Life Cycle Plan (LCP)

REFERsy.com

Team No.10

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Fangjie Zhu - Operational Concept Engineer

12/08/2014

Version History

Date	Author	Version	Changes made	Rationale
08/29/12	DY	1.0	• N/A	• Introduction Complete • Milestone & Product Complete • Responsibilities – skills complete • Resources partially complete
10/13/14	DY	2.0	• Section 1~5 Complete	• Introduction Modified • Milestone & Product Modified • Responsibilities – Skills Modified • Approach Complete • Resources Complete
10/19/14	DY	2.1	• Responsibility Chart Modified	• Prototype Development Responsibility Assignment
12/01/14	DY	3.0	• Section 6.1 Complete	• Capabilities tested, not tested & implemented
12/08/14	DY	3.1	• Section 6.1 Revised	• Table 12 revised • Table 13 deleted

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1. Introduction

1.1 Purpose of the LCP

Team10 Life Cycle Plan (LCP) is to answer the followings.

- What strategy is used for each phase?
- What artifact is planned to complete within each phase?
- What are responsibilities that each member is in charge of?
- What is each member capable of?
- How is our team project controlled or monitored internally and externally?
- What methods or tools are used for making the overall process effectively controlled?
- How much of efforts are estimated for the project?
- Depending on the above information, what is the appropriate plan for a successful project?

1.2 Status of the LCP

- Sections 6.1.1 and 6.1.2 are complete.
- Ready to be submitted for Development Commitment Package

1.3 Assumptions

- The duration of the project is 24 weeks, which are 12 weeks in Fall 2014 and 12 weeks in Spring 2015.
- All members except for Sharanya Radhamohan plan to continue to CSCI577b. Sharanya Radhamohan did not make the decision to continue to CSCI577b yet.
- All members have their own roles. However, depending on team situations, some members could be assigned more tasks that belong to other role's responsibilities.
- Plans on this LCP can possibly be changed due to several reasons including the followings.
  - New requirements are added.
  - A team member decides to discontinue CSCI577 unexpectedly.
  - Unexpected critical bugs emerge and should be discussed immediately.

- A member who was initially assigned with tasks is responsible for them by some means even if the member becomes unable to continue the assignment for certain reasons.
- A member acquires a new skill.

2. Milestones and Products

2.1 Overall Strategy

REFERsy.com project follows Architected Agile process because of the following reasons.

- The team develops the final product with business goals and requirements.
- Too much detailed architecture specification s is avoided for the project.
- This project takes advantage of APIs that are provided by social-network or job-searching websites. However, this is a small part of this project. The main job of the project is to provide available job referrals within users' social networks extracted using the APIs. Therefore, REFERsy.com is not appropriate to follow a NDI-Intensive process.
- Professor Supannika recommended adopting Architected Agile process if the team is not able to ensure which process to use.

Exploration Phase
Duration : 9/10/2014 ~ 9/29/2014
Concept : Concurrently identifies and clarifies system capability needs, constraints, and candidate solution options
Deliverables : Valuation Commitment Package
Milestone : Valuation Commitment Review
Strategy : Plan and Manage Project

Valuation Phase
Duration : 9/30/2014 ~ 10/14/2014
Concept : Analyzes alternative solutions and identifies preferred alternative
Deliverables : Foundations Commitment Package
Milestone : Foundations Commitment Review
Strategy : Develop Operational Concept, Explore Alternatives, Provide Project Feasibility Evidence, Assess and Plans to Mitigate Risks, NCS evaluation, Plan and Manage Project, Win-Win Negotiation, Define Quality Policy, Develop Software Architecture

Foundation Phase
Duration : 10/15/2014 ~ 11/30/2014
Concept : Develops management and technical foundations
Deliverables : Development Commitment Package

Milestone : Development Commitment Review
Strategy : Assess Project Status, Plan and Manage Project, Manage Project Quality, Update Software Architecture

Foundation Phase – Rebaseline
Duration : 1/12/2015 ~ 1/18/2015
Concept : Review 577a
Deliverables : Rebaselined Development Commitment Package
Milestone : N/A
Strategy : Review on Decisions, Documents, Test Plan, Transition Plan, Development Plan

