Life Cycle Plan (LCP)

LINGGGO

Team 3

Chicheng Ren – Software Architect
Dahai Li – Quality Focal Point
Dashun Wen – Life Cycle Planner
Kraingkrai Bumroungruksa –Feasibility Analyst
Siming Ye – Operational Concept Engineer
Shiqi Wei – Prototyper
Yiting Xiao – Project Manager

Version History

Date	Author	Version	Changes made	Rationale
10/11/15	WDS	1.0	Original template for use with LINGGGO v1.0	Initial draft for use with LINGGGO v1.0
10/19/15	CCR, YX	1.1	Redo Cost Estimation	Cost Estimation using COCOMOII
11/24	YX	1.2	Add Chapter 6 Modify milestones	Finish Iteration Plan

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1. Introduction

1.1 Purpose of the LCP

The purpose of this document is to give a statement of duration, technology, teamwork and main goal of LINGGGO project and to clearly define and plan the processes, milestones, responsibilities, and deliverables for the LINGGGO project.

1.2 Status of the LCP

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

The duration of the project is 16 weeks in 2015 Fall.

2. Milestones and Products

2.1 Overall Strategy

The LINGGGO is following Architected Agile process because there is no Non-Development Item or Web service that would fit to most of the core capabilities.

Exploration phase

Duration: 08/20/15-9/4/15
Concept: Identify operation concept, client requirements and user need.
Deliverables: Client Interaction Report
Milestone: Valuation Commitment Review

Valuation phase

Duration: 09/24/15-9/30/15
Concept: Identify objectives, constraints and priorities, Design draft prototype, Provide feasibility evidence, prepare management plan.
Deliverables: Draft Foundations Commitment Package
Milestone: Foundations Commitment Review

Foundation phase

Duration: 10/1/15-10/19/15
Concept: Assess Project status, project management plan, project quality, prototype. Design software Architect.
Deliverables: Development Commitment Package
Milestone: Development Commitment Review

Development phase

Duration: 10/19/15-11/19/15
Concept: Development of all systems and modules.
Deliverables: Fully functionalized website.
Milestone: Client Acceptance Review

Test phase

Duration: 11/20/15-11/30/15
Concept: Quality assurance from test team.
Deliverables: Test Case Result.
Milestone: One test cycle.

Transition phase

Duration: 12/1/15-12/5/15
Concept: Transit all project relate things to client

Deliverables: As-built package; code; server
Milestone: End of project

2.2 Project Deliverables

2.2.1 Exploration Phase

Table 1: Artifacts Deliverables in Exploration Phase

Artifact	Due date	Format	Medium
Client Interaction Report	9/28	.pdf	Soft copy
Top risk presentation	10/2	.pdf	Soft copy
Win condition Report	9/28	.pdf	Soft copy
Progress Report	Biweekly Wednesday	.xls	Soft copy
Project Plan	Biweekly Wednesday	.mpp	Soft copy
Jira Report	Every Monday	Jira	Soft copy
Risk and Defect	Biweekly Wednesday	.xls	Soft copy

2.2.2 Valuation Phase

Table 2：Artifact deliverable in Valuation Phase

Artifact	Due date	Format	Medium

Draft Foundation Commitment Package ● Operational Concept Description (OCD) ● Life Cycle Plan (LCP) ● Feasibility Evidence Description (FED) Section 1-5 ● Prototype Report ● Life Cycle Plan (LCP) Section 1 -5 ● System and Software Architecture (SSAD)	10/13	.doc .pdf	Soft copy
Foundation Commitment Package ● Operational Concept Description (OCD) ● Life Cycle Plan (LCP) ● Feasibility Evidence Description (FED) Section 1-5 ● Prototype Report ● Life Cycle Plan (LCP) Section 1 -5 ● System and Software Architecture (SSAD)	10/19	.doc .pdf	Soft copy
Progress Report	Biweekly Wednesday	.xls	Soft copy
Project Plan	Biweekly Wednesday	.mpp	Soft copy
Jira Report	Every Monday	Jira	Soft copy
Risk and Defect	Biweekly Wednesday	.xls	Soft copy

