ENDEAVOUR STUDIOS

Cat Logistic Appointment and Work Scheduler (CLAWS)

S1 - Functional Specification and Management Plan

SENG 321 - Group 4
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1.0 Project Summary

Designed for Purrfur Cat Grooming and Kenneling, the Cat Logistic Appointment and Work Scheduler (CLAWS) aims to streamline Purrfur's daily operations. CLAWS will provide an online catalogue and booking service for customers, and maintain a full employee schedule. Customer and employee services will be accessible through a common web portal.

Customers of Purrfur will be able to browse an online catalogue of all the products Purrfur sells in-store. The "Cat"-a-logue will display items with a price and description, but will not provide a means for online purchases. After creating a simple account, customers will also be able to book grooming and kenneling appointments for their cats online through the system. Customers will be able to check up on any of their cats staying with Purrfur though the "Cat"-pture service, which will stream a live feed from a camera in each kennel. Finally, customers will be kept up-to-date on their cats by viewing online logs kept by the employees looking after their cats.

Purrfur's employees will be able to access the system to view their schedule and any upcoming customer appointments. Employee access will be accomplished via a common employee account; once logged in, all employees will have access to the full employee schedule and a full listing of booked cat appointments. Employees will not be able to change their schedule using the system, and must contact the owner to handle these sorts of requests. The owner of Purrfur, who is also the acting manager, will have access to the manager account. The manager account will act much like the employee account, but will be able to modify the schedule of employees.

Hardware requirements for CLAWS are minimal. Purrfur requires two desktop computers to be installed in-store for employee use, one computer to host the system, and ten cameras to facilitate the "Cat"-pture service. The desktop computers have no special performance or storage requirements, but must run the Windows 7 operating system. The required cameras also have no special requirements, but since captured video is being streamed live, high quality or resolution is not a priority; most of the quality will be lost when streaming.

CLAWS will allow customers to book their own appointments, addressing Purrfur's goal to reduce employee workload. Running the employee schedule on the same system allows managers to coordinate the employee schedule with booked appointments to ensure that the facility is adequately staffed at all times. Offering customers services like "Cat"-pture will give Purrfur an advantage over similar businesses, and customer contact information collected from account creation can be used to deliver advertising media. The online catalogue will also help draw potential customers into the store to purchase products.

CLAWS must be as reliable as possible, as malfunctioning websites are often discouraging to potential customers. However, the system acts as an aid and does not handle any critical operations that cannot be accomplished manually, so other aspects should not be sacrificed for the sake of up-time. The employee schedule and customer contact information should be secured from outside view, but no sensitive personal information (SINs, payment information, or the like) is stored in the system.

2.0 User Interaction Guide

2.1 Basic Website Functionality

The website will provide a basic interface available to any visitors of the site. The more in-depth features will be covered in detail below, and simpler features will be covered in this section.

The main purpose of the generic visitor page is to provide information about Purrfur and their operations and services. These include an About page providing a short history of the company, location, and contact information. Also included is hours of operations and a place for testimonials from past customers. Another page visible to all visitors of the site will be the "Cat"-a-logue. This product page overviews products available in-store, and further details will be covered further in this document.

Any visitor will also have access to a sign-up page, allowing the user to create an account, that can later be used to setup appointments, and in the future access pertinent information such as a schedule, cat logs, and any other necessary information. To access their account afterwards, a prominent log in form will also be displayed, allowing a returning customer to log in and access their account and information associated therewith. Further details of this account are provided in section 2.1.1.2.

This log in form also provides an access point for employees whom may be accessing the site from an off-site location such as at home. From this account the employee will have access to future appointments at the shop, a work schedule, and also have the ability to make changes to this schedule. As mentioned above, these details will be covered in a section 2.1.1.3.

As well as access for employees, the manager/administrator can also access their account through this log in form. This account provides full access to all features of the website, and the full details have been covered in section 2.1.1.4.

2.1.1 Website Access Control

Website access will be split up into four different access types. These access types control which features a visitor has access to, depending on their role and what privileges they should have. The different roles are anonymous or first time visitors, customers, employees, and management.

2.1.1.1 Anonymous Access

When a visitor first comes to the site, they will see a basic website, containing information about Purrfur such as location, operating hours, and any other relevant information that management feels should be included. Also accessible to anonymous uses is the "Cat"-a-logue, a list of products available in store. The most important part will be a sign-up form, allowing this user to sign up as a customer, providing customer access to the account.

