Life Cycle Plan (LCP)

Cash Doctor 3.0

Team 12

Steven Helferich: Project Manager
Kenneth Anguka: IIV&V
Xichao Wang: Operational Concept Engineer
Alisha Parvez: Life Cycle Planner
Ekasit Jarussinvichai: Requirements Engineer
Kshama Krishnan: Prototyper
Le Zhuang: Feasibility Analyst
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10/13/2014

Version History

Date	Author	Version	Changes made	Rationale
09/29/14	Steven Helferich	1.0	Completed section 3.3	To evaluate exploration phase requirements
10/13/14	Alisha Parvez	2.0	Updated Sections 1-5	• To make an estimate if we can complete the project with the given resources. • All milestones added up to the completion for valuation phase • To prepare for foundation phase

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1. Introduction

1.1 Purpose of the LCP

The LCP helps in identifying tasks and their corresponding timelines.
The LCP also lists down all the milestones and artifacts delivered according to the phases.
It lists out the strategies to be followed in the project and also the skills required by each team member.
The LCP is documented to provide details as to what is the status of the project and what is the future plan. It lists down the tools and resources being used in the project.
It also defines each stakeholder's responsibilities according to different phases.
In a nutshell, LCP improves the quality of the project by proper planning and also reduces the risk exposure.

1.2 Status of the LCP

The status of the LCP is currently at the Draft Foundations Commitment Package version number 2.0. This is the version that will be delivered to the client. The major changes from Exploration phase are inclusion of phase-wise responsibilities of each stakeholder and milestones and artifacts delivered in each phase.

1.3 Assumptions

- The duration of the project is 24 weeks, which are 12 weeks in fall 2014 and 12 weeks in spring 2015.
- The project involves 8 personnel resources.
- Team meetings are held each week to discuss on the future tasks of the project.

2. Milestones and Products

2.1 Overall Strategy

This project is following NDI-Intensive ICSM process. The milestone, deliverables according to each phase are:

Exploration phase

Duration: 09/14/14- 10/01/14

Concept: The team meets with the client and discuss the requirements. The team figures out the skills needed for this project. It also analyses the current system.

Deliverables: Valuation Commitment Package, Client Interaction Report, Project Reports and Plans, Weekly Effort Report, program model, business plan and results chain.

Milestone: Valuation Commitment Review

Strategy: One Incremental Commitment Cycle

Valuation phase

Duration: 10/01/14- 10/20/14

Concept: The team evaluates the risks and prioritize the requirements with the help of winwin negotiations. After that, the high risk item was chosen for prototyping. Both the approaches were followed – horizontal prototyping and vertical prototyping. The horizontal prototype included basic UI design and the vertical prototype included a simple functional demo of a high risk item, i.e. OCR working on android operating system.

Deliverables: Draft Foundations Commitment Package, Foundations Commitment Package, Initial Prototype, Project Reports and Plans, Weekly Effort Report.

Milestone: Foundations Commitment Review

Foundations phase

Duration: 10/20/14- 12/08/14

Concept: The team will assess the project status. The changes in requirements will be analyzed, and corresponding adjustments will be made. NDI component will be assessed and development software architecture will be designed. Besides, actual functional prototypes will be built. Meetings will continue. Efforts will be reported. Work on OCR will be done so as to create a functional prototype that could work on iOS as well.

Deliverables: Draft Development Commitment Package, Development Commitment Package, Initial Prototype, Project Reports and Plans, Weekly Effort Report.

Milestone: Development Commitment Review

Strategy: One Incremental Commitment Cycle

2.2 Project Deliverables

2.2.1 Exploration Phase

Table 1: Artifacts Deliverables in Exploration Phase

Artifact	Due date	Format	Medium
Client Interaction Report	9/19/2014	.doc, .pdf	Soft copy
Valuation Commitment Package • Life Cycle Plan (LCP) Early Section • Feasibility Evidence Description (FED) Early Section	09/29/2014	.doc, .pdf	Soft copy
Project Effort	Every Monday	Text	Bugzilla
Project Plan	Every two weeks on Wednesday	.mpp	Soft copy
Progress Report	Every two weeks on Wednesday	.xls	Soft copy
Program model, business model, results chain diagram	09/21/2014	.docx	Soft copy