Development Phase – Construction Iteration
Duration : 1/19/2015 ~ 3/25/2015
Concept : Product Development
Deliverables : N/A
Milestone : Core Capability Drive-through
Strategy : Iteration 1 – APIs
Iteration 2 – API Integration & Result Generator
Iteration 3 – Minor Features

Development Phase – Transition Iteration
Duration : 3/26/2015 ~ 4/12/2015
Concept : Product Transition
Deliverables : N/A
Milestone : Project Transition Readiness ARB Reviews
Strategy : Product Transition and Client Training

Operation Phase
Duration : 4/13/2015 ~ 4/27/2015
Concept : Project Release and Operation
Deliverables : N/A
Milestone : Operational Commitment Review for Initial Operational Capability
Strategy : Release Product, Support Client, Keep Necessary Update

2.2 Project Deliverables

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2.2.1 Exploration Phase

Table 1: Artifacts Deliverables in Exploration Phase

Artifact	Due date	Format	Medium
Bugzilla	Every Monday	website	Bugzilla
Progress Report	Biweekly	.xls	Soft copy
Project Plan	Biweekly	.mpp	Soft copy
Client Interaction Report	09/19/2014	.doc, .pdf	Soft copy
Program Model	09/21/2014	.doc, .pdf	Soft copy
Result Chart	09/21/2014	.doc, .pdf	Soft copy
Business Workflow	09/21/2014	.doc, .pdf	Soft copy
Valuation Commitment Package	09/29/2014	.doc, .pdf	Soft copy

2.2.2 Valuation Phase

Table 2: Artifacts deliverable in Valuation Phase

Artifact	Due date	Format	Medium
Bugzilla	Every Monday	website	Bugzilla
Progress Report	Biweekly	.xls	Soft copy
Project Plan	Biweekly	.mpp	Soft copy
Team Prototype Presentation Slides	10/03/2014	.pdf	Soft copy
Draft Foundation Commitment Package	10/13/2014	.doc, .pdf	Soft copy
Foundations Commitment Package	10/20/2014	.doc, .pdf	Soft copy

2.2.3 Foundations Phase

Table 3: Artifacts deliverable in Foundations Phase

Artifact	Due date	Format	Medium
Bugzilla	Every Monday	website	Bugzilla
Progress Report	Biweekly	.xls	Soft copy
Project Plan	Biweekly	.mpp	Soft copy
Draft Development Commitment Package	12/01/2014	.doc, .pdf	Soft copy
Development Commitment Package	12/08/2014	.doc, .pdf	Soft copy

2.2.4 Development Phase

Table 4: Artifacts deliverable in Development Phase

Artifact	Due date	Format	Medium
Bugzilla	Every Monday	website	Bugzilla
Progress Report	Biweekly	.xls	Soft copy
Project Plan	Biweekly	.mpp	Soft copy
Operation Commitment Package	4/27/2015	.doc, .pdf	Soft copy

3. Responsibilities

3.1 Project-specific stakeholder's responsibilities

There is no project-specific stakeholder involved in the project. Stakeholders in the project are one client (Rigo Garcia) and eight developers (USC team). Each developer not only does the project development, but also has been assigned with some tasks (Report write-ups, Meeting arrangement with the client, Meeting room reservation, so on) mainly depending on their roles in 577a. In 577b, each member plays a role of among Implementer, Tester, and Trainer. However, the role indicates that the member of that role is responsible for the role. However, primarily, all members will do both implementing and testing.