2.1.1.2 Customer Access

During registration, the customer will be asked to provide account information. This information has been outlined in the following table.

Field Name	Description
Name	The customer's full name.
Phone Number (business and home)	Contact phone numbers for the customer. Two places are provided, in case the customer needs to be contacted urgently.
Email Address	An email address for the customer. This allows the scheduler to send reminders and notifications to the customer.
Home Address	This optional field allows the customer to provide their address, to be used if invoicing is required.

When the customer accesses the website after signing up, they will have access to the appointment scheduler (section 2.2.3). This allows the customer to schedule their pet for a grooming or kenneling appointment at their leisure. They will also have access to any cat logs or video streams that are currently applicable if the customer has a pet in a kennel, as described in section 2.4.

2.1.1.3 Employee Access

The employee account provides access to all customer accounts, allowing changes to be made if necessary. The employee account also allows employees to access their work schedule and any scheduled appointments. When a pet is delivered for kenneling it may also be required that the employee create a cat log if one does not already exist. The details of this account will be covered in section 2.5. The employee account can also make changes to the schedule, adding or removing appointments as needed, as well as make notes in the cat logs and on customer accounts.

2.1.1.4 Management Access

The management account allows the store owner or manager the same access as a store account, as well as the ability to add or remove employee accounts and setup the main employee schedule. Details of the schedule are covered in section 2.2.4.

2.2 Appointments and Scheduling

2.2.1 Overview

Appointments and scheduling make up the core functionality of the system. Both customers of Purrfur and staff members will use some form of appointments and scheduling when performing actions such as managing kennel/grooming bookings, viewing upcoming appointments, shift scheduling, etc.

A notification system will be implemented which takes care of notifying, via email, employees and associated customers when either a cat drop off or a cat pickup time is missed. This gives the customer a chance to follow up before the employee must contact them directly.

2.2.2 Employee Point-of-View

The employee point-of-view denotes the system as seen when logged in as an employee, with an employee account.

Most importantly, within the employee view, is the “View Appointments” screen. This screen will consist of an easy to read calendar type view showing the week-at-a-glance with kenneling and grooming appointments scheduled (by customers on-line) throughout. Appointments are not associated directly to a particular employee; rather, they are listed there to be dealt with by whichever staff members are on duty that particular day. Cat grooming appointments last a number of hours (in duration) and kenneling appointments last a number of days. By clicking on any appointment in the calendar the employee will be presented with the full details pertaining to the appointment, including, but not limited to, customer name, appointment type, dates, cat breed, etc. The employee also has the ability to modify any of the fields within the appointment or cancel it entirely, providing that the system does not determine that the modification conflicts in any way with another appointment (eg. too many kennels being used). Any modifications an employee makes to an appointment will be summarized and e-mailed to the customer in the form of a notification.

Additionally, staff members will use the system to view shift scheduling, independent of the appointments scheduling. This page is called “View Shift Schedules” and it, again, contains an easy to read calendar type view showing the week-at-a-glance; yet, instead of containing appointments from customer bookings it shows which employees are working on which days and for how long (duration). This schedule will be populated and maintained by the single manager account who has write and modify access to the calendar.

2.2.3 Customer Point-of-View

The customer point-of-view denotes the system as seen when logged in as a customer, with a customer account.

On the main website for the system the customer will be able to click on “Create Appointment”. This will take them to the “Create Appointment” page where they will be presented with a series of fields to fill out on a typical search form submission, beginning with ‘Appointment Type’ (grooming or kenneling) - this is the most important field because depending on this selection the date choices will change; that is, kenneling appointments require a start and an end date (up to two weeks long) whereas grooming is scheduled in

fixed one hour blocks. The customer then proceeds to fill in the rest of the form including, but not limited to, selected date(s), cat name, cat breed, video streaming (if kenneling), dietary concerns, special notes, etc. Upon form submission, and after simple form validation, the system will attempt to fit the customers appointment into the master appointments schedule and return with either a page informing the user that the given times are available, or, if not, a selection of nearby dates/times that the user can select from. When the user is happy with a particular appointment and the associated dates, they are able to commit to the booking. A simple confirmation page is returned when the booking goes through, providing the user with a booking reference number and a link to manage their booking. This same information is also e-mailed to the customer as further confirmation of the appointment, in addition to an e-mail being generated for the staff members informing them of the booking change(s).

