Life Cycle Plan (LCP)

Fuppy

Team No-7

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Adil Assouab (Requirement Engineer)

Yiyuan Chen (Software Architecture)

Praveen Chander (Designer/Prototyper)

Zhouyun Feng (Developer)

Fereshteh Khorzani (Quality Focal Point)

Version History

Date	Author	Version	Changes made	Rationale
10/14/2016	KP	1.0	Original template for use with Fuppy v1.0	Initial draft for use with Fuppy v1.0
10/15/2016	KP	1.1	COCOMO Cost Estimation	COCOMO was used instead of COINCOMO for cost estimation
11/29/2016	KP	1.2	Iteration Plan section was added	The section was not added in the initial draft

Life Cycle Plan (LCP) Template
Version 1.2

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51. Introduction

51.1 Purpose of the LCP

The Life Cycle Plan(LCP) document acts as a primary management tool to satisfy Fuppy's Project Requirement.The document has information about the artifact which needs to be delivered at each stage, the role and responsibility of the team members at each stage and what needs to be achieved at the end of this class.

51.2 Status of the LCP

The status of the LCP is currently at version 1.0. The latest version that will be delivered to the client.

Assumptions
- The duration of the project is 16 weeks which is entire 2016 Fall Semester.

52. Milestones and Products

52.1 Overall Strategy

The Fuppy System is following Architecture Agile

Exploration phase
    Duration: 09/07/2016-09/16/2016
    Concept: Get to know the product through the analysis of the current system.Gather basic requirements of the project through client meetings.Based on strength of each member decide the team roles.
    Deliverables: Client Interaction Report and Team Website
    Milestone: Valuation Commitment Review
    Strategy: One Incremental Commitment Cycle

Valuation phase
    Duration: 09/17/2016-09/30/2016
    Concept: Decide the minimum viable product and negotiate with the client.Once the requirements for the system is clear begin looking for all the possible COTS which can be used for developing the system.Also try to identify the major risk of the system and come-up with the prototype or solution to handle the risk.Gain access to client's current source code to start system integration.
    Deliverables: Win-Condition Report,High Risk Prototype
    Milestone: Foundation Commitment Review
    Strategy: One Incremental Commitment Cycle

Foundation phase
    Duration: 10/1/2016- 10/17/2016
    Concept: Once the COTS and major risks are identified start designing the prototype of the application to get some feedback from the client.
    Deliverables: FC Package
    Milestone: DC Review
    Strategy: One Incremental Commitment Cycle

Development phase
    Duration: 10/18/2016- 12/05/2016
    Concept: The team will finish designing prototype and start implementation and testing to verify that the application is working as required.Have client and IV&V team member review the application to ensure that minimum marketable features have been met.
    Deliverables: Final Deliverables,Close out Report,Project Release
    Milestone: OCR
    Strategy: One Incremental Commitment Cycle

52.2 Project Deliverables

2.2.1 Exploration Phase

Table 1: Artifact deliverable in Exploration Phase

Artifact	Due date	Format	Medium
Client Interaction Report	09/16/2016	.doc,.pdf	soft copy
Progress Report	Every other Wednesday	.xls	soft copy
Risk and Defect Report	Every other Wednesday	.xls	soft copy
Project Plan	Every other Wednesday	.mpp ,.pdf	soft copy
Jira	Every Monday	text	Jira Website

2.2.2 Valuation Phase

Table 2: Artifact deliverable in Valuation Phase

Artifact	Due date	Format	Medium
Win-Condition Report	09/26/2016	.pdf	soft copy
Top-Risk Prototype	09/30/2016	.pdf	soft copy
Progress Report	Every other Wednesday	.xls	soft copy
Risk and Defect Report	Every other Wednesday	.xls	soft copy

Project Plan	Every other Wednesday	.mpp ,.pdf	soft copy
Jira	Every Monday	text	Jira Website

2.2.3   Foundations Phase

Table 3: Artifact deliverable in Foundations Phase

Artifact	Due date	Format	Medium
FC Package ● Feasibility Evidence Description(FED) ● Operational Concept Description(OCD) ● Life Cycle Plan(LCP) ● Prototype Report ● System and Software Architecture Description (SSAD)	10/17/2016	.doc,.pdf	soft copy
Progress Report	Every other Wednesday	.xls	soft copy
Risk and Defect Report	Every other Wednesday	.xls	soft copy
Project Plan	Every other Wednesday	.mpp ,.pdf	soft copy
Jira	Every Monday	text	Jira Website
On-Campus Technical Debt Report	Every other Friday	.xls	soft copy
QFP Technical Debt Report	Every other Friday	.xls	soft copy

