

Non-Admin Users

1. Log in to the account of your choice. A list of users can be found in the About page and README file or at the bottom of this manual. Alternatively, create a user by clicking on 'Sign Up' at the top right-hand corner of the page.

2. You are now able to click 'view your current tasks' from the main page or click on 'Tasks' at the top right-hand corner to access your list of tasks. From here, you can see the Task name and deadline (or completion date). Completed tasks with 'PENDING APPROVAL' indicate that you have marked the task as completed, but your supervisor has yet to verify that the task is done to satisfactory standards. Once marked approved, the task will disappear from your view.

3. To view more details about each task, click on the name of the task. Here you may also edit and delete the task or mark it as completed.

4. To create a new task, return to the main tasks page. Click on 'Create Task'.

5. To search for a particular task, use the search bars to filter by name and/or tags.

6. To logout, click on 'Log Out' at the top right-hand corner of the page

Admin Users

1. Currently, Admin users are implemented such that they are users whose username == 'Admin' rather than as a boolean property of users. Please log in as Admin now.

2. Admins will instead see everyone's tasks in the main tasks screen, along with who each task belongs to. Additionally, they are the only ones who can mark completed tasks as approved and see tasks that have been marked as complete and approved.

3. Admins are also able to access the list of users and edit or destroy them. Click on 'Users' at the top right-hand corner to access the main users page.

4. From this page, you are able to edit or delete users, create a new user or most importantly, view a user's task history, including completed and approved tasks.

5. IMPORTANT NOTICE: Please do not delete yourself. You are better than that.

List of users (All share the same password of 'password'):

1. Admin 2. John Doe 3. Kah Nah Fayed 4. Mary Sue 5. Tan Ah Kow