Once the customer has made a booking, or if they have made bookings in the past, the “Manage Appointments” page will be populated. On this page there will be a list of all previous appointments made, with shortcut links next to each item labelled “Modify” and “Delete”. When the user clicks on “Modify” they will be taken to a similar page as when they made the reservation where they can modify the form fields and “search” again. This search prompts the system to try to fit their newly requested times and/or other information into the scheduler and will return, similarly to when creating the appointment, a page informing the user the changes are acceptable or, if not, a selection of nearby dates/times the user can select from. When the user is happy with the modifications they can commit to the changes, and will be returned a confirmation page and a link back to the “Manage Appointments” page. When the user clicks on “Delete” a confirmation dialog will be presented, asking the customer if they really wish to delete the appointment and providing an option to modify it instead. Customers may not modify or delete any appointment(s) that are scheduled to occur within 48 hours, instead, they must contact the store by other means.

2.2.4 Manager Point-of-View

The manager point-of-view denotes the system as seen when logged in as a manager, with a manager account.

In terms of customer created appointments, the manager has the same access as the employees themselves; that is, they can modify or delete them. However, in terms of employee scheduling (shifts and hours) the manager has write and modify access to the “View Shift Schedules” screen (mentioned in section 2.2.2). This means that in addition to being able to view the week-at-a-glance to see which employee is working when, they are able to click on a shift to modify or delete it. Modification of a shift involves opening the shift details in a new window and changing parameters of the shift such as date/time, associated employee, notes, etc. As with managing appointments (mentioned in section 2.2.2) the manager can also choose to delete the shift from the schedule entirely. When modifying or removing shifts, the manager needs to ensure that there remains enough staff members working to cover all of the grooming appointments for the given date and time by checking the “View Appointments” screen. Any modifications a manager makes to an employee’s work schedule will be summarized and e-mailed to the employee in the form of a notification.

2.3 "Cat"-a-logue

2.3.1 Overview

"Cat"-a-logue is the service provided for marketing Purrfur products to the online users. It will display a list of products selected by the clients, in a aesthetically pleasing list with some information about the product. This feature is critical, because during the customers visit to the website to book an appointment, the "Cat"-a-logue will draw them in to buying products from the store, which is a large source of revenue for Purrfur.

2.3.2 Access

The "Cat"-a-logue must be very accessible in order for it to be useful. It will be available to browse for all types of users, Anonymous, Customer, and Employee, and Manager which have been defined in section 2.1.1. The "Cat"-a-logue is a public listing of the products, so people can link to it and share items on the Internet without any restrictions. Only the manager account has access and permissions to add/modify/delete items from the "Cat"-a-logue.

2.4 "Cat"-pture

2.4.1 Overview

The "Cat"-pture system is a video system providing a live-feed of the pet in each kennel. This system is provided to the customers at a premium when they kennel their pet and is accessible through the customers account online. This function provides the client with extra piece-of-mind, allowing them to be assured that their pet is safe and in good health. The system will have a record of which pet is in which kennel, ensuring that only the owner has access to the video feed, and not accessible to any other customers.

2.4.2 Website Integration

The "Cat"-pture system will be accessible through the customers user account. In the account menu there will be a link to the "Cat"-pture system. If the customer has already requested the service this link will provide a page with the live video feed. If the pet is not in the kennel for some reason, such as feeding, the employee that removed the pet will have the option to switch off the camera and a message communicating this to the customer will be shown instead. This system will also be accessible to employees, allowing an employee to view the feed from any kennel at any time, allowing an employee not in the shop to check on any pets in the kennel.

2.5 Cat Logs

The cat logs will be a record kept for all pets in the kennel, accessible to the customer via the customer website interface. Throughout the day the employees will keep track of notable events, placing them in the cat log. At any point during the pets stay at Purrfur this log can be accessed by the customer, or any other employee, to keep tabs and see how things are going. This log also provides a record for any future stays, perhaps of a pets demeanor, special needs, and issues that may arise down the road.

Each cat log will be individual for each pet, and will be tied to a customer account. This allows a customer to have more than one pet, but each record will be individual, ensuring that there are not any overlaps or mistakes.