2.2.4   Development Phase

Table 4: Artifact deliverable in Development Phase

Artifact	Due date	Format	Medium
Progress Report	Every other Wednesday	.xls	soft copy
Risk and Defect Report	Every other Wednesday	.xls	soft copy
Project Plan	Every other Wednesday	.mpp ,.pdf	soft copy
Jira	Every Monday	text	Jira Website
DC Package	12/05/2016	.doc,.pdf	soft copy

Project Archive	12/7/2016	.doc,.pdf	soft copy
Individual Critique	12/09/2016	.doc,.pdf	soft copy
On-Campus Technical Debt Report	Every other Friday	.xls	soft copy
QFP Technical Debt Report	Every other Friday	.xls	soft copy

53. Responsibilities

53.1 Project-specific stakeholder's responsibilities

Other than typical stakeholders which are client, user, maintainer, developer and IIV&V, we do not have any project-specific stakeholder

53.2 Responsibilities by Phase

Table 6: Stakeholder's Responsibilities in each phase

Team Member / Role	Primary / Secondary Responsibility				
	Exploration	**Valuation**	**Foundations**	**Development-** Construction Iteration	**Development - Transition** Iteration
Name: Adam Schechter (Client)	**Primary Responsibility** Give an overview of the system.	**Primary Responsibility** Discuss the requirements with the team and take part in win-win session	**Primary Responsibility** Review the project progress	**Primary Responsibility** Evaluate the prototype and progress and give feedback	**Primary Responsibility** Interact with the team for smooth transition of the system
Name: Krupa Patel (Product Manager)	**Primary Responsibility** Study the project and negotiate with client Develop Project Plans and Progress reports Plan team meetings **Secondary Responsibility** Develop Website	**Primary Responsibility** Negotiate and finalize the product requirement with the client. Identify risks and discuss ways to resolve it with the team **Secondary Responsibility** Develop design risk Prototype	**Primary Responsibility** Create LCP and Validate the set of documents before due date **Secondary Responsibility** Design application prototype	**Primary Responsibility** Assign development task to the developer. Keep a track of the progress of assigned task **Secondary Responsibility** Help developing the UI of the application	**Primary Responsibility** Help with smooth transition of the system to the client
Name: Adil Assouab (Requirements Engineer)	**Primary Responsibility** Collect set of requirements from the client	**Primary Responsibility** Negotiate with client. Ask questions to know the client	**Primary Responsibility** Work on application prototype	**Primary Responsibility** Develop the UI for the application **Secondary Responsibility**	**Primary Responsibility** Help with documentation.

	Secondary Responsibility Develop team website	requirements better			Come-up with test cases to test the system	
Name: Praveen Chander (Designer/Prototyper)	**Primary Responsibility** Study the project. Participate in win-win session **Secondary Responsibility** Develop Website	**Primary Responsibility** Analysis the set of COTS required and identify risk **Secondary Responsibility** Help in Process and Risk Defect Reports	**Primary Responsibility** Create OCD document and help in prototype design	**Primary Responsibility** Develop the backend of the application	**Primary Responsibility** Help with smooth transition of the system to the client
Name: Zhouyun Feng (Software Developer)	**Primary Responsibility** Study the project. Participate in win-win session	**Primary Responsibility** Analysis the COTS and identify how they can be integrated with android	**Primary Responsibility** Work on OCD document and set up system integration	**Primary Responsibility** Develop the backend of the application	**Primary Responsibility** Help with smooth transition of the system to the client
Name: Yiyuan Chen (Software Architecture)	**Primary Responsibility** Study the project. Participate in win-win session	**Primary Responsibility** Analysis the COTS and identify how they can be integrated with android	**Primary Responsibility** Work on SSAD document and development	**Primary Responsibility** Develop the backend of the application	**Primary Responsibility** Help with documentation.
Name: Fereshteh Khorzani (Quality Focal Point)	**Primary Responsibility** Study the project. Participate in win-win session	**Primary Responsibility** Analyse the system risk and come up with solutions to solve it	**Primary Responsibility** Work on FED document	**Primary Responsibility** Design the test cases for testing	**Primary Responsibility** Help with documentation.