2.2.3 Foundations Phase

Table 3：Artifact deliverable in Foundations Phase

Artifact	Due date	Format	Medium
Progress Report	Biweekly Wednesday	.xls	Soft copy
Project Plan	Biweekly Wednesday	.mpp	Soft copy
Jira Report	Every Monday	Jira	Soft copy
Risk and Defect	Biweekly Wednesday	.xls	Soft copy

2.2.4 Development Phase

Table 4：Artifact deliverable in Development Phase

Artifact	Due date	Format	Medium
Progress Report	Biweekly Wednesday	.xls	Soft copy
Project Plan	Biweekly Wednesday	.mpp	Soft copy
Jira Report	Every Monday	Jira	Soft copy
Risk and Defect	Biweekly Wednesday	.xls	Soft copy

3. Responsibilities

3.1 Project-specific stakeholder’s responsibilities

Our project-specific stakeholders (other than the typical stakeholders of CSCI577a) are Zsuzsa Londe as the project owner and Ajay Rai as the project technological director.

Table 5：Stakeholder's Responsibilities in each phase (See next page)

Primary Responsibility / Team Member / Role	Primary / Secondary Responsibility: Exploration	Valuation	Foundations	Development-Construction Iteration	Development-Transition Iteration
Name: Zuzsa Londe Role: Project Owner	**Primary Responsibility** Business workflow **Secondary Responsibility** Provide initial goal and scope for LINGGGO	**Primary Responsibility** Evaluate project	**Primary Responsibility** Provide feedback and review on progress.	**Primary Responsibility** Review website and help test.	**Primary Responsibility** Review website and help test.
Name: Ajay Rai Role: Technological Director	Give technical advice and being as technical supervisor in LINGGGO	Evaluate project from technical perspective	Give advice about technology	Review website from technical perspective.	Give instruction to technical support
Name: Chicheng Ren Role: Software Architect/ Programmer	Draft design the architecture of the project	Create LINGGGO prototype	Create LINGGGO back end demo and primary API.	Implement LINGGGO back end. Fix bugs.	Trainer. Tester
Name: Dahai Li Role: Quality Focal Point/Tester	Observe and provide advice for team collaboration.	Design test case and project quality control plan. Team document review.	Write test case and unit test to test on technical prototype and demo	Write test case. Report bugs. Verify fixed bugs and close bugs.	Write test case. Report bugs. Verify fixed bugs and close bugs.
Name: Dashun Wen Role: Life Cycle Planner/Tester	Design and discuss about life cycle plan.	Decide LCP content.	Help Dahai write test case and unit test.	Write test case. Report bugs. Verify fixed bugs and close bugs.	Write test case. Report bugs. Verify fixed bugs and close bugs.
Name: Kraingkrai Bumroungruksa Role: Feasibility Analyst/ Programmer	Design and discuss about feasibility evidence analysis.	Decide Project Feasibility Analyst strategy.	Create LINGGGO back end demo and primary API.	Implement LINGGGO back end. Fix bugs.	Implement LINGGGO back end. Fix bugs.
Name: Siming Ye Role: Operational Concept Engineer/Programmer	Negotiation with clients, collect and summarize for OCD.	Complete OCD diagram and confirm with whole team.	Help create LINGGGO front end and back end demo	Implement LINGGGO front end. Fix bugs.	Implement LINGGGO front end. Fix bugs.
Name: Shiqi Wei Role: Prototyper/Programmer	Help with prototype design	Help project manager manage project time. Help create prototype.	Create LINGGGO back end demo and primary API.	Implement LINGGGO back end. Fix bugs.	Implement LINGGGO back end. Fix bugs.
Name: Yiting Xiao Role: Project Manager/Prototyper/ Programmer	Project control. Team role identification. Project control and assignment allocation.	Create prototype. Design front-end demo and structure. Project control and assignment allocation.	Create front-end prototype. Design front end file structure. Allocate front-end code assignments.	Implement LINGGGO front end. Fix bugs.	Implement LINGGGO front end. Fix bugs.