2.6 Example User Interactions

2.6.1 Customer Books a Grooming Appointment

1. Customer: Opens CLAWS portal in web browser. Navigates to log-in page, and provides username and password.
2. System: Checks username and password against stored accounts. Credentials are verified, and account is determined to be a customer account. The customer is logged in and redirected.
3. Customer: Navigates to the “Create Appointment” page. Specifies grooming appointment and picks date and time. Specifies name and any special considerations for cat. Submits booking.
4. System: Verifies that booking time and date are appropriate, then commits booking to the master appointments schedule. Redirects customer to a booking confirmation page and e-mails the customer a confirmation of the appointment, in addition to e-mailing the staff informing them of the new appointment.
5. Customer: Clicks log-off button, closes browser.

2.6.2 Employee Modifies a Kenneling Appointment

1. Employee: Opens CLAWS portal in web browser. Navigates to log-in page, and provides username and password.
2. System: Checks username and password against stored accounts. Credentials are verified, and account is determined to be an employee account. The employee is logged in and redirected.
3. Employee: Navigates to the “View Appointments” screen and clicks on the relevant appointment in the displayed calendar.
4. System: Redirects the employee to the appointment page describing all the pertinent details of the appointment. Displays a spread of times available for an appointment to be booked in.
5. Employee: Modifies the start date of the kenneling appointment to be Saturday, instead of Friday. Submits form.
6. System: Checks to make sure the change of Kenneling appointment does not conflict with any other constraints. In this case, the appointment is accepted and committed to the master appointments schedule. Summarizes changes and e-mails the customer in the form of a notification. Redirects employee back to the “View Appointments” page.
7. Employee: Clicks log-off button, closes browser.

3.0 Management Outline and Plan

3.1 Implementation Brief

3.1.1 System Implementation

The system will be implemented as a website, accessible from any internet-enabled device. This allows for the largest user base, and is also plays to the strengths of Endeavour Studios. We are profession web developers and have chosen the Django Framework to develop on, this is because python is a language allowing for rapid development, which means more business value with less cost.

3.1.2 Website Layout

The system will be built towards a less technical user, and will be very clean, simple and easy to navigate, ensuring that those with less computer experience won't be overwhelmed. The system developed for Purrfur will have one site, with different views for each type of user, differentiated based on log in credentials. This means architectural simplicity and less work for the developers, as well as simpler experiences for the users.

3.1.3 Account Implementation

There are 3 types of accounts to consider: the employee account, the manager account, and the client accounts. Each account has its own privileges and responsibilities. While there is only one manager account, and all the employees will log in to one shared employee account, every client will create their own. The design of the accounts should be able to support multiple managers and employees despite this, since there could be more managers in the future. This also adds growth potential to the service without requiring extra work down the road. The manager account will have the ability to view and edit all appointments in the kenneling and grooming schedules, the catalog, "Cat"-pture, and the cat logs. The employee account will have the ability to view the schedules, "Cat"-pture,and "Cat"-a-logue, and edit the cat logs. The client accounts will be able to view an availability version of the schedule, the full "Cat"-a-logue, and the "Cat"-pture and cat logs associated with their cats.

3.1.4 Scheduler Implementation

The scheduler will be a single system that assigns blocks of time to the tasks being scheduled. A schedule will be represented by a list of data blocks corresponding to a single employee or kennel slot where each block corresponds to one unit of time for the schedule. The kennel will use days as the unit of time while the employee and appointment schedules will use hour long blocks with their boundaries on the half hour.