2.2.2 Valuation Phase

Table 2: Artifact deliverable in Valuation Phase

Artifact	Due date	Format	Medium
Prototype presentation	10/03/2014	.ppt	Soft copy
Draft Foundations Commitment Package • Operational Concept Description (OCD) • Feasibility Evidence Description (FED) • Life Cycle Plan (LCP) • System and Software Architecture Description (SSAD) • Prototype report (PRO)	10/13/2014	.doc,.pdf	Soft copy
Foundations Commitment Package • Operational Concept Description (OCD) • Feasibility Evidence Description (FED) • Life Cycle Plan (LCP) • System and Software Architecture Description (SSAD) • Prototype report (PRO) • Quality Management Practice(QMP) • Supporting Information Document(SID)		.doc, .pdf	Soft copy
Project Effort	Every Monday	Text	Bugzilla
Project Plan	Every two weeks on Wednesday	.mpp	Soft copy
Progress Report	Every two weeks on Wednesday	.xls	Soft copy

2.2.3 Foundations Phase

Table 3: Artifacts Deliverables in Foundation Phase

Artifact	Due date	Format	Medium
Drafts Development Commitment Package	12/01/2014	.doc, .pdf	Soft copy
Development Commitment Package	12/08/2014	.doc, .pdf	Soft copy
Project Effort	Every Monday	Text	Bugzilla
Project Plan	Every two weeks on Wednesday	.mpp	Soft copy
Progress Report	Every two weeks on Wednesday	.xls	Soft copy

2.2.4 Development Phase

Table 4: Artifacts Deliverables in Development Phase

Artifact	Due date	Format	Medium
Transition package	TBD	TBD	TBD
Project Effort	Every Monday	Text	Bugzilla
Project Plan	Every two weeks on Wednesday	.mpp	Soft copy
Progress Report	Every two weeks on Wednesday	.xls	Soft copy

3. Responsibilities

3.1 Project-specific stakeholder's responsibilities

The stakeholders only include client, user, maintainer, developer and IIV & V, i.e., the typical stakeholders of CSCI577ab

3.2 Responsibilities by Phase

Table 5: Stakeholder's Responsibilities in each phase

Team Member / Role	Primary / Secondary Responsibility				
	Exploration	**Valuation**	**Foundations**	**Development-** Construction Iteration	**Development-** Transition Iteration
Name: Rob Stehlin Role: Client	**Primary Responsibility** - Explain scope and primary requirement - Contribute to the win conditions - Clarify the problems from development team	**Primary Responsibility** - Assess work artifacts and provide feedback - Identify shared vision, goal, and concepts	**Primary Responsibility** - Provide feedback for prototypes	**Primary Responsibility** - Test system development modules - Provide feedback of system features	**Primary Responsibility** - Accept the training - Prepare for system transition
Name: Alisha Parvez Role: Life Cycle Planner, Feasibility Analyst	**Primary Responsibility** -Plan project life cycle phases - List deliverables - Identify skills **Secondary Responsibility** Check if the requirements are feasible.	**Primary Responsibility** -Plan project life cycle phases - List deliverables - Identify responsibilities **Secondary Responsibility** Assess plans to mitigate risks	**Primary Responsibility** -Provide detail project plan -list deliverables -Estimate project effort using COINCOMO -identify development iteration **Secondary Responsibility** -Assess and	**Primary Responsibility** Develop support plan	**Primary Responsibility** -Develop Transition plan -Deliver final project artifacts

