Life Cycle Plan (LCP)

Soccer Data Web Crawler

Team No. 02

First Name	***Last Name***	***Role***
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Version History

Date	Author	Version	Changes made	Rationale
09/24/14	QH	1.0	• Roles and Detailed skillset of the team members.	• To identify objectives and milestones.
08/30/14	TS, QH	2.0	• Added section 2.2.3, 4.0, 5.0	• To estimate and analyze the project using COINCOMO 2.0
11/11/14	TS	3.0	• Added section 2.1.4, 2.2.4	• To define and update the objectives and milestones for the development phase.
12/08/14	ZZ	3.1	• Add notes in iteration plan	• Explicitly note that in our iteration plan

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1 Introduction

1.1 Purpose of the LCP

The Life Cycle plan helps the stakeholders to get a clear picture of what are the objectives to be achieved, when are the milestones & deadlines and what are the products which needs to be delivered, what are the responsibilities and what should be our approach towards it, what resources we have and what are the assumptions in regard to this project.

1.2 Status of the LCP

The present status of the project is in the Development phase, where the team is Testing and fixing bugs and optimizing the non-functional properties of the final product.

1.3 Assumptions

Data is available from all needed sources.

There is a lack of enterprise management tool to capture the data in real time.

2. Milestones and Products

2.1 Overall Strategy

This project is following Architected Agile process.

2.1.1 Exploration Phase

Duration: 09/10/14- 9/26/14

Concept: In this phase, the team was formed and we selected the project. We determined the roles to be taken by team members. We met with the client to get a better understanding of the current system and also about the requirements for our project. The team met several times to refine our understanding of the project. We met with the client and clarified our queries in requirements. We identified the skills required and started working on them. We also prepared for win-win negotiation with the client.

Deliverables: Client Interaction Report. Valuation Commitment Package that includes Life Cycle Plan and Feasibility Evidence Description.

Milestone: Valuation Commitment Review

Strategy: One Incremental Commitment Cycle

2.1.2 Valuation Phase

Duration: 09/29/14- 10/3/14

Concept: In this phase the team determines the constraints and identifies objectives and their priorities, develop operational concept, perform win-win negotiations, prototyping, and explore alternatives so as to provide project feasibility evidence. Also the team assesses risk-mitigating strategies, plan and manage project, verify and validate products using defect-tracking system, which is named Bugzilla.

Deliverables: Client Interaction Report. Valuation Commitment Package that includes Life Cycle Plan and Feasibility Evidence Description.

Milestone: Valuation Commitment Review

Strategy: One Incremental Commitment Cycle

2.1.3 Foundation Phase

Duration: 10/4/14- 10/23/14

Concept: In this phase the team continues with planning and managing project, develops the prototype.
Deliverables: Draft Foundation Commitment Package, Bi-weekly Project Report and Plan, Weekly Effort Report.
Milestone: Development Commitment Review

Strategy: One Incremental Commitment Cycle

2.1.4 Development Phase

Duration: 10/23/14- 12/08/14

Concept: In this phase, the team iterates detailing project plan and recording project progress and emphasize on implementing the system and performing tests. Besides, several milestones will be walked through in this phase, which includes core capability drive through and transition readiness review.
Deliverables: Final Package, Bi-weekly Project Report and Plan, Weekly Effort Report, Source code.
Milestone: Core Capability Drivethrough, Draft Transition Readiness Review, Development Commitment Review.

Strategy: Development, Testing, Training, Deployment

2.2 Project Deliverables

2.2.1 Exploration Phase

Artifact	Due date	Format	Medium
Client Interaction Report	9/19/2014	.doc, .pdf	Soft copy
Valuation Commitment Package • Operational Concept Description (OCD) Early Section • Life Cycle Plan (LCP) Early Section • Feasibility Evidence Description (FED) Early Section	09/29/2014	.doc, .pdf	Soft copy
Progress Report	Bi-weekly Wednesday	.xls	Soft copy
Microsoft Project Plan	Bi-weekly Wednesday	.mpp, .pdf	Soft copy
Risk Analysis	Bi-weekly Wednesday	Text	Part of Progress Report