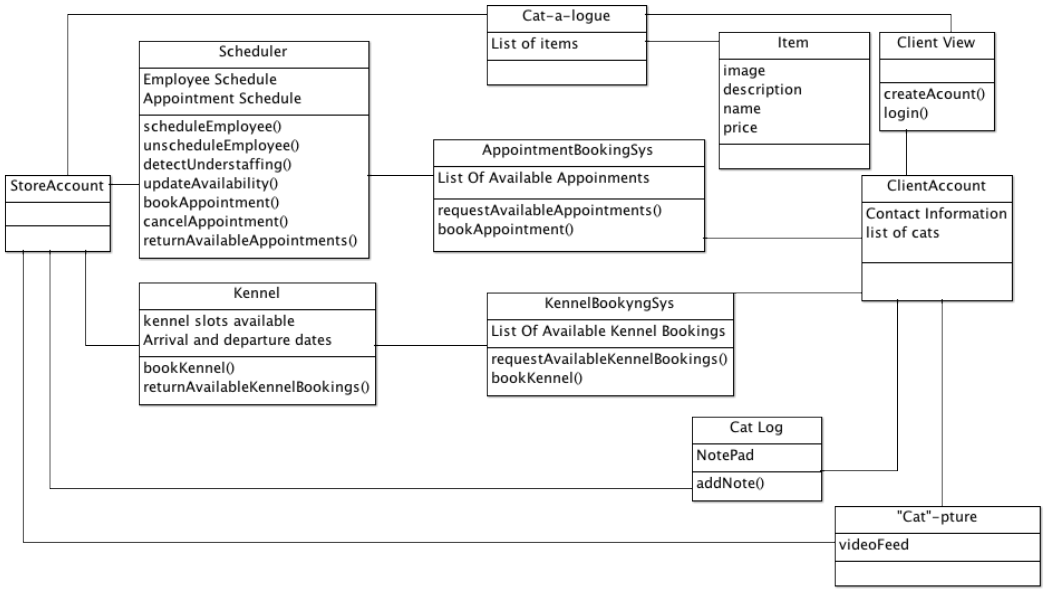
3.1.5 "Cat"-pture Implementation

"Cat"-pture cat live streaming is a feature that can be used by the customer to view their cat while it is in its kennel. The system must be implemented in such a way that a switch on the kennel itself can be turned on and off to signal if the cat is in or out because a customer should not be shown an empty kennel. A more appropriate screen giving a polite message would be given instead of the live feed if the cat were not currently there.

3.1.6 "Cat"-a-logue Implementation

The "Cat"-a-logue will be a grid of items, displayed in order of first in first out, meaning the most recent items first. This is going to show anything that the manager wishes to sell, complete with the price, picture, and description. The "Cat"-a-logue does not offer methods of payment, but is more focused on attracting the user and showing them what they may need. The "Cat"-a-logue will feature a list of "Cat"-a-gories on the left hand side, allowing the user to filter what they see.

3.2 Class Diagram



This is an early version of the final class diagram, but it demonstrates the flow of information and the general operations that should be available to a given view. The client

view is the client start point. From there, the client can see the "Cat"-a-logue anonymously, but must sign in or create an account to access the booking services. The store account may have a splash screen (not shown here) that requests a log in, but once signed in, employees will always be directed to the store account shown. The manager account is not shown because it has access to everything.

The most complicated artifacts are the schedulers for the employees, appointments, and kenneling. The main scheduler will balance two sub schedules, the employee schedule, and the appointments, as they are directly related. The scheduler must provide the functionality to add and remove appointments and employees from a time slot, and respond to a query of the available time. The number of appointments available at a given time is always one less than the number of employees working at that time. If the manager attempts to cancel an employee's shift when an appointment slot is fully booked, a warning message will be displayed to the manager. The client has access to the AppointmentBookingSystem. This entity queries the schedule for the available slots and only displays that information to the client. It then sends a command to book an appointment.

The kenneling scheduler works along similar lines, but is generally simpler. There is no staffing requirement, just a set number of kennels and a variable number of cats occupying them over a period of time. The KennelBookingSystem queries this scheduler and displays the available slots only, and can send a request with parameters to book a time period.

The cat logs will be a set of notepads corresponding to accounts and cats within them. The system is intended to deal with just about anything, so it will be a blank field that will accept any text. The "Cat"-pture will be a single video feed with a minimal UI. The only notable functions are the button that opens the viewing page and the button to go back.

The "Cat"-a-logue is a display for the small array of products sold in store. This will be a list of items each with a name, description, price and image all of which are only changeable by the manager. No transactions are made using this system, it is just a display. A categorizing system would improve it, but it goes beyond the scope of the main system.

3.3 Priorities

The "Cat"-pture and corresponding log are the driving force behind our clients request so they must be completed. This is largely a hardware task and once the cameras are in place and generating video, all that will be left is to embed the video in the correct page. Our ability to test it will also be delayed by the hardware installation so while it is the core component of the contract, it should be left until later in the development cycle.