			evaluate feasibility of NDI. -Provide feasibility evidence for NDI		
Name: Ekasit Jarussinvichai(Alan) Role: Requirements Engineer, Prototyper	**Primary Responsibility** Develop Requirement Definition **Secondary Responsibility** Research for NDI	**Primary Responsibility** Assess and prioritize requirements **Secondary Responsibility** Build horizontal and vertical Prototypes	**Primary Responsibility** Assess NDI, Conduct risk assessment plan	**Primary Responsibility** Build the system	**Primary Responsibility** Deploy and transit the system
Name: Kenneth Anguka Role: Verification and Validation Engineer, Requirements Engineer	**Primary Responsibility** -Review the project artifacts -Manage Project Quality **Secondary Responsibility** Develop Requirement Definition	**Primary Responsibility** -Review the project artifacts -Manage Project Quality **Secondary Responsibility** Assess and prioritize requirements	**Primary Responsibility** -Review the project artifacts -Manage Project Quality **Secondary Responsibility** Assess NDI, Conduct risk assessment plan	**Primary Responsibility** - Verify and validate work products **Secondary Responsibility** Build the system	**Primary Responsibility** - Verify and validate work products **Secondary Responsibility** Deploy and transit the system
Name: Kshama Krishnan Role: Prototyper, System and Software Architect	**Primary Responsibility** Research for NDI **Secondary Responsibility** Explore current system design	**Primary Responsibility** Build prototype and analyze NDI components, **Secondary Responsibility** Define technical architecture	**Primary Responsibility** Access NDI, conduct risk assessment plan, **Secondary Responsibility** Create system and software architecture description, Create UML	**Primary Responsibility** Build the system	**Primary Responsibility** Deploy and transit the system

			Model		
Name: Le Zhuang(Oliver) Role: Feasibility Analyst, System and Software Architect	**Primary Responsibility** Identify the system concept, develop vision and usage **Secondary Responsibility** Analyze current system	**Primary Responsibility** Specify architectural styles, patterns and frameworks **Secondary Responsibility** Capture win-win negotiations,	**Primary Responsibility** Assess system architecture **Secondary Responsibility** Identify system and software requirements definition	**Primary Responsibility** Develop System	**Primary Responsibility** Develop system, fix defects
Name: Shreya Sharma Role: System and Software Architect, Requirements Engineer	**Primary Responsibility** Identify the system concept, develop vision and usage **Secondary Responsibility** Analyze current system	**Primary Responsibility** Specify architectural styles, patterns and frameworks **Secondary Responsibility** Capture win-win negotiations,	**Primary Responsibility** Assess system architecture **Secondary Responsibility** Identify system and software requirements definition	**Primary Responsibility** Develop System	**Primary Responsibility** Develop system, fix defects
Name: Steven Helferich Role: Project Manager, Operational Concept Engineer	**Primary Responsibility** - Facilitate Client-Team interaction for understanding of operational concept elements - Document team work and progress - Identify system concept	**Primary Responsibility** - Assess and prioritize requirements - Facilitate client-team interactions to prioritize requirements **Secondary Responsibilities** - Build	**Primary Responsibilities** - Conduct risk assessment and address major remaining risks	**Primary Responsibilities** - Support development team - Document work - Build the system	**Primary Responsibility** - Deploy and transit system

	and develop vision and usage **Secondary Responsibility** - Analyze current system and evaluate requirements	horizontal prototypes			
Name: Xichao Wang(Clark) Role:Operational Concept Engineer, Life Cycle Planner	**Primary Responsibility**: Meet with client and understand what does current system looks like, including current business workflow, current infrastructure, etc. And establish detail information about requirements from clients about the new system. **Secondary Responsibility:** evaluate all requirements with an appropriate schedule.	**Primary Responsibility:** Evaluate the relationship of current system and new system; establish the element relationship of new system and new system business workflow.	**Primary Responsibility:** figure out how components interoperate with each other to provide the desired capabilities. **Secondary Responsibility:** tailor the OCR for adopting with other components.		