Table 5: Stakeholder's Responsibilities in each phase

Team Member / Role	Primary / Secondary Responsibility				
	Exploration	**Valuation**	**Foundations**	**Development-** Construction Iteration	**Development-** Transition Iteration
Name: Dongyoung Jung **Role:** Life Cycle Planner Tester	**Primary Responsibility** - Detail Project Plan - Record Project Progress	**Primary Responsibility** - Detail Project Plan - Record Project Progress **Secondary Responsibility** - Explore Alternatives	**Primary Responsibility** - Detail Project Plan - Record Project Progress	**Primary Responsibility** - Project Plan - Testing **Secondary Responsibility** - Implementing	**Primary Responsibility** - System Transition to Client
Name: Chen Guanhui **Role:** Software Architect Implementer	**Primary Responsibility** - Explore Alternatives	**Primary Responsibility** - Assess and evaluate NCS components	**Primary Responsibility** - Skeleton version prototype development - Explore Alternatives	**Primary Responsibility** - Implementing **Secondary Responsibility** - Testing	**Primary Responsibility** - System Transition to Client
Name: Chunming Lu **Role:** Prototyper Implementer	**Primary Responsibility** - Explore Alternatives	**Primary Responsibility** - Assess and Plans to Mitigate Risks Responsibility - Create and follow up action items	**Primary Responsibility** - Development Environment Construction - Skeleton version prototype development	**Primary Responsibility** - Implementing - System / Code Management **Secondary Responsibility** - Testing	**Primary Responsibility** - System Transition to Client
Name: Donglin Pu	**Primary Responsibility**	**Primary Responsibility**	**Primary Responsibility**	**Primary Responsibility**	**Primary Responsibility**

Role: Prototyper Implementer	- Assess and Plans to Mitigate Risks - Create and follow up action items	- Provide project Feasibility Evidence **Secondary Responsibility** - Explore Alternatives	- Development Environment Construction - Skeleton version prototype development	- Implementing **Secondary Responsibility** - Testing	- Client Training
Name: Sreenarayan Ashokkumar **Role:** Project Manager / Feasibility Analyst Implementer/ Trainer	**Primary Responsibility** - Identify Responsibilities and Skills - Explore Alternatives	**Primary Responsibility** - Identify Configuration Management Strategy **Secondary Responsibility** - Explore Alternatives	**Primary Responsibility** - Verify and Validate Work Products Using Issue Tracking System **Secondary Responsibility** - Explore Alternatives	**Primary Responsibility** - Implementing - Communication with Client **Secondary Responsibility** - Testing	**Primary Responsibility** - Client Training
Name: Fangjie Zhu **Role:** Operational Concept Manager Implementer	**Primary Responsibility** - Explore Alternatives	**Primary Responsibility** - Develop Operational Concept **Secondary Responsibility** - Explore Alternatives	**Primary Responsibility** - Development Environment Construction **Secondary Responsibility** - Software Architecture Update	**Primary Responsibility** - Implementing - System / Code Management **Secondary Responsibility** - Testing	**Primary Responsibility** - System Transition to Client
Name: Sharanya Radhamohan **Role:** Requirements Engineer Tester	**Primary Responsibility** - Assess and Plans to Mitigate Risks	**Primary Responsibility** - Capture progress of win-win negotiation - Software Architecture Construction	**Primary Responsibility** - Specify Architecture Styles, Patterns and Frameworks	**Primary Responsibility** - User Interface - Testing **Secondary Responsibility** - Implementing	**Primary Responsibility** - System Transition to Client
Name: Suchit Mathur **Role:** IIV & V / Quality Focal Point Tester	**Primary Responsibility** - Explore Alternatives	**Primary Responsibility** - Construct Traceability Matrix - Identify Quality Management Strategy	**Primary Responsibility** - Update Traceability Matrix - Identify Quality Management Strategy	**Primary Responsibility** - Testing **Secondary Responsibility** - Implementing	**Primary Responsibility** - System Transition to Client
Name: Rigo Garcia **Role:** Client	**Primary Responsibility** - Convey project ideas to USC team	**Primary Responsibility** - Win-win Negotiation	**Primary Responsibility** - Verify Work Products Using Issue Tracking System	**Primary Responsibility** - User Signup Disclaimer	**Primary Responsibility** - Receiving Training