Table 1: Artifacts Deliverables in Exploration Phase

2.2.2 Valuation Phase

Artifact	Due date	Format	Medium
Draft Foundation Commitment Package • Operational Concept Description (OCD) • Prototype • Structured System analysis and Design • Life Cycle Plan (LCP) • Feasibility Evidence Description (FED)	10/13/2014	.doc, .pdf	Soft copy
Progress Report	Bi-weekly Wednesday	.xls	Soft copy
Microsoft Project Plan	Bi-weekly Wednesday	.mpp, .pdf	Soft copy
Risk Analysis	Bi-weekly Wednesday	Text	Part of Progress Report

Table 2: Artifact deliverable in Valuation Phase

2.2.3 Foundations Phase

Artifact	Due date	Format	Medium
Foundation Commitment Package • Operational Concept Description (OCD) • Prototype • Structured System analysis and Design • Life Cycle Plan (LCP) • Feasibility Evidence Description (FED) • Description (SSAD) • Test Plan and Cases (TPC)	10/20/2014	.doc, .pdf	soft copy
Progress Report	Bi-weekly Wednesday	.xls	Soft copy
Microsoft Project Plan	Bi-weekly Wednesday	.mpp, .pdf	Soft copy
Risk Analysis	Bi-weekly Wednesday	Text	Part of Progress Report

Table 3: Artifact deliverable in Foundation Phase

2.2.4 Development Phase

Artifact	Due date	Format	Medium
Development Commitment Package • Feasibility Evidence Description (FED) • Life Cycle Plan (LCP) • Operational Concept Description (OCD) • System and Software Architecture Description (SSAD) • Test Plan and Cases (TPC) • Test Plan (TP) • User Manual (UM)	12/08/2014	.doc, .pdf	soft copy

• Technical Material(TM)			
Draft Transition Readiness Package • Feasibility Evidence Description (FED) • Life Cycle Plan (LCP) • Operational Concept Description (OCD) • System and Software Architecture Description (SSAD) • Test Plan and Cases (TPC) • Test Plan (TP) • User Manual (UM) • Technical Material(TM)	12/01/2014	.doc, .pdf	Soft copy
Core Capabilities Drivethrough Reporting	11/21/2014	In person	In person
Progress Report	Bi-weekly Wednesday	.xls	Soft copy
Microsoft Project Plan	Bi-weekly Wednesday	.mpp, .pdf	Soft copy
Risk Analysis	Bi-weekly Wednesday	Text	Part of Progress Report

Table 4: Artifact deliverable in Development Phase

3. Responsibilities

3.1 Project-specific stakeholder's responsibilities

The client is Mr. Justin Norman and Ms. Laura Penna at SportTech B.I. The end-users of the SporTech BI are soccer team/club managers, owners, coaches but the users for our system would be Developers (Team 02) and SporTech B.I. contractors. There is an existing system with major disadvantage of lag in real-time availability of data. Mr. Norman had provided us the insight and working demo of the working system. We are developing a part (back end) of a system. The client provided us with an overall architecture including the role of our system.

3.2Responsibilities by Phase

Team Member / Role	Primary / Secondary Responsibility				
	Exploration	**Valuation**	**Foundations**	**Development-** Construction Iteration	**Development-** Transition Iteration
Name: Trupti Sardesai **Primary:** Project Manager **Secondary:** Operational concept engineers	**Primary Responsibility** -Schedule meetings -Assign task, Analyze proposed system **Secondary Responsibility** -Conceptualize system. -identify shared vision. -Asist operational concept.	**Primary Responsibility** - Meeting Management - Plan for Foundations Phase; -Record Project Plan; -Record Progress Report **Secondary Responsibility** - Analyze current system. -Explore alternatives.	**Primary Responsibility** -Meeting Management; - Plan for Development construction; -Project Plan; Progress Report; -Monitoring project **Secondary Responsibility** -System conceptualizations.		
Name: Wenchen **Primary:** Prototyper **Secondary:** Operational Concept Engineer	**Primary Responsibility** -Analyze and prioritize capabilities to prototype; -Update website **Secondary Responsibility** -Assess operational concepts;	**Primary Responsibility** Assess component for prototyping -Update website **Secondary Responsibility** -Explore alternative operational concept	**Primary Responsibility** -Develop prototype. -Prepare and tailor development component -Update website **Secondary Responsibility** -Conceptualize system		
Name: Yan Zhang **Primary:** Operational Concept	**Primary Responsibility** -Analyze Proposed System	**Primary Responsibility** - Meeting Management - Plan for	**Primary Responsibility** -Meeting Management; - Plan for		