3.3 Skills

Table 6: Skills

Team members	Role	Skills
Steven Helferich	Project Manager	Current: Java, HTML5/CSS, Bootstrap, JS/jQuery, Python, Matlab Required: Android, iOS, PHP, MySQL
Kenneth Anguka	IIV&V	Current: C, C++, Java, Embedded and Real Time Systems, Python
Xichao Wang	Operational Concept Engineer	Current: Java, C++, Python, Matlab Required: PHP, HTML,MySQL, JS, Backbone.js, Boostrap
Alisha Parvez	Life Cycle Planner	Current: Java, C++, C, Python, JS, HTML5, MYSQL Required: Bootstrap, jQuery
Ekasit Jarussinvichai	Requirements Engineer	Current: Java, C++, HTML/CSS, VBA, Oracle, JS Required: PHP, JSON, MySQL, Backbone.js, Bootstrap, Cordova, Winbook
Kshama Krishnan	Prototyper	Current: Java, JS, HMTL5/CSS3, Android, jQuery, C, C++
Le Zhuang	Feasibility Analyst	Current: Java, Python, C, HTML/CSS, Matlab Required: Bootstrap, PHP, MySQL, JS, JSON, jQuery, Backbone.js,
Shreya Sharma	Software Architect	Current: Testing: Web and Mobile, HTML5/CSS3, Bootstrap, JS

4. Approach

4.1 Monitoring and Control

-The effort spent on the project is being recorded on Bugzilla.
-The number of lines of code is logged on as project report every two weeks.
-Communication with the client is being done through Winbook and emails.
-Commitment review is done before moving into each phase.
The overall strategy is reported through project plan every two weeks.

Closed Loop Feedback Control

The team internally communicates through emails and google drive to keep everyone updated. The team also has team meeting every week to discuss about what we did in the previous week and what we are supposed to do next week.

4.1.1 Reviews

ARB: This is a review that we perform with instructors and TAs to analyze our project progress.
Team Meeting: Every Monday, the on-campus team has group meeting discussing about the progress and to-dos. The den-student is kept updated through mails and google drive documents.
Bugzilla: We have maintained Bugzilla to trace our progress.

4.2 Methods, Tools and Facilities

Table 7: Tools being used

TOOLS	USAGE	PROVIDER
Bugzilla	Tracks project progress	TA
Winbook	Keeps track of the information resulting from negotiations with client, win conditions and issues raised	TA
Microsoft Visio	Documents OCD workflow	Microsoft

Microsoft Office	Documents editing, sheets, presentations etc…	Microsoft
Visual Paradigm	Captures UML and auto generate SSAD	Visual Paradigm International
COINCOMO	Estimates the software developing cost	USC CSSE
Effort Report	Records the total weekly working hours on the project	USC CSSE
MPP	Makes the project plan	Microsoft
Project Report	Records lines of code	Microsoft
Balsamiq mockups	For prototyping	Balsamiq

5. Resources

The following conditions were used to estimate the cost of our system, CashDoctor 3.0 Mobile App.

1. This project has no budget for our development efforts, while the software is provided and tools are free.
2. The duration of the project is 12 weeks in CSCI577a
3. The duration of the project is 12 weeks in CSCI577b.
4. There are eight team members.
5. There are four modules in this system.
    a. Search module
    b. Share module
    c. Capture module
    d. Networking module

6. Programming language is JavaScript
7. The SLOC is estimated by prototyper

Table 8: COCOMO scale factors

Scale Driver	Value	Rationale
PREC	Nominal	This is not very similar to the projects that the team has developed before, so it is somewhat unprecedented
FLEX	Nominal	The client is open to discussions with the development team
RESL	High	There is only one risk item(OCR) with some uncertainity.
TEAM	High	The stakeholders don't have experience in working together as a team but are very collaborative and have strong commitments to achieve the goals of the project
PMAT	Nominal	The goals are consistently achieved CMMI level 2

Table 9: Module lists and SLOC of each module

No.	Module Name	Brief Description	SLOC	REVL
1	Search	For searching doctors according to various filters	500	10%
2	Share	For sharing invoices by entering manually or through OCR	300	10%

3	Capture	For capturing invoices pictures and upload them in the database.	300	5%
4	Networking	Creating groups and adding people to the groups.	400	10%