53.3 Skills

Team members	Role	Skills
Krupa Patel	Project Manager	Current skills:Designing Prototype,Creating UML Diagram,Web Development,Programming

		Required skills:Android Programming,Management
Adil Assouab	Requirements Engineer	Current skills:Creating UML Diagram,Web Development,Programming Required skills:Android Programming,Requirement Gathering,Client Negotiation
Praveen Chander	Designer/Prototyper	Current skills:Designing Prototype,Web Development,Programming Required skills:Android Programming, Database Management
Zhouyun Feng	Software Developer	Current skills:Web Development,Programming Required skills:Android Programming,Database Management,Server-side Programming
Yiyuan Chen	Software Architecture	Current skills:Programming Required skills:Android Programming,Architecture Design
Fereshteh Khorzani	Quality Focal Point	Current skills:Software Testing Required skills:Android Programming

54. Approach

54.1 Monitoring and Control

For Monitoring and Controlling the project we are taking various steps:
1. Progress Reports are used to keep a track of the progress made in last week and to plan what has to be done in the upcoming week
2. Project Plan is used to plan the work distribution and deadline of that work
3. Weekly Team Meetings with all the team members
4. Project Manager emails the summary of the team meetings to the DEN Student and gets feedback
5. Communication outside of team meetings is done using a group chat on iMessage

4.1.1 Closed Loop Feedback Control

For getting or providing feedback within the team we are taking following steps:
1. Each team member has email id and cellphone number of the entire team.So if they have any trouble they can directly ask for help
2. We use Google Drive to share all the documents created by any team member
3. We use github to track and review the functionality developed by each team member
4. iMessage is used to send reminder about the upcoming meetings

4.1.2 Reviews

On the completion of each task the result of that task whether it is a file or some kind of code is made accessible to all the team members using Google Drive or Github to get feedback from all team members.

54.2 Methods, Tools and Facilities

Tools	Usage	Provider
Android Studio	Used to develop an android application	Google
Justinmind	Used to design the prototype of the application	Justinmind
Github	Used for source code management	Open Source
iMessage	Used for team communication	Apple

55. Resources

Identify the following information in order to estimate the software cost:
- Estimated CSCI577a Effort : 6 team members at 12 hrs/week for 12 weeks
- Total estimated effort:864 hours
- Budget information:$0
- Project duration:12 weeks
- Component modules in your development project:Search Module,Authentication Module,Appointment Module
- Programming language used:Java

Table 7: COCOMOII Scale Driver

Scale Driver	Value	Rationale
PREC	LOW	The team has very less experience in developing an Android application
FLEX	HIGH	The client is flexible with the requirements
RESL	LOW	The level of architectural knowledge the team has allows us to identify which COTS would be useful and identify what risk could occur
TEAM	LOW	Lacks interaction and collaboration among team members
PMAT	LOW	SEI CMM process maturity level 1 is used
Total Scale Factor=23.26		

Table 8: COCOMOII Authentication Cost Driver

Cost Driver	Value	Rationale
RELY	NOM	User needs to be authenticated in order to use the system so this module is important for the users to search for pets
DATA	LOW	Current user data set is pretty small as the application is not yet launched.But the dataset is likely to increase once the application is launched
CPLX	LOW	Email and Password information needed from the user in order to authenticate them
TIME	NOM	This module does not have huge impact on execution time
PVOL	LOW	Android Platform updates every year

ACAP	NOM	The analyst should have software experience but does not need to have android experience
PCAP	NOM	The programmer needs to have programming experience but having a little android is helpful
APEX	LOW	Team does not have android experience
PLEX	LOW	None of the developers have android experience
LTEX	LOW	None of the developers have android experience
PCON	LOW	The developers are not changing
TOOL	LOW	Android studio is a easy to use tool but requires time to understand it
SCED	VLOW	The project needs to be completed by the end of 12 weeks
RUSE	NOM	Easy to add new users from Fuppy Application
DOCU	NOM	There is available documentation android authentication
STOR	NOM	Needs to fetch user information from database
SITE	NOM	Each user has access to its own application
Total EAF=1.09		

Table 9: COCOMOII Search Cost Driver

Cost Driver	Value	Rationale
RELY	HIGH	Search is the main functionality of the entire system if this module fails the entire system becomes useless
DATA	NOM	Current pet information data set is obtained from Petfinder API.But the dataset is likely to increase once Fuppy has its own database
CPLX	NOM	On front end the user needs to just input the type of pet they want but on the backend application needs to fetch data from Petfinder API and give desired results from the data obtained
TIME	NOM	This module does have little impact on execution time as if the data fetching takes more time than expected it slows down the application
PVOL	LOW	Android Platform updates every year
ACAP	NOM	The analyst should have software experience but does not need to have android experience
PCAP	NOM	The programmer needs to have programming experience but having a little android is helpful
APEX	LOW	Team does not have android experience
PLEX	LOW	None of the developers have android experience