3.2 Skills

Table 6: Member Skills

Team members	Role	Skills
Dongyoung Jung	Life Cycle Planner Tester	**Current skills :** HTML, CSS, Node.js, Java, Android Java, C, C++, MySQL, OracleDB, Presentation Skill **Required skills :** php, Cost Estimation Skill
Sreenarayan Ashokkumar	Project Manager Feasibility Analyst Implementer Trainer	**Current Skills :** HTML, PHP, Java, Scripting, Databases, Web Services, Presentation Skill **Required Skills :** Ruby, Advance Python Framework
Donglin Pu	Prototyper Implementer Trainer	**Current Skills :** HTML, CSS, JavsScript, Node js, Java, MySQL, Python. **Required skills :** php
Fangjie Zhu	Operational Concept Manager Implementer	**Current Skills :** Java, C, C++, C#, MySQL, Oracle, PHP, Javascript, Python **Required Skills :** CSS
Suchit Mathur	IIV & V Quality Focal Point Tester	**Current Skills :** Perl, VB, Bat/Shell, C, SQL, Ant, Software Configuration Management (Version Control Systems, Bug Tracking Systems, Build Automation) **Required Skills :** PHP, HTML, CSS
Sharanya Radhamohan	Requirements Engineer	**Current skills :** C, C++, Java,

	Tester	HTML, CSS, JAVASCRIPT, MySQL,.NET development **Required skills :** PHP
Chen Guanhui	Software Architecture Implementer	**Current skills :** C/C++, Java, Python, PHP, Javascript, MySQL, CSS, Presentation Skill **Required skills :** php framework
Chunming Lu	Prototyper Implementer	**Current skills :** C/C++, C#, Java, Python, Javascript, SQL, CSS, OracleDB **Required skills :** CSS

4. Approach

4.1 Monitoring and Control

4.1.1 Closed Loop Feedback Control

- Since every project week starts from every Wednesday, REFERsy.com team has a team meeting every Tuesday on campus. After every important commitment (mainly presentations), we makes feedbacks on them so that we do not repeat the same mistakes again.

4.1.2 Reviews

- REFERsy.com team uses Github excessively with code reviews. Each member does not push changes to the main branch, but creates another branch to let other members to look at the changes. Each member makes reviews through the branch. Once all members validate the changes, the branch is merged to the main one.
- REFERsy.com team takes advantage of Google Doc so that after each member finishes document write-ups, all team members make reviews so that the documents are able to be a better one.
- Since TA Napul commented that the client is also one core member of the team, not a member who just stares at the development team. Since our client has computer science project experience, the developing team considers our client as another developer and has no doubt that his computer science project abilities would make more valuable reviews. Furthermore, this would be a big help for a more successful project.

4.2 Methods, Tools and Facilities

Table 7: Tools, Usage, and Provider

Tools	Usage	Provider
Bugzilla	Issue Tracking	USC
Github	Code Control / Issue Tracking (Code-related issues)	Github
Balsamiq Mockups	UI prototype	Balsamiq

Visual Paradigm	Drawing Diagrams	Visual Paradigm
WeChat	Team Communication	Tencent
Google Hangout	Team Communication (Only for remote purpose)	Google
Google Doc	Share documents	Google
Microsoft Project	Project Plan Construction	Microsoft
Microsoft Excel	Progress Report Construction	Microsoft
COINCOMO	Resource Estimation	USC
WinBook	Win-Win Negotiation	USC

5. Resources

Table 8: COCOMOII Scale Driver

Scale Driver	Value	Rationale
PREC	HIGH	The team is familiar with this type of online application.
FLEX	VERY HIGH	There is no occasional conformity needed. Client has his own business flow in his blueprint, but he is considerably open to the team's suggestions on technical or systematical issues.
RESL	HIGH	Facebook, Indeed.com, Google+, and LinkedIn provide APIs to extract user's information. Even though there are some constraints with Facebook API, they are solvable by asking user's friends for permission to provide career information. All other critical risk items, schedule, budget and internal milestones are identified.
TEAM	VERY HIGH	The team consistently keeps communication with client. The client has a programming experience, so this enables the client and the team to have effective communication. The team has 3~6 years of programming experience.
PMAT	NOMINAL	Planning and tracking of the project is stable. All members have done the similar type of REFERsy.com project. A realistic plan is able to be built based on those successful project experience.