3.2 Responsibilities by Phase

3.3 Skills

Team members	Role	Skills
Chicheng Ren	Software Architect	PHP, MySQL Data, Linux Server, Prototype, JavaScript, Python
Dahai Li	Quality Focal Point	Java, Test, MySQL
Dashun Wen	Life Cycle Planner	C++; JavaScript
Kraingkrai Bumroungrukas	Feasibility Analyst	PHP, MySQL Data, Linux Server, Prototype, JavaScript, Git
Siming Ye	Operational Concept Engineer	PHP, Code Igniter, JavaScript; Angular JS
Shiqi Wei	Operational Concepts Engineer	C++, Java, MySQL, Open CV,JSP; PHP, Code Igniter
Yiting Xiao	Project Manager	JavaScript, Angular JS, PHP, Git, Prototype

4. Approach

4.1 Monitoring and Control

Progress Reports are used to track the weekly progress. Jira is used to track bugs and issues that happens during progress. Winbook is used for tracking requirements.

4.1.1 Closed Loop Feedback Control

The team is using Gmail and Wechat group as primary communication method. Google drive is used as the primary method for updated files and documentations.

4.1.2 Reviews

The DEN student on the team is observing and providing feedback for teams during collaboration. In addition, he is experienced in industry so he could provide reliable quality management. Besides, one of our client have strong technical background so that he can provide feedback and advice when we present our functional demo and navigational UI prototype.

4.2 Methods, Tools and Facilities

Tools	Usage	Provider
Winbook	This tool assists in managing win -win conditions that represent the requirements of all success stakeholders and helps us prioritize the features we will develop	USC
Jira	Jira help track bugs in the system and log work-hours spent on the project	USC
Github	Git is a code version control system which allows us to commit and merge the most recently updated code with each other and also helps track the changes made to the code	Github
Google Drive	Google drive helps our team to manage documentation	Google
PHP	Website development	Open source
MYSQL	Database	Open source
AWS	Provide web service	Amazon
Angular JS	Building the website	Open source
Code Igniter	Web framework	Open source

5. Resources

Identify the following information in order to estimate the software cost:

- Estimated CSCI577a Effort : 7 team members at 20 hrs/week for 13 weeks
- Total estimated effort: 1824 hr
- Budget information: $ 0
- Project duration: 12 weeks
- Component modules in your development project: Match System, Profile Management System, Message System.
- Programming language used: HTML, JavaScript, PHP, MySQL.

Table 6：COCOMOII Scale Driver

Scale Driver	Value	Rationale
PREC	Low	There is no past system, so it is a new system. Our team members have no much experience on creating a user (Language Learner) matching system.
FLEX	Nominal	Our client has some requirements but also willing negotiate on the minimal marketable features
RESL	Nominal	We routinely hold meetings and use prototypes to strengthen cohesion of the project with the whole team, so primary risks could be mitigated. However, due to the lack of experience we still may have some risk that is difficult to mitigate.
TEAM	HIGH	Meet with the client every week and discuss about the changes and improvement of the project.
PMAT	Nominal	Based on CMN and KPA assessment, our team is in CMN Level 2, which give us rate as nominal.