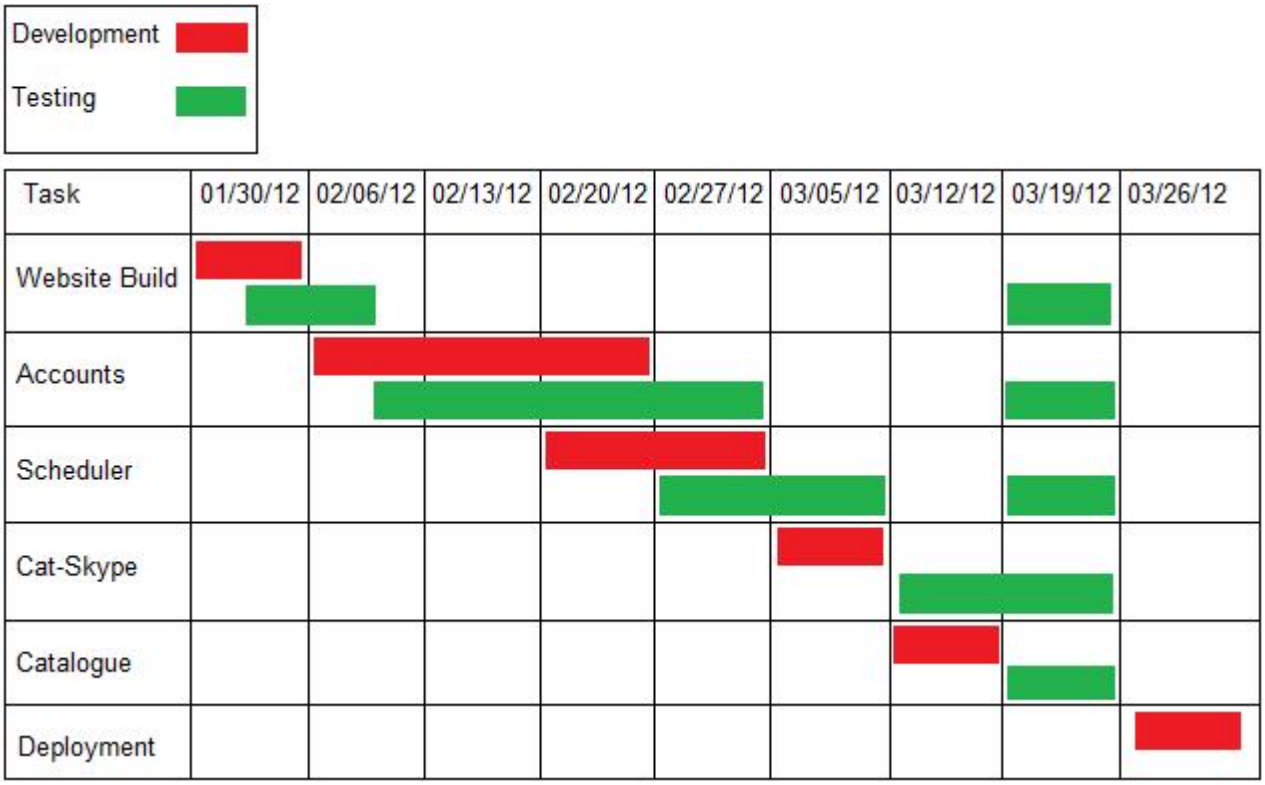
The scheduler is the largest artifact and requires the most testing overhead due to the number of systems interacting with each other. This will require the simultaneous development of several components and ample time must be dedicated to testing. Most of the product revolves around the scheduler so it must be completed with all its components.

Accounts are the key to the services organizational scheme and having different types of accounts functioning is essential for testing the scheduler and website navigation. This makes them necessarily the first order of business when production starts.

The "Cat"-a-logue, on the other hand, is an entirely optional feature. The store's customers will see the products if they are at the store. The lack of online purchasing means that the only users will be those who can physically reach the store. Because of this

redundancy, the "Cat"-a-logue can be dropped if any other component runs long.