Table 9: COCOMOII Cost Driver – APIs Controller Module

Cost Driver	Value	Rationale
RELY	NOMINAL	It does not create financial loss or risk to human life. If APIs controller does not work properly, REFERsy.com is not able to provide available job referral information to users. However, it is easily recoverable.
DATA	VERY HIGH	SLOC for APIs controller module is estimated 2000 (Total 4 APIs). However, the data to be assembled from this module is very large because the amount of information that the social websites and Indeed.com provides has a very large size. (sometimes it is tremendously large depending on job keyword).
DOCU	LOW	Manuals for each API are already being presented by social websites and Indeed.com. How this module communicates with other modules within REFERsy.com needs to be documented, but it does not bring a significant amount of documenting.
CPLX	NOMINAL	Standard math and statically routines. Some inter-module control. Simple set of widget set.

RUSE	LOW	This is only used in REFERsy.com website. No reuse across several modules or other applications
TIME	EXTRA HIGH	The time spent displaying the result to user only takes 1~2 seconds assuming the network condition to be good. However, the information that each social website and Indeed.com has is excessively large. Therefore, it takes a long period of time. Also, it uses most of each job searching execution time.
STOR	NOMINAL	The result made out from this module is just displayed. It is not stored.
PVOL	HIGH	Whenever the social websites or Indeed.com changes their API policy, REFERsy.com website should adopt the change and revise the project accordingly. Even if there is no change needed, the project needs to be checked with their policies.
ACAP	HIGH	All team members are equipped with good analyzing skills (experience +3 years)
PCAP	VERY HIGH	Good programming skills. Eager to cooperate and communicate among members (experience +3 years)
PCON	HIGH	We have 8 team members. Only 1 member is not decided to leave or keep going with the team. Other 7 members continue to CSCI577b course.
APEX	HIGH	The average experience of the team members for this online web-based application is about 3 year.
LTEX	VERY HIGH	The development team plans to develop this module with PHP, HTML, JavaScript and SQL language to query information from other module. Not all members are able to use those languages, but each member is capable of using most of the required languages. All member are proficient in tools that are required for the project (Code Editor, Debug Tool, Visual Paradigm..)
PLEX	LOW	The team uses server provided by Amazon Web Service provider. Only a few members are familiar to this platform. Most of members need to familiarize themselves to this platform.
TOOL	VERY HIGH	All member are proficient in tools that are required for the project (Code Editor, Debug Tool, Visual Paradigm..)
SITE	VERY HIGH	In CSCI577a, 7 of eight team members are on-campus students and only one member is off-campus student. In CSCI577b, one student is not decided to continue this project. However, 6 of the remaining students are on-campus students and still one student is off-line. Additionally, we use wideband electronic communication and occasional video conference (Especially for the off-campus student)
SCED	NOMINAL	The schedule is fixed for 12 weeks in Fall semester and 12 weeks in Spring semester.

Table 10: COCOMOII Cost Driver – Result Processing Module

Cost Driver	Value	Rationale
RELY	NOMINAL	It does not create financial loss or risk to human life. If this module fails to work properly, the whole system cannot provide valuable information since the system is not capable of result arrangements so that the user can not receive the expected result.
DATA	HIGH	The data passed from API Controller Module is large and the processing module has 1500 of SLOC.
DOCU	NOMINAL	How APIs work is already documented in each social website and Indeed.com. However, the module's way of processing the data needs to be documented in detail.
CPLX	NOMINAL	Standard math and statically routines. Some inter-module control.
RUSE	LOW	This is only used in REFERsy.com website. No reuse across several modules or other applications
TIME	VERY HIGH	This module uses the most of overall processing time since the size of data is large and the result arrangement takes quite a long time.
STOR	NOMINAL	User can store job keyword as favorite and the job keyword and the job location in search history. They are text-based.
PVOL	LOW	Since this module processes the result from other modules, as long as the data passed from those is same, it does not need frequent changes.
ACAP	HIGH	All team members are equipped with good analyzing skills (experience +3 years)
PCAP	VERY HIGH	Good programming skills. Eager to cooperate and communicate among members (experience +3 years)
PCON	HIGH	We have 8 team members. Only 1 member is not decided to leave or keep going with the team. Other 7 members continue to CSCI577b course.
APEX	HIGH	The average experience of the team members for this online web-based application is about 3 year.
LTEX	VERY HIGH	The development team plans to develop this module with PHP, HTML, JavaScript and SQL language to query information from other module. Not all members are able to use those languages, but each member is capable of using most of the required languages. All member are proficient in tools that are required for the project (Code Editor, Debug Tool, Visual Paradigm..)
PLEX	LOW	The team uses server provided by Amazon Web Service provider. Only a few members are familiar to this platform. Most of members need to familiarize themselves to this platform.
TOOL	VERY HIGH	All member are proficient in tools that are required for the project (Code Editor, Debug Tool, Visual Paradigm..)
SITE	VERY HIGH	In CSCI577a, 7 of eight team members are on-campus students and only one member is off-campus student. In CSCI577b, one