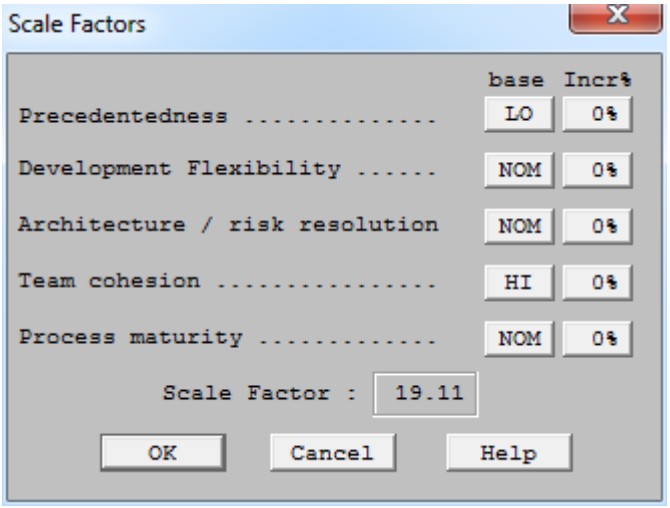

Figure 1: Scale Factors

Table 7：COCOMOII Cost Driver – Match System

Cost Driver	Value	Rationale
RELY	High	If the system is not working, all Language Learners are prevented from matching.
DATA	Low	The match system does not store any data
DOCU	High	All documents will match life cycle. Since our system is using RESTful API, we must provide sufficient document for future developers.
CPLX	High	Since match system shall search between different tables in database and satisfy different search conditions such as filter, it is high complexity.
RUSE	High	Match system will be extended for iOS, android in future.
TIME	Nominal	Since there is no special deadline for release. It's nominal.
STOR	Nominal	No special constrain on storage resources.
PVOL	Low	Match system are mainly web based.
ACAP	Nominal	Our team has capability to discuss and discover client requirements and communication. But lack of

		capability of design large data based API and database.
PCAP	Nominal	Four members in our team have experience with web application development.
PCON	Low	All team member are only one semester.
APEX	Nominal	Four of team members have experience on course-project level web application.
LTEX	Nominal	Four have experience on PHP. Four have experience JavaScript.
PLEX	Nominal	Two of us have linux and apache server configuration experience.
TOOL	Nominal	Only two of us have experience on Github. Others all need training.
SITE	High	Only one team member live in different city. However we communicate by phone, message, email, Skype, so it is almost the same as on campus student.

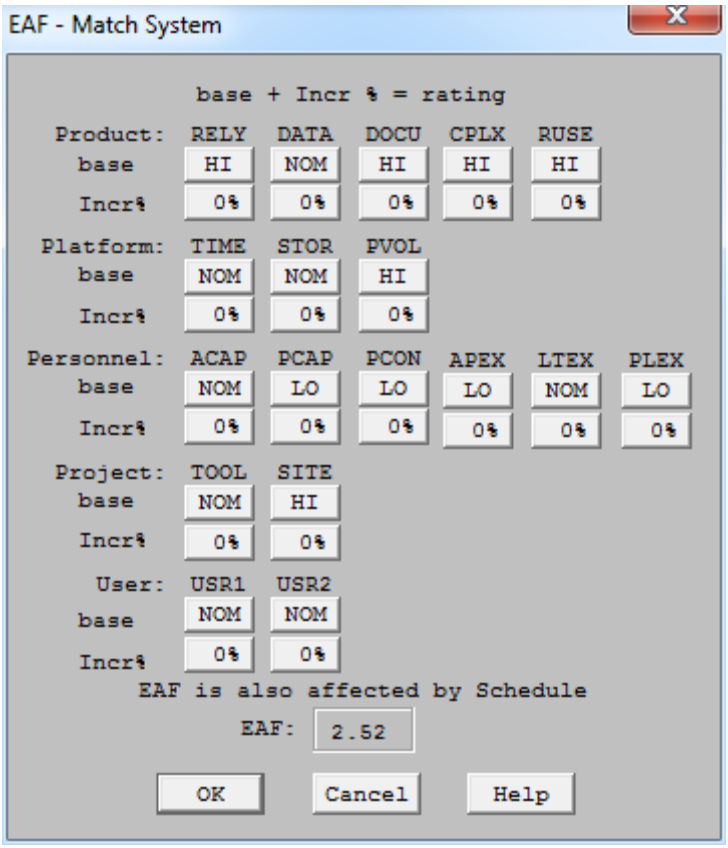

Figure 2: EAF-Match System

Table 8：COCOMOII Cost Driver – Profile Management System

Cost Driver	Value	Rationale
RELY	High	If the system is not working, all Language Learners are prevented from login and profile management.
DATA	Nominal	If the number of Language Learners is increased, it may affect the system.
DOCU	Low	Not too many API need documentation.
CPLX	Low	System receives user (Language Learner) account information as input and display as output.
RUSE	Nominal	Profile management system will be extended for iOS, android in future.
TIME	Nominal	Since there is no special deadline for release. It’s nominal.
STOR	Nominal	No special constrain on storage resources.