LTEX	LOW	None of the developers have android experience
PCON	LOW	The developers are not changing
TOOL	LOW	Android studio is a easy to use tool but requires time to understand it
SCED	VLOW	The project needs to be completed by the end of 12 weeks
RUSE	NOM	Easy to perform search from Fuppy Application
DOCU	HIGH	There is available documentation for Petfinder API but team found it difficult to use that document to integrate the API
STOR	NOM	Needs to fetch pet information from Petfinder database
SITE	NOM	Each user has access to its own application
Total EAF=1.69		

Table 10: COCOMOII Appointment Cost Driver

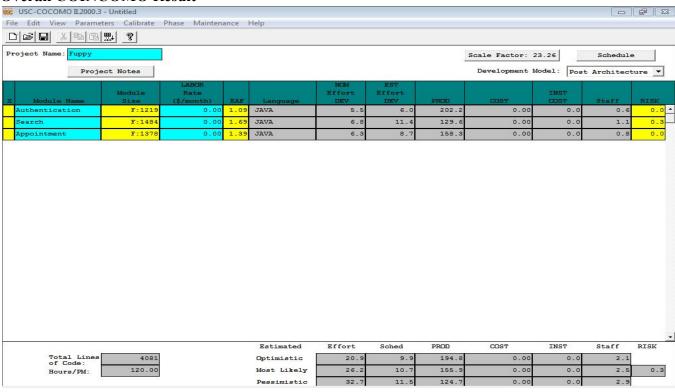| Cost Driver	Value	Rationale
RELY	NOM	Appointment is functionality allowing the user to visit the pets they liked therefore this feature is useful
DATA	NOM	Current pet information data set is obtained from Petfinder API.But the dataset is likely to increase once Fuppy has its own database
CPLX	NOM	User selects the time and date they want to visit and a notification needs to be send to both user and shelter regarding the appointment.It requires integration of plugin for automatic email generation
TIME	NOM	This module does not have huge impact on execution time
PVOL	LOW	Android Platform updates every year
ACAP	NOM	The analyst should have software experience but does not need to have android experience
PCAP	NOM	The programmer needs to have programming experience but having a little android is helpful
APEX	LOW	Team does not have android experience
PLEX	LOW	None of the developers have android experience
LTEX	LOW	None of the developers have android experience
PCON	LOW	The developers are not changing
TOOL	LOW	Android studio is a easy to use tool but requires time to understand it

SCED	VLOW	The project needs to be completed by the end of 12 weeks
RUSE	NOM	Easy to add new users from Fuppy Application
DOCU	NOM	There is available documentation for android
STOR	NOM	Needs to fetch pet info from Petfinder database and once the user selects the pet there is a need to get shelter information also
SITE	NOM	Each user has access to its own application
Total EAF=1.39		

Overall COINCOMO Result

According to COINCOMO, 26.2 person-months is required to do work,with 2.5 staff for 10.7 months.So to finish the project with 6 team member it will take (2.5x10.7)/6=4.45 months.

COINCOMO Cost Driver

EAF - Appointment

base + Incr % = rating

Product:	RELY	DATA	DOCU	CPLX	RUSE
base	NOM	NOM	NOM	NOM	NOM
Incr%	0%	0%	0%	0%	0%

Platform:	TIME	STOR	PVOL
base	NOM	NOM	LO
Incr%	0%	0%	0%

Personnel:	ACAP	PCAP	PCON	APEX	LTEX	PLEX
base	NOM	NOM	LO	LO	LO	LO
Incr%	0%	0%	0%	0%	0%	0%

Project:	TOOL	SITE
base	LO	NOM
Incr%	0%	0%

User:	USR1	USR2
base	NOM	NOM
Incr%	0%	0%

EAF is also affected by Schedule

EAF: 1.39

OK   Cancel   Help

EAF - Authentication

base + Incr % = rating

Product:	RELY	DATA	DOCU	CPLX	RUSE
base	NOM	LO	NOM	LO	NOM
Incr%	0%	0%	0%	0%	0%

Platform:	TIME	STOR	PVOL
base	NOM	NOM	LO
Incr%	0%	0%	0%

Personnel:	ACAP	PCAP	PCON	APEX	LTEX	PLEX
base	NOM	NOM	LO	LO	LO	LO
Incr%	0%	0%	0%	0%	0%	0%