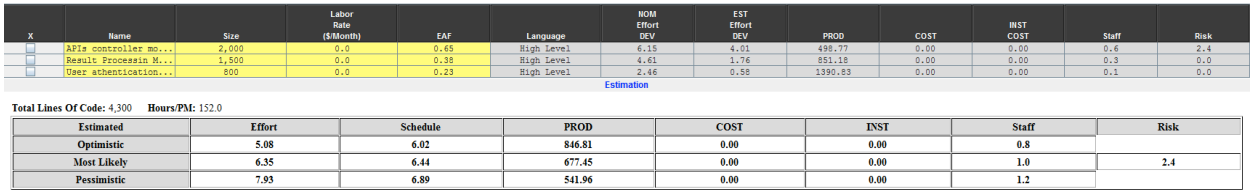
		student is not decided to continue this project. However, 6 of the remaining students are on-campus students and still one student is off-line. Additionally, we use wideband electronic communication and occasional video conference (Especially for the off-campus student)
SCED	NOMINAL	The schedule is fixed for 12 weeks in Fall semester and 12 weeks in Spring semester.

Table 11: COCOMOII Cost Drivers – User Authentication Module

Cost Driver	Value	Rationale
RELY	NOMINAL	It does not create financial loss or risk to human life. If this module fails to work properly, the whole system cannot provide valuable information since the system does not know the user information. However, it is easily recoverable.
DATA	LOW	This only gives authentication to user only if the given information (ID, PW) are matched to the ones in DB.
DOCU	NOMINAL	How this module communicates with other modules needs to be documented.
CPLX	NOMINAL	Standard math and statically routines. Some inter-module control. Simple set of widget set.
RUSE	LOW	This is only used in REFERsy.com website. No reuse across several modules or other applications
TIME	NOMINAL	This module runs in a short period of time because it only matches ID and PW.
STOR	NOMINAL	It does not put data into DB. It just matches ID and PW with DB.
PVOL	LOW	Log-in system is not changed frequently.
ACAP	HIGH	All team members are equipped with good analyzing skills (experience +3 years)
PCAP	VERY HIGH	Good programming skills. Eager to cooperate and communicate among members (experience +3 years)
PCON	HIGH	We have 8 team members. Only 1 member is not decided to leave or keep going with the team. Other 7 members continue to CSCI577b course.
APEX	HIGH	The average experience of the team members for this online web-based application is about 3 year.
LTEX	VERY HIGH	The development team plans to develop this module with PHP, HTML, JavaScript and SQL language to query information from other module. Not all members are able to use those languages, but each member is capable of using most of the required languages. All member are proficient in tools that are required for the project (Code Editor, Debug Tool, Visual Paradigm..)
PLEX	LOW	The team uses server provided by Amazon Web Service provider. Only a few members are familiar to this platform. Most of members need to familiarize themselves to this platform.

TOOL	VERY HIGH	All member are proficient in tools that are required for the project (Code Editor, Debug Tool, Visual Paradigm..)
SITE	VERY HIGH	In CSCI577a, 7 of eight team members are on-campus students and only one member is off-campus student. In CSCI577b, one student is not decided to continue this project. However, 6 of the remaining students are on-campus students and still one student is off-line. Additionally, we use wideband electronic communication and occasional video conference (Especially for the off-campus student)
SCED	NOMINAL	The schedule is fixed for 12 weeks in Fall semester and 12 weeks in Spring semester.