PVOL	Low	Profile management system is basically used in web.
ACAP	High	Our client has capability to determine on what features we need for user(Language Learner) account management.
PCAP	Nominal	Four members in our team have experience with web application development.
PCON	Low	All team member are only one semester.
APEX	Nominal	Four of team members have experience on course-project level web application.
LTEX	Nominal	Four have experience on PHP. Four have experience JavaScript.
PLEX	Nominal	Two of us have linux and apache server configuration experience.
TOOL	Nominal	Only two of us have experience on Github. Others all need training.
SITE	High	Only one team member live in different city. However we communicate by phone, message, email, Skype, so it is almost the same as on campus student.

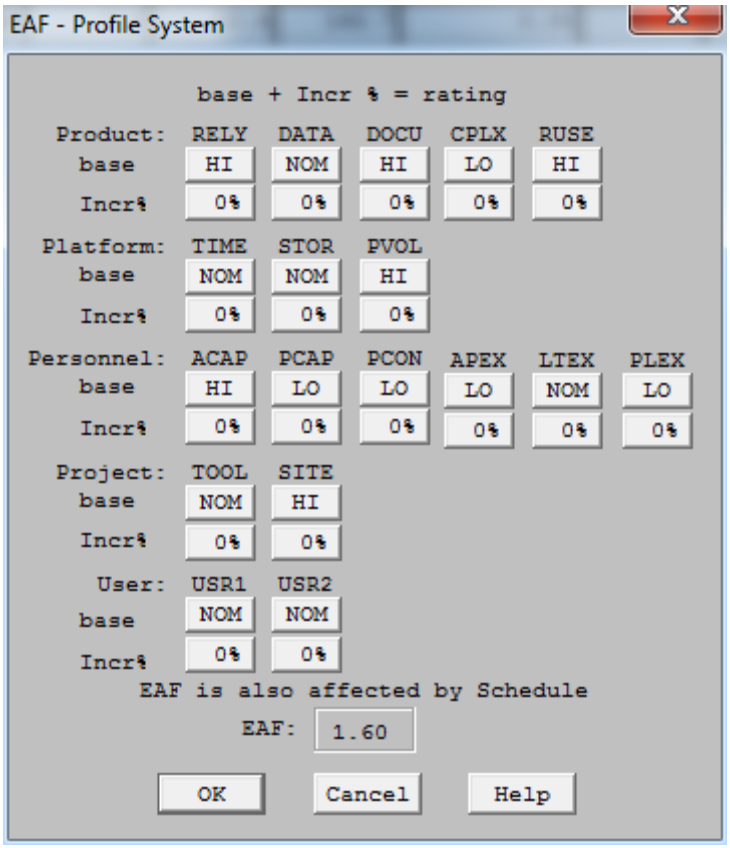

Figure 3: EAF-Profile Management System

Table 9：COCOMOII Cost Driver – Message System

Cost Driver	Value	Rationale
RELY	High	If the system is not working, all Language Learners are prevented from sending message. Language Learners may not be able to retrieve existing messages; however, message will not disappear from the system.
DATA	High	Message number can be rapidly increased as Language Learners sends and receives more messages.
DOCU	High	All documents will match life cycle. Since our system is using RESTful API, we must provide sufficient document for future developers.
CPLX	Nominal	Messages that a Language Learner sends and receives are stored in server database so it is not difficult to design and implement. New message

		notification, time stamp, and refresh strategy may be a little complex.
RUSE	High	Message management system will be extended for iOS, android in future.
TIME	Nominal	Since there is no special deadline for release. It's nominal.
STOR	High	There should be a upper bound for the number of messages since the server has limited storage.
PVOL	High	Profile management system shall be used for all platforms and all devices.
ACAP	Nominal	None of us has experience on message system, so we need to learn from other mature message system.
PCAP	Nominal	Four members in our team have experience with web application development.
PCON	Low	All team member are only one semester.
APEX	Nominal	Four of team members have experience on course-project level web application.
LTEX	Nominal	Four have experience on PHP. Four have experience JavaScript.
PLEX	Nominal	Two of us have linux and apache server configuration experience.
TOOL	Nominal	Only two of us have experience on Github. Others all need training.
SITE	High	Only one team member live in different city. However we communicate by phone, message, email, Skype, so it is almost the same as on campus student.