Engineer **Secondary:** System/Software Architect	-Assess operational concept; -Identify Shared Vision; **Secondary Responsibility** -Identify risks. -Manage Bugzilla Repository	Foundations Phase; -Record Project Plan; -Record Progress Report **Secondary Responsibility** -Manage Bugzilla Repository -Assess and plan to mitigate risks. -Assess feasibility and evidence;	Development construction; -Project Plan; Progress Report; -Monitoring project **Secondary Responsibility** -Manage Bugzilla Repository -Identify most appropriate process; -provide feasibility evidence		
Name: Zhitao Zhou **Primary:** Feasibility analyst **Secondary:** Requirement Engineer	**Primary Responsibility** - Analyze Proposed System. -Identify risks. **Secondary Responsibility** - Facilitate win-win negotiations	**Primary Responsibility** -Analyze estimation cost. -Assess and plan to mitigate risks. -Assess feasibility evidence. **Secondary Responsibility** -Tailor win-win negotiations -Capture MMFs.	**Primary Responsibility** -Choose appropriate process -provide feasibility evidence. **Secondary Responsibility** -Tailor win-win negotiations -		
Name: Subessware Selvameena Karunamoorthy **Primary:** System/software	**Primary Responsibility** - Understand basic crawler architecture; -Provide	**Primary Responsibility** -Analyze Proposed system. -Provide	**Primary Responsibility** -Analyze Proposed system. -Provide system architecture		

Architect **Secondary:** Requirement Engineer	system architecture -provide feasibility evidence; **Secondary Responsibility** -Facilitate win-win negotiations	system architecture -provide feasibility evidence; -Assess proposed system; **Secondary Responsibility** -Facilitate win-win negotiations	-Specify Architecture styles, patterns and framework. -provide feasibility evidence; -Assess proposed system; **Secondary Responsibility** -Facilitate win-win negotiations		
Name: Qing Hu **Primary:** Life Cycle Planner **Secondary:** Feasibility Analyst	**Primary Responsibility** - Identify project component's milestones **Secondary Responsibility** -Identify risks. -Manage Bugzilla Repository	**Primary Responsibility** -Assess development timeline. -Estimate effort, cost and schedule using COINCOMO 2.0 **Secondary Responsibility** -Manage Bugzilla Repository -Assess and plan to mitigate risks. -Assess feasibility and evidence;	**Primary Responsibility** -Identify life cycle management approach. -Develop transition plan. **Secondary Responsibility** -Manage Bugzilla Repository -Identify most appropriate process; -provide feasibility evidence		
Name: Pranshu Kumar **Primary:** Requirements Engineer **Secondary:** System/software architect	**Primary Responsibility** - Analyze current and proposed system. -Gather requirements.	**Primary Responsibility** -Capture MMFs. **Secondary Responsibility** -Assess system	**Primary Responsibility** -Capture progress of Win-win condition. **Secondary Responsibility** -Assess system		

	Secondary Responsibility -Provide system architecture	architecture.	architecture. -Specify Architecture styles, patterns and framework.		
Name: Amir ali Tahmasebi **Primary:** IV &V **Secondary:** Shaper	**Primary Responsibility** - Checking and verifying documents that are been generated. -Verify the bugs that are filed on bugzilla. **Secondary Responsibility** -Help to negotiate/solve disagreement between our team and client.	**Primary Responsibility** - Checking and verifying documents that are been generated. -Verify the bugs that are filed on bugzilla. **Secondary Responsibility** -Help to negotiate/solve disagreement between our team and client.	**Primary Responsibility** - Checking and verifying documents that are been generated. -Verify the bugs that are filed on bugzilla. **Secondary Responsibility** -Help to negotiate/solve disagreement between our team and client.		