Figure 1: COCOMO Estimation Result



X	Name	Size	Labor Rate ($/Month)	EAF	Language	NOM Effort DEV	EST Effort DEV	PROD	COST	INST COST	Staff	Risk
	APIs controller mo...	2,000	0.0	0.65	High Level	6.15	4.01	498.77	0.00	0.00	0.6	2.4
	Result Processin M...	1,500	0.0	0.38	High Level	4.61	1.76	851.18	0.00	0.00	0.3	0.0
	User athentication...	800	0.0	0.23	High Level	2.46	0.58	1390.83	0.00	0.00	0.1	0.0

Estimation

Total Lines Of Code: 4,300 **Hours/PM:** 152.0

Estimated	Effort	Schedule	PROD	COST	INST	Staff	Risk
Optimistic	5.08	6.02	846.81	0.00	0.00	0.8	
Most Likely	6.35	6.44	677.45	0.00	0.00	1.0	2.4
Pessimistic	7.93	6.89	541.96	0.00	0.00	1.2	

The above estimation showed a pessimistic result that has 7.93 person-month with 152 hours/PM. The total time is 7.93 person-month × 152 hrs/person-month = 1,205.36 hours.

Assuming each member spends 16 hours/week and development period has 10 weeks, total available time spent by all members is 16 hrs/wks × 10 wks × 8 = 1,280 hrs.

Therefore, since 1,280 hrs > 1,205.36 hrs, this project can be finished on time.

6. Iteration Plan

6.1 Plan

USC developing team works on four APIs which act as a connector to extract desired information from social network websites: Facebook, Indeed.com, Google+, and LinkedIn. The second iteration starts from building a module that generates valuable results for REFERsy.com users by matching the result from Indeed.com and the results from Facebook, Google+, and LinkedIn. Then, the USC developing team goes towards user management system so that users can take advantage of what REFERsy.com provides more efficiently.

6.1.1 Capabilities to be implemented

In OCD, all capabilities are categorized as MMFs. Even if our team has only two MMFs, in this section, we describe capabilities not depending on MMFs, but we classify each capability with more rows so that the table shows which iteration the team spends for the capability. Also, since professor Boehm advised that the following capabilities could be initiated at the same time, some capabilities can have same iteration.

Note: Security can be necessary for any implementation. However, we do not have it in MMFs. Therefore, its priority is 'Mid Priority.'

Table 12: Construction iteration capabilities to be implemented

ID	Capability	Description	Priority	Iteration
1	Job Searching	- A logged in user can search for jobs even if no social network has been added to that user's account - A logged in user can search for jobs and have their social network contacts listed with each job - A logged in user can search for jobs and have their social network contacts listed with each job.	Must Have	1,2
2	Connecting to Social Network	- A registered user is able to sign into their social network accounts. - The system can retrieve a contact's information from their respective social network.	Must Have	1
3	Saving Job Search	- A registered user can save job search criteria for repeated searches to the user's profile. - The system successfully prevents a registered user from saving job search criteria which has already been saved to the user's profile. - A registered user can save particular job listings for later retrieval.	Must Have	3

		- A registered user can subscribe to notification emails and choose the frequency of emails.		
4	Messaging Referrals	- A registered user can send a message to a social media contact asking for a referral in relation to a job listing.	Must Have	4
5	Creating a User Account	- A registered user can send a message to a social media contact asking for a referral in relation to a job listing.	Must Have	3
6	Managing a User Account	- A registered user is able to view and modify their profile.	Must Have	4
7	User Login	- A registered user is able to log in to REFERsy.com - REFERsy.com system correctly denies access when attempting to login with invalid credentials.	Must Have	3
8	User Logout	- A registered user can successfully log out from REFERsy.com	Must Have	3
9	Security	- The system is able to prevent SQL injection hacking. - The system is able to prevent cross-site scripting. - The system is designed to encrypt all sensitive data.	Mid Priority	3

6.1.2 Capabilities to be tested

All capabilities from the above table are to be tested.

6.1.3 Capabilities not to be tested

All capabilities from the above table are to be tested.