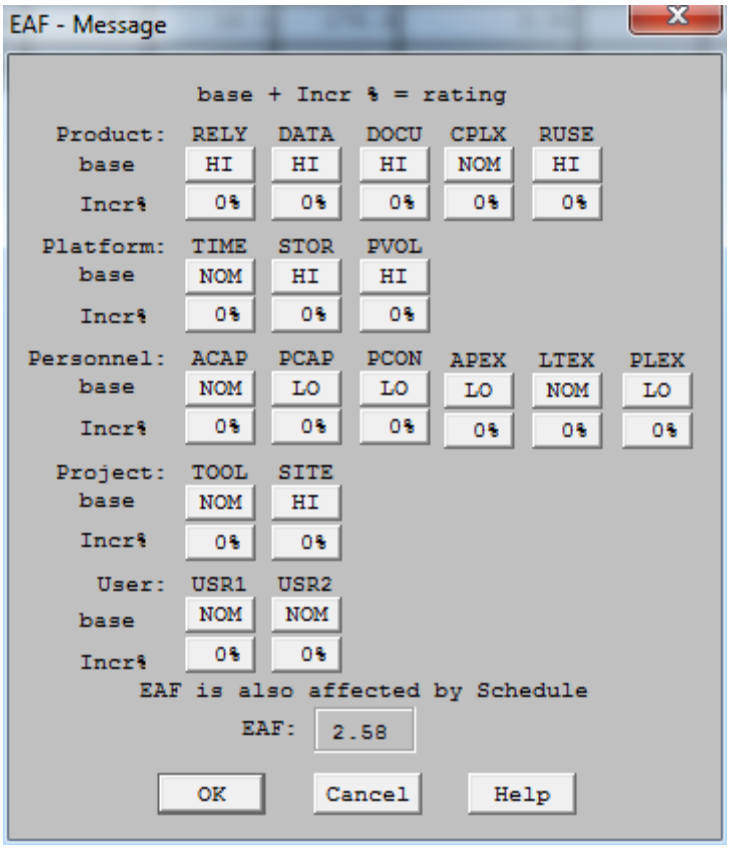

Figure 4: EAF-Message System

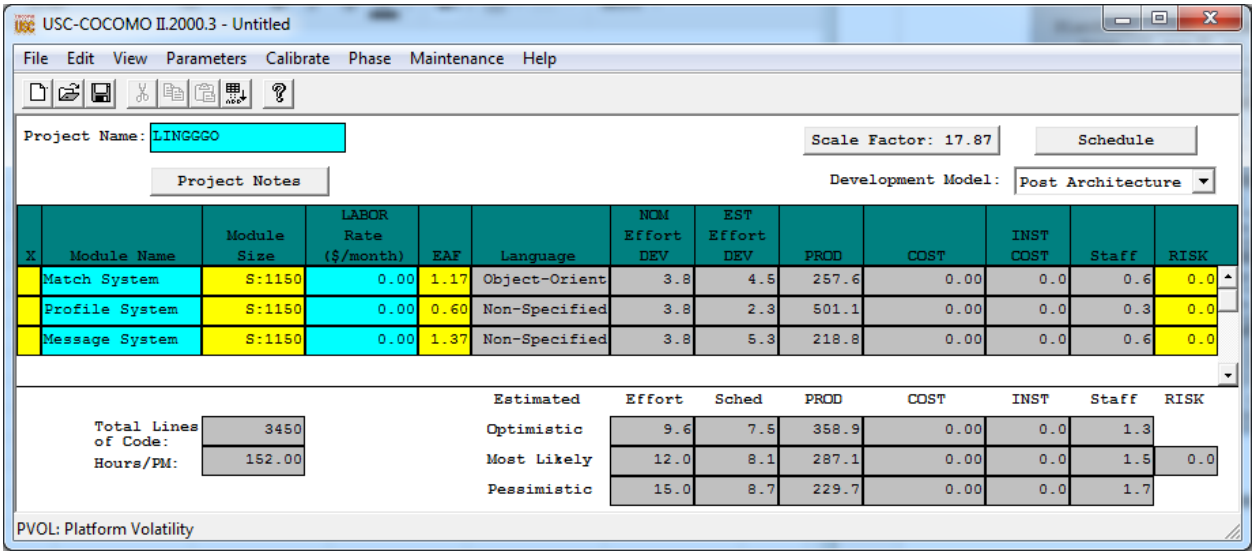

Figure 5: Total Estimation

So the COCOMOII Esitmation:
152 * 12.0 = 1824 hr

Human Estimation:
- 7 team members at 4 hours a day for 65.4 days.
- Assume there are 20 working days in months.
- Almost three months.

6. Iteration Plan

6.1 Plan

The construction iteration of the Development phase will be divided into two phases. The first phase contains three paralleled iterations while the second phase is a two round combined iterations.
For the first phase, the three iterations are Match System, Profile System, Message System. During this three iteration, the core capability will be finished development separately. If one sub-system depends on other system, use dummy data to finish the core capability. For the second phase, cross sub-system function will be finished during the first iteration. The second iteration will be the develop as whole to modify display and user experience and fix bugs.

6.1.1 Capabilities to be implemented

Table 8: Construction iteration capabilities to be implemented

ID	Capability	Description	Priority	Iteration
1	OC-1	Match System	High	1-1, 2, 3
2	OC-2	Profile Management System	High	1-2, 2, 3
3	OC-3	Message System	High	1-3, 2, 3

6.1.2 Capabilities to be tested

Table 9: Construction iteration capabilities to be tested

ID	Capability	Description	Priority	Iteration
1	OC-1	Match System	High	3
2	OC-2	Profile Management System	High	3
3	OC-3	Message System	High	3

6.1.3 Capabilities not to be tested

None. All OC are supposed to be tested.

6.1.4 CCD Preparation Plans

Our clients will be involved in the CCD. The development team will send a link that an be access with Internet. The client will use our website and finish certain tasks in the system such as create a account, find a language learner and send a message to him or her. The database are pre-populated so that the search functionality can work properly with dummy test user data.

6.2 Iteration Assessment