Table 10: Cost Drivers for Search Module

Cost Driver	Value	Rationale
RELY	Nominal	This module is important but if it goes wrong, it won't affect the system very much. There are more important modules than this.
DATA	Very High	This module is pretty much the database for the website, very high data cost drive
DOCU	Nominal	Because the development process follows ICSM, the document for life-cycle needs is normal.
CPLX	Nominal	Lots of database table joins needed to use the search module.
RUSE	High	It is going to be reused for the future projects.
TIME	Nominal	This module stays there all the time, execution time depends on the amount of visitors.
STOR	Nominal	It will not take much of the storage place since it is just a search module.
PVOL	High	Very stable, the platform will stay the same
ACAP	High	Team members are highly capable to work on requirements and designs.
PCAP	High	Programmers are capable, efficient and thorough. They are able to communicate and cooperate very well.
PCON	Very High	We have 8 team members in CSCI577a that are continuing to CSCI577b as well.
APEX	Nominal	The average experience of the team members is about one year.
LTEX	Nominal	Most of the tools are new to our team, but are easy to learn
PLEX	Nominal	The platform is somewhat new to our team, but it is not difficult to learn.

TOOL	Nominal	Use of strong, mature, moderately integrated tools
SITE	Very High	Most teammate can meet at least once a week and communicate through calls and emails.
SCED	Nominal	The schedule is fixed for 24 weeks in Fall

Table 11:Cost Drivers for Share Module

Cost Driver	Value	Rationale
RELY	High	This module is very important, if it goes wrong, it will have a considerable effect on the system.
DATA	Very High	This module is pretty much the database for the website, very high data cost drive
DOCU	Nominal	Because the development process follows ICSM, the document for life-cycle needs is normal.
CPLX	Nominal	Lots of database table joins needed to use this module.
RUSE	Nominal	It cannot be used for other projects.
TIME	Nominal	This module stays there all the time, execution time depends on the amount of visitors.
STOR	Nominal	It will take some of the storage place since it shares the invoices of the users.
PVOL	High	Very stable, the platform will stay the same
ACAP	High	Team members are highly capable to work on requirements and designs.
PCAP	High	Programmers are capable, efficient and thorough. They are able to communicate and cooperate very well.
PCON	Very High	We have 8 team members in CSCI577a that are continuing to CSCI577b as well.
APEX	Nominal	The average experience of the team members is about one year.
LTEX	Nominal	Most of the tools are new to our team, but are easy to learn
PLEX	Nominal	The platform is somewhat new to our team, but it is not

		difficult to learn.
TOOL	Nominal	Use of strong, mature, moderately integrated tools
SITE	Very High	Most teammate can meet at least once a week and communicate through calls and emails.
SCED	Nominal	The schedule is fixed for 24 weeks in Fall

Table 12: Cost Drivers for Capture Module

Cost Driver	Value	Rationale
RELY	High	This module is very important to the mobile app. If it goes wrong, a major feature of the app will stop working.
DATA	Very High	This module is pretty much the database for the website, very high data cost drive
DOCU	Nominal	Because the development process follows ICSM, the document for life-cycle needs is normal.
CPLX	High	This module involves use of COTS but a lot of modifications are needed to use it in the app.
RUSE	Low	It is not going to be useful for the future projects.
TIME	Nominal	This module stays there all the time, execution time depends on the amount of visitors.
STOR	High	It will take much of the storage space since it is a Capture module and it captures and stores invoices.
PVOL	High	Very stable, the platform will stay the same
ACAP	High	Team members are highly capable to work on requirements and designs.
PCAP	Nominal	Programmers are capable, but have never implemented this kind of feature before.
PCON	Very High	We have 8 team members in CSCI577a that are continuing to CSCI577b as well.
APEX	Nominal	The average experience of the team members is about one year.
LTEX	Nominal	Most of the tools are new to our team, but are easy to learn