Project:	TOOL	SITE
base	LO	NOM
Incr%	0%	0%

User:	USR1	USR2
base	NOM	NOM
Incr%	0%	0%

EAF is also affected by Schedule

EAF: 1.09

OK   Cancel   Help

EAF - Search

base + Incr % = rating

Product:	RELY	DATA	DOCU	CPLX	RUSE
base	HI	NOM	HI	NOM	NOM
Incr%	0%	0%	0%	0%	0%

Platform:	TIME	STOR	PVOL
base	NOM	NOM	LO
Incr%	0%	0%	0%

Personnel:	ACAP	PCAP	PCON	APEX	LTEX	PLEX
base	NOM	NOM	LO	LO	LO	LO
Incr%	0%	0%	0%	0%	0%	0%

Project:	TOOL	SITE
base	LO	NOM
Incr%	0%	0%

User:	USR1	USR2
base	NOM	NOM
Incr%	0%	0%

EAF is also affected by Schedule

EAF: 1.69

OK   Cancel   Help

COINCOMO Size Estimation

SLOC Input Dialog - Authentication

Sizing Method
- ○ SLOC
- ● Function Points
- ○ Adaptation and Reuse

Breakage
% of code thrown away due to requirements evolution and volatility
REVL 0.00

Module Size in Function Points
Language ▼ JAVA Change Multiplier 53
Ratio Type : ● Jones ○ David
Calculation Method : ● Using Table ○ Input Calculated Function Point

Function Type	# of Function Points			SubTotal
	Low	Average	High	
Inputs	1	0	0	3
Outputs	2	0	0	8
Files	1	0	0	7
Interfaces	1	0	0	5
Queries	0	0	0	0

Total Unadjusted Function Points 23
Equivalent Total in SLOC 1219

OK   Cancel   Help

SLOC Input Dialog - Search

Sizing Method
- ○ SLOC
- ● Function Points
- ○ Adaptation and Reuse

Breakage
% of code thrown away due to requirements evolution and volatility
REVL 0.00

Module Size in Function Points
Language ▼ JAVA Change Multiplier 53
Ratio Type : ● Jones ○ David
Calculation Method : ● Using Table ○ Input Calculated Function Point

Function Type	# of Function Points			SubTotal
	Low	Average	High	
Inputs	1	0	0	3
Outputs	2	0	0	8
Files	1	0	0	7
Interfaces	2	0	0	10
Queries	0	0	0	0

Total Unadjusted Function Points 28
Equivalent Total in SLOC 1484

OK   Cancel   Help

SLOC Input Dialog - Appointment

Sizing Method
- ○ SLOC
- ● Function Points
- ○ Adaptation and Reuse

Breakage
% of code thrown away due to requirements evolution and volatility
REVL 0.00

Module Size in Function Points
Language ▼ JAVA Change Multiplier 53
Ratio Type : ● Jones ○ David
Calculation Method : ● Using Table ○ Input Calculated Function Point

Function Type	# of Function Points			SubTotal
	Low	Average	High	
Inputs	2	0	0	6
Outputs	2	0	0	8
Files	1	0	0	7
Interfaces	1	0	0	5
Queries	0	0	0	0

Total Unadjusted Function Points 26
Equivalent Total in SLOC 1378

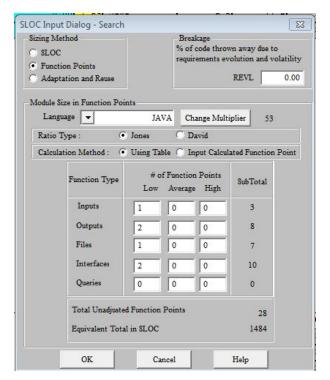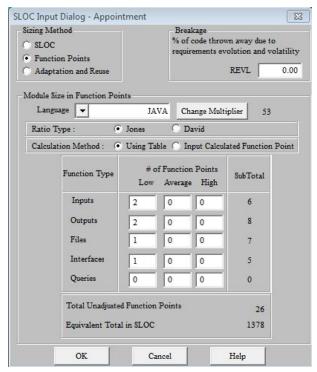OK   Cancel   Help

6. Iteration Plan

6.1 Plan

As this is a semester project the team had to prioritize the functionality to be implemented based on its importance in the project. There are two iterations to implement the capabilities. The first iteration is to implement the main functionality of the application that is the search function, Appointment system along with a basic UI for the application. The second iteration is to implement the authentication functionality and update the UI for the application.