6.2.1 Capabilities Implemented, Tested, and Results

Table 10: Capabilities implemented, tested, and results

ID	Capability	Test Case	Test Results	If fail, why?
OC-1	Match System	TC-05	Pass	
OC-2	Profile Management System	TC-01	Partially Pass	Need Validation for some field; need be consistent with backend validation
		TC-02	Pass	
		TC-03	Partially Pass	If a user token is expired, the user can not be automatically log off.
		TC-04	Pass	
OC-3	Message System	TC-06	Pass	

6.2.2 Core Capabilities Drive-Through Results

Sign up an account
The client was pleased with the overall design. But she wanted the fields order to be changed. Also she wanted the "University" label change into "University/School". She found the US should be on the top of the list of Country selection. After she fail to register, she does not like the pop up alert message window. After she successfully signed up for an account, she expected it should jump somewhere to the next flow, but the page stayed. So she felt confused.

Login with an account
She forgot about her password immediately after she signed up for an account.

Match for a language learner
She is satisfied with the match function and match result page. But she expected the signed in user have a default language selected.

Send a message to a language learner
She thought the delete function are not necessary in message-list page.

Change the profile picture/information
She wanted the native skill and desired skill combine together as one tab.

Also she wanted a “How it works” button in dummy in the homepage to tell user how to use this website.

6.3 Adherence to Plan

The iterations are running on time and on budget as plan. Although there are some mistakes that happened during development process such as merge code conflict before deadline of an iteration, teammate disappear for onsite interview and delay his work for delivery. But we solved these problems by reassigned teammates with cross tasks since our teammates have multiple language skills. Therefore, we finished our development and iteration on time and on budget.