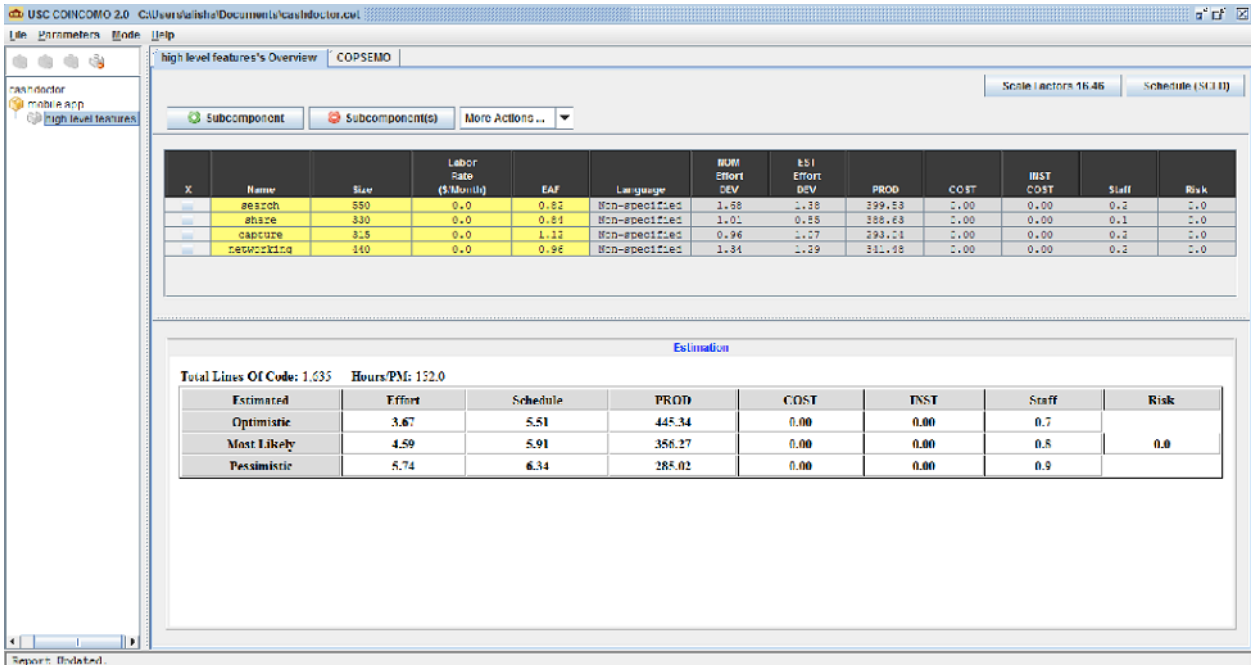
PLEX	Nominal	The platform is somewhat new to our team, but it is not difficult to learn.
TOOL	Nominal	Use of strong, mature, moderately integrated tools
SITE	Very High	Most teammate can meet at least once a week and communicate through calls and emails.
SCED	Nominal	The schedule is fixed for 24 weeks in Fall

Table 13:Cost Drivers for Networking Module

Cost Driver	Value	Rationale
RELY	Nominal	This module is important but if it goes wrong, it won't affect the system very much. There are more important modules than this.
DATA	Very High	This module is pretty much the database for the website, very high data cost drive
DOCU	Nominal	Because the development process follows ICSM, the document for life-cycle needs is normal.
CPLX	High	This is high because it is going to involve lots of submodules.
RUSE	High	It is going to be reused for the future projects.
TIME	Nominal	This module stays there all the time, execution time depends on the amount of visitors.
STOR	Nominal	It will not take much of the storage place since it is just a networking module.
PVOL	High	Very stable, the platform will stay the same
ACAP	High	Team members are highly capable to work on requirements and designs.
PCAP	High	Programmers are capable, efficient and thorough. They are able to communicate and cooperate very well.
PCON	Very High	We have 8 team members in CSCI577a that are continuing to CSCI577b as well.
APEX	Nominal	The average experience of the team members is about one year.
LTEX	Nominal	Most of the tools are new to our team, but are easy to learn

PLEX	Nominal	The platform is somewhat new to our team, but it is not difficult to learn.
TOOL	Nominal	Use of strong, mature, moderately integrated tools
SITE	Very High	Most teammate can meet at least once a week and communicate through calls and emails.
SCED	Nominal	The schedule is fixed for 24 weeks in Fall

Figure 1: COINCOMO estimate



According to COINCOMO, our optimistic effort value is 3.67 and our optimistic staff value is 0.7.