6.1.1 Capabilities to be implemented

Table 11: Construction iteration capabilities to be implemented

ID	Capability	Description	Priority	Iteration
1	Search a Pet	User can select the location,type,size,age ,gender of the pet they would like to adopt	High	1
2	Get Pet information	User can get more information of the pet he/she likes	High	1
3	Get Shelter Information	User can get more information about the shelter in case they would like to visit the pet	High	1
4	Send Inquiry Email to Shelter	User can send an inquiry email to the shelters if they would like set an appointment to visit the pet	High	1
5	Mark pet as favorite	User should have the ability to mark any pet they like as their favorite so they can access them later	Medium	2
6	User can create account	User should be able to create a new account	Medium	2
7	Login	User should be able to login	Medium	2
8	Logout	User should be able to log out	Medium	2

6.1.2 Capabilities to be tested

Table 12: Construction iteration capabilities to be tested

ID	Capability	Description	Priority	Iteration
1	Search a Pet	Check if the user can search pet based on location,type,size,age ,gender of the pet	High	1
2	Get Pet information	Check if the user can get more information of the pet he/she likes	High	1
3	Get Shelter Information	Check if the user can get more information about the shelter in case they would like to visit the pet	High	1
4	Send Inquiry Email to Shelter	Check if the user can send an inquiry email to the shelters if they would like set an appointment to visit the pet	High	1
5	Mark pet as favorite	Check if the user can mark any pet they like as their favorite so they can access them later	Medium	2
6	User can create account	Check if the user is able to create a new account	Medium	2
7	Login	Check if the user can login	Medium	2
8	Logout	Check if the user log out	Medium	2
9	App performance	Check if the application performs well when loaded with many pet results	High	2

6.1.3 Capabilities not to be tested

Most of the capabilities were test in order to check if the application is working properly. However, the team did not test if the UI elements are properly arranged in different screen sizes due to the limited knowledge of android.

6.1.4 CCD Preparation Plans

Before CCD, an email will be sent in order to know if the client would like to test the application using an android project file or an apk file.Information about how to run the application will be sent to the client. In CCD, the client would test the application on his local machine. The client has to go through the application on his own. The team will keep a track of his actions and take notes incase he faced any issue as this will us an idea about how to improve the user experience. All the doubts of the client will be clarified and we will note down his feedback so that we can implement those changes later.

6.2 Iteration Assessment

6.2.1 Capabilities Implemented, Tested, and Results

Table 13: Capabilities implemented, tested, and results

ID	Capability	Test Case	Test Results	If fail, why?
1	Search Pet	TC-01	Pass	N/A
2	Get Pet Information	TC-02	Pass	N/A
3	Get Shelter Information	TC-03	Pass	N/A
4	Send Inquiry Email to the Shelter	TC-04	Pass	N/A
5	Mark pet as favorite	TC-05	Pass	N/A
6	User can create account	TC-06	Pass	N/A
7	Login	TC-07	Pass	N/A
8	Logout	TC-08	Pass	N/A
9	App Performance	TC-09	Pass	N/A

6.2.2 Core Capabilities Drive-Through Results

The overall CCD presentation was successfully and client was happy with our progress and gave us a positive feedback. The client was easily able to search a pet and get more information about the pet and was able to successfully send an email to the shelter.

However, he did give us some improvements to be done in future. The UI elements were not arranged properly for his screen as his screen was smaller than the screen we tested our application on. So he wanted the UI to be consistent throughout all the screen size. He also suggested us to change "Make Appointment" to "Send Inquiry" as we were simply making an inquiry and not setting an appointment after all. The client also wanted us to change the colors to the color he gave us. The client also had a question about the authentication feature and as we were still working on that feature we explained him how we were going to implement that feature.

6.3 Adherence to Plan

Initially the team was behind the schedule but the team worked hard to get things back on track.So the team had to put in extra effort to run the iteration according to the plan. The team has finished the work on time and without extra labour cost.The only uncertainty in the Software Development Status is that the team needs to develop a Fuppy Database for User information. The team did not work on creating the database for Fuppy due to time constraints and as it was a semester project the team did not time to recover from the potential risks that could have arised.