Table 5: Stakeholder's Responsibilities in each phase

3.3 Skills

Note: Our project will be completed in one semester

Team members	Role	Skills
Wenchen Tu	Prototyper	Current skill: Java, UI Design, JS, CSS, MySQL, Python Required Skill: Python, PostgreSQL, UI Design
Zhitao Zhou	Feasibility Analyst	Current Skill:C/C++, Python, Java Required Skill: Python, PostgreSQL,
Qing Hu	Life Cycle Planner	Current Skill:C, java, PHP, MySql, JS, Python Required Skill: PostgreSQL, Python
Yan Zhang	Operational Concept Engineer	Current Skill:Python, C/C++, Java, C#, JavaScript, PHP Required Skill: PostgreSQL
Trupti Sardesai	Program Manager	Current Skill:SQL, java MongoDB, javascript Required Skill: Python, PostreSQL
Subessware Selvameena Karunamoorthy	Software/System Architect	Current Skill:C++, Java, JQuery, Javascript, SQL Required Skill: PostgreSQL, Python
Pranshu Kumar,	Requirements Engineer	Current Skill:Java, mySQL, PHP Required Skill: Python
Amir ali Tahmasebi	Shaper	Current Skill: Java, C++,Python, Sql, C# Required: Python

Table 6: Skills of the team members

4. Approach

4.1 Monitoring and Control

The following will be the tools and documentation used by Team 02 for monitoring and control of the project:

Progress Report is used to keep a track of tasks accomplished and risks that came across during that time.
Project Plan is used to keep a track of deadlines.
Bugzilla System is used for reporting and tracking bugs. It is also used to keep document the artifacts being worked on and to assign tasks/ activities to the team members.
The Winbook helps in listing all the requirements and the risks and also prioritizes the requirements.
The Team uses Google drive to communicate all the matters within the members and to keep all the artifacts organized. The team also uses the DEN discussion forum and blog for sharing and communication.
We use Whatsapp and Email to connect the team members.

4.1.1 Closed Loop Feedback Control

The project manager and IIV&V member processes all the documents to the google drive/Group Gmail/Team website before submission so that it provides access of all the documents to any of the team members if he wants to review any document.

4.1.2 Reviews

Bugzilla System
Weekly Stakeholder meetings
Individual reviews
IIV&V reviews

4.2 Methods, Tools and Facilities

Tools	Usage	Provider
MS Project	Assesses and mitigates risks in the system development life cycle	USC license
Eclipse	Framework IDE for python components	Open source
Microsoft Word	Used for documenting deliverables	Microsoft
WebEx/Skype	To undertake meeting with clients.	WebEx
PostgreSQL	To save ingested data.	Open Source
Bugzilla	Assigning tasks and activities to the team members	USC License
COINCOMO	Estimation of cost and effort	USC License
Visual Paradigm	UML case tool used for modeling UML diagrams	USC License

MockupBuilder	Used for designing squiggly demo user interface and system functionality that helps in development of prototypes.	Open Source

Table 7: Methods,Tools and Facilities

5. Resources

Estimated CSCI577a Effort: 8 team members at 8 hrs/week for 12weeks.
Total estimated effort: 504 hours
Project duration-13 weeks(Fall 2014)
Component modules:

- Spider Management
- Data Ingestion Management
- Social Media Management

Language used: Python, PostgreSQL.

No.	Module Name	Brief Description	SLOC	REVL
1	Spider Management	Crawl data and links from website.	2000	5%
2	Data Ingestion Management	Parse data and mapping data into database.	600	5%
3	Social media Management	Use Facebook and Twitter API to retrieve data.	550	2%

Table 8: Module Lists and SLOC of each module

Scale Driver	Value	Rationale
PREC	LOW	The development team is not familiar with this type of database. But there are some examples about crawler.
FLEX	HIGH	Schedule, requirement and interface flexibility.
RESL	NOMINAL	The architecture is little defined for future requirements.
TEAM	HIGH	The team cohesion is good. Clients and team members have a good communication.
PMAT	NOMINAL	The development team follows ICSM guidelines, which the processes are defined.