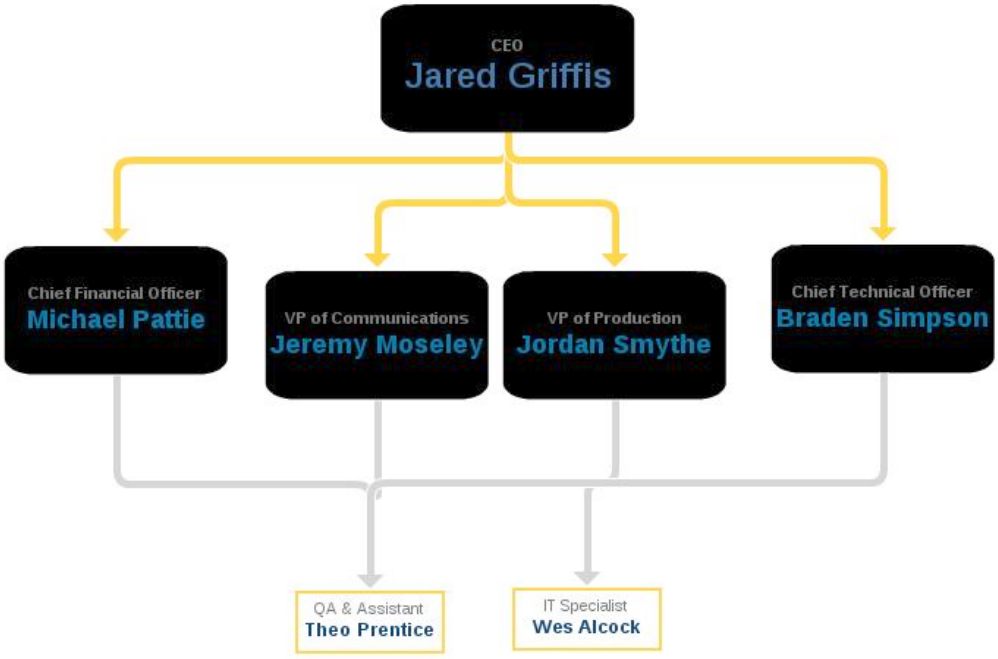
3.4 Planned Schedule/Timeline



The above Gantt chart shows our estimated time-lines for project completion. The date in the top represents the start of the week in which the task will be started. Tasks within the chart are broken down further into the testing (green) and development (red) time-lines. These time-lines give a greater breakdown of the project work to be done and when it is intended to be complete.

3.5 Member Responsibilities

The following chart shows the organizational structure of Endeavour Studios.



Jared Griffis is the CEO of Endeavour Studios. He is responsible for scheduling meeting, making sure work gets done on time and solving conflicts between the team members.

Jeremy Moseley is the Vice President of Communications. He is in charge of final documents and making sure work gets done on time. He also is the one who runs the meetings with clients.

Braden Simpson is the Chief Technical Officer. He is responsible for overseeing development, providing the system architecture and working with the entire team to develop the application.

Michael Pattie is the Chief Financial officer. He is proficient in mathematics and is responsible for company finances and taxes. He is also an expert in object oriented design.

Jordan Smythe is the Vice President of Production. He is responsible for taking notes during meetings and is also responsible for making sure that the website is operational. Jordan is responsible for website analysis and ensuring that the functionality is extended when necessary.

Wes Alcock is the Systems IT Specialist. His role involves making sure the website is operational and rebuilding the website when necessary. He is also responsible for keeping the databases up to date.

Theo Prentice is the Tester in charge of Quality Assurance. He is responsible for administrative assistance, quality assurance and testing.

The following table illustrates the contributions each team member will make to the development of CLAWS.

Team Member	Responsibilities

Jared Griffis	Project management, general programming, documentation
Jordan Smythe	Programming "Cat"-pture, testing
Jeremy Moseley	Programming, documentation, testing
Michael Pattie	Programming the scheduler and scheduler views
Wes Alcock	Programming (appointments & database interfaces), web front-end development
Braden Simpson	Website design and implementation, website content, web front-end development
Theo Prentice	Website content, testing

4.0 Summary

The name of our customer is Purrfur Cat Grooming and Kenneling. They have tasked us to build an integrated system to provide online customer service in order to achieve their goal of simplifying the scheduling and booking process when providing grooming and kenneling services to cat owners.

There are four main aspects of CLAWS. The first is creating a guest website which will have a online catalogue of available products. This will show what is available in store and if someone wants something they can make their decision before coming to the store and know where the product is and purchase it easily. The second is to have account creation for customers in order to be able to access the online catalogue and online bookings so that they can store information about the customer's cat's kenneling preferences, health and dietary information for the cat and contact information for the customer. The third piece involves the customer choosing between grooming and kenneling. There will be online bookings for grooming and kenneling. This will have an email notification system which will notify customers to inform them of offers, booking information and invoices. The final part of the project focuses on having web cameras in the cat kennels with video streaming. This will allow the cat owner to check up on their cat and see if the cat is okay while staying at the kennel.

Some of the important things our group will need to think about are taking online security precautions in order to prevent outsiders from accessing employee scheduling information and client contact information, as well as building it in such a way that it can scale so that it can be upgraded if they grow to have more stores and bigger facilities as well as ensuring the system is using standard components so that anyone who knows how can upgrade the system.