Table 9: COCOMOII Scale Driver

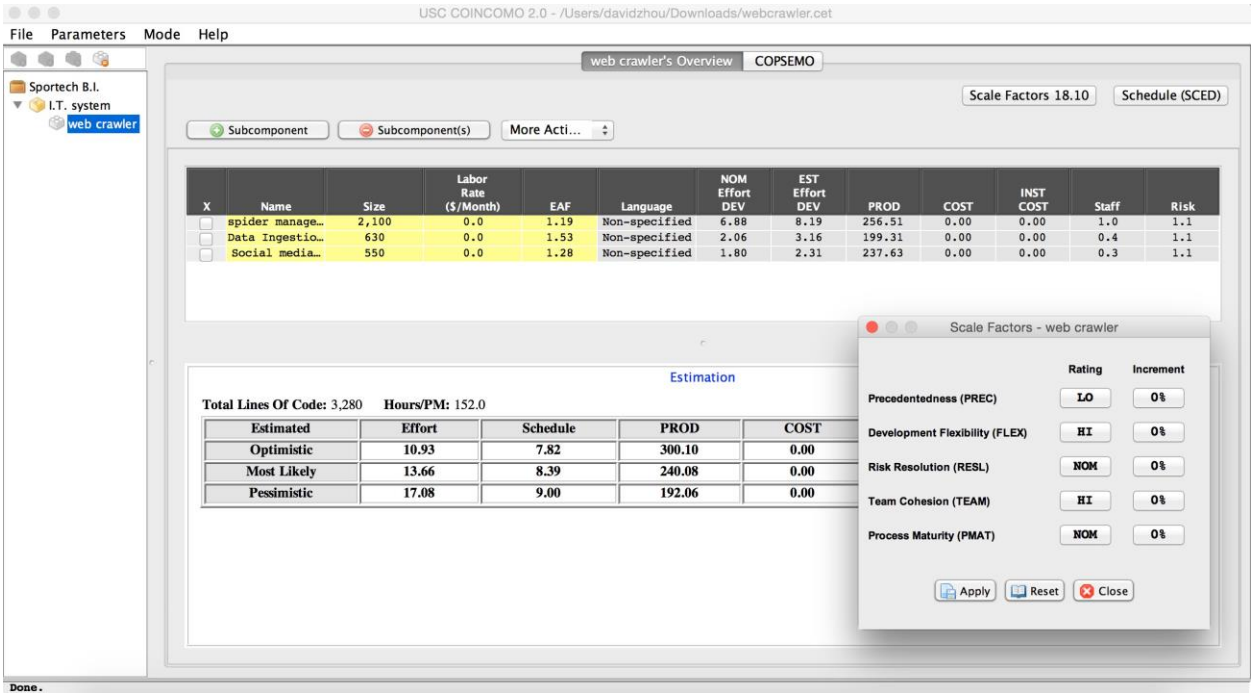

Figure 1: Scale Factor

The following is COCOMOII Cost Drivers of each module and rationales of choosing the values.

Cost Driver	Value	Rationale
RELY	VERY HIGH	Failure will lead to high financial loss for clients.
DATA	HIGH	We need to crawl information of player from specific websites.
DOCU	NOMINAL	Because the development process follows ICSM, the document for life-cycle needs is normal.
CPLX	HIGH	This system has complex structuring for crawling the website.
RUSE	HIGH	This project built intends to be reused in the future.
TIME	NOMINAL	The percentage of available execution time expected to be used by the system and subsystem consuming the execution time resource is less than 50%
STOR	NOMINAL	It crawl the website and transform the data into structured format
PVOL	LOW	There are not major changes in platform.
ACAP	HIGH	The analysts have the ability to analyze, design, communicate, and cooperate very well.
PCAP	NOMINAL	The capabilities and efficiencies of Programmers are in general. But we are able to communicate and cooperate very well.
PCON	VERY HIGH	We have 8 members in our 577A, and we completed this project only in this semester. So we all go through the whole project.
APEX	LOW	Most people have low programming application experience.

LTEX	NOMINAL	Intermediate programming language and tool experience.
PLEX	LOW	Little platform experience.
TOOL	LOW	There is no support for life-cycle tools.
SITE	HIGH	The client and team members are all in the same city.
SCED	NOMINAL	The schedule is reasonable. It is hard to compress the schedule.

Table 10: COCOMOII Cost Driver for spider crawler management

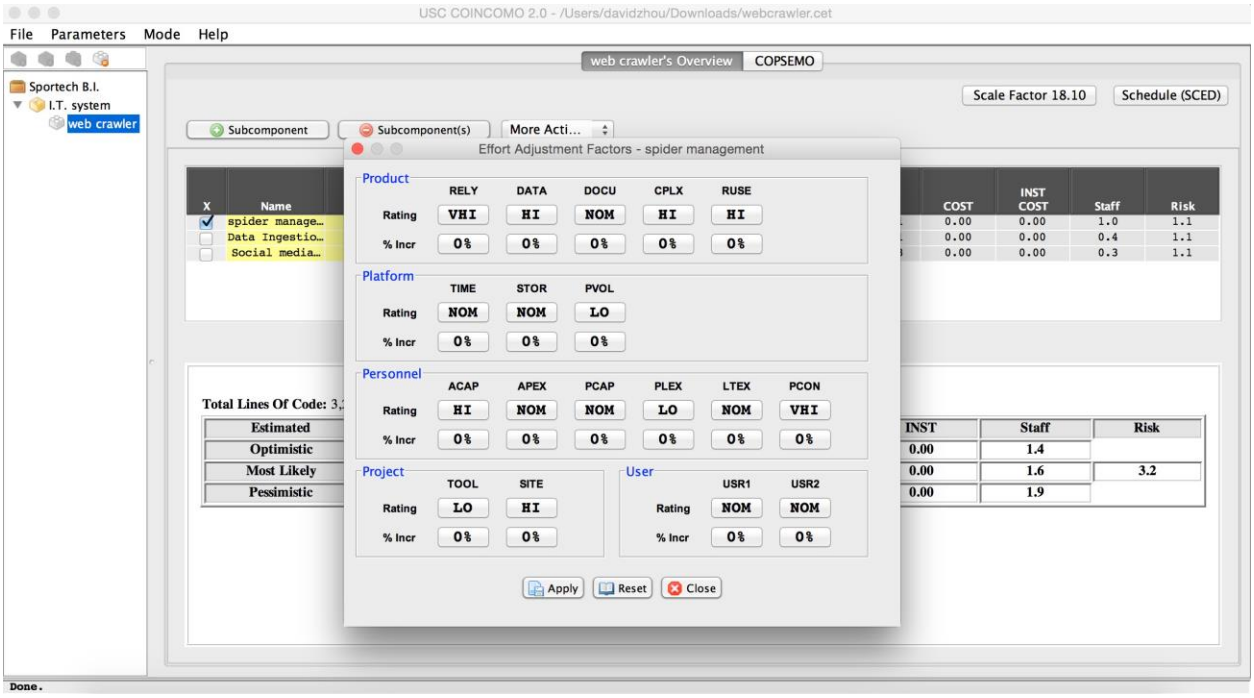

Figure 2: Effort Adjustment Factors

Cost Driver	Value	Rationale
RELY	VERY HIGH	The effect of failure will incur financial losses
DATA	HIGH	We need to store information of player from specific websites, we also need to store the related information from Facebook, Twitter.
DOCU	NOMINAL	Because the development process follows ICSM, the document for life-cycle needs is normal.
CPLX	HIGH	Complex data structuring required.
RUSE	HIGH	This project built intends to be reused in the future.
TIME	NOMINAL	The percentage of available execution time expected to be used by the system and subsystem consuming the execution time resource is less than 50%
STOR	VERY	We need a large amount of storage for increasing data.

	HIGH	
PVOL	LOW	There are not major changes in platform.
ACAP	HIGH	The analysts have the ability to analyze, design, communicate, and cooperate very well.
PCAP	NOMINAL	The capabilities and efficiencies of Programmers are in general. But we are able to communicate and cooperate very well.
PCON	VERY HIGH	We have 8 members in our 577A, and we completed this project only in this semester. So we all go through the whole project.
APEX	LOW	Most people have low programming application experience.
LTEX	NOMINAL	Intermediate programming language and tool experience.
PLEX	LOW	Little platform experience.
TOOL	LOW	There is no support for life-cycle tools.
SITE	HIGH	The client and team members are all in the same city.
SCED	NOMINAL	The schedule is reasonable. It is hard to compress the schedule.

Table 11: COCOMOII Cost Driver for Data Ingestion management

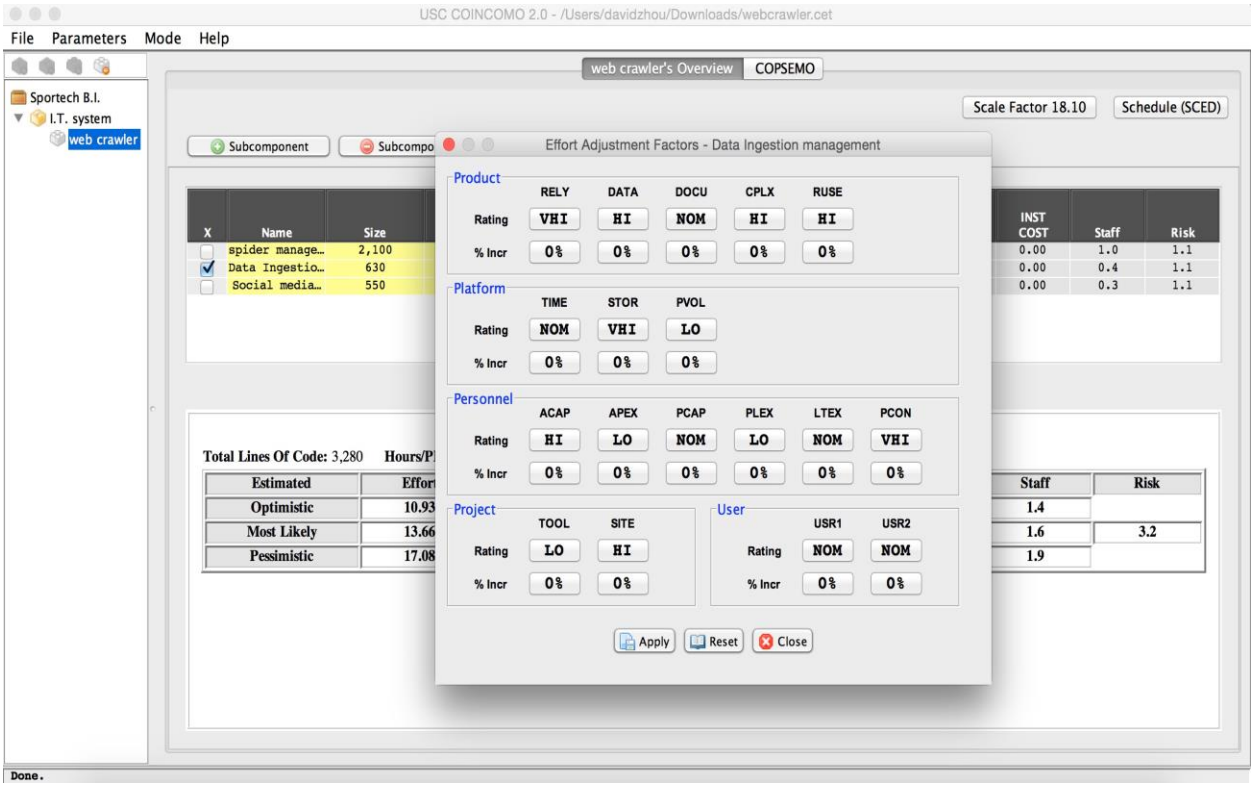

Figure 3: Data Ingestion Management

Cost Driver	Value	Rationale
RELY	VERY HIGH	The effect of failure will incur financial losses

DATA	HIGH	We need to store the related information from Facebook and Twitter into a structured format.
DOCU	NOMINAL	Because the development process follows ICSM, the document for life-cycle needs is normal.
CPLX	HIGH	Complex data structuring required.
RUSE	HIGH	This project built intends to be reused in the future.
TIME	NOMINAL	The percentage of available execution time expected to be used by the system and subsystem consuming the execution time resource is less than 50%
STOR	HIGH	We need to store increasing data from different social medias
PVOL	LOW	There are not major changes in platform.
ACAP	HIGH	The analysts have the ability to analyze, design, communicate, and cooperate very well.
PCAP	NOMINAL	The capabilities and efficiencies of Programmers are in general. But we are able to communicate and cooperate very well.
PCON	VERY HIGH	We have 8 members in our 577A, and we completed this project only in this semester. So we all go through the whole project.
APEX	LOW	Most people have low programming application experience.
LTEX	NOMINAL	Intermediate programming language and tool experience.
PLEX	LOW	Little platform experience.
TOOL	LOW	There is no support for life-cycle tools.
SITE	HIGH	The client and team members are all in the same city.
SCED	NOMINAL	The schedule is reasonable. It is hard to compress the schedule.

Table 12: COCOMOII Cost Driver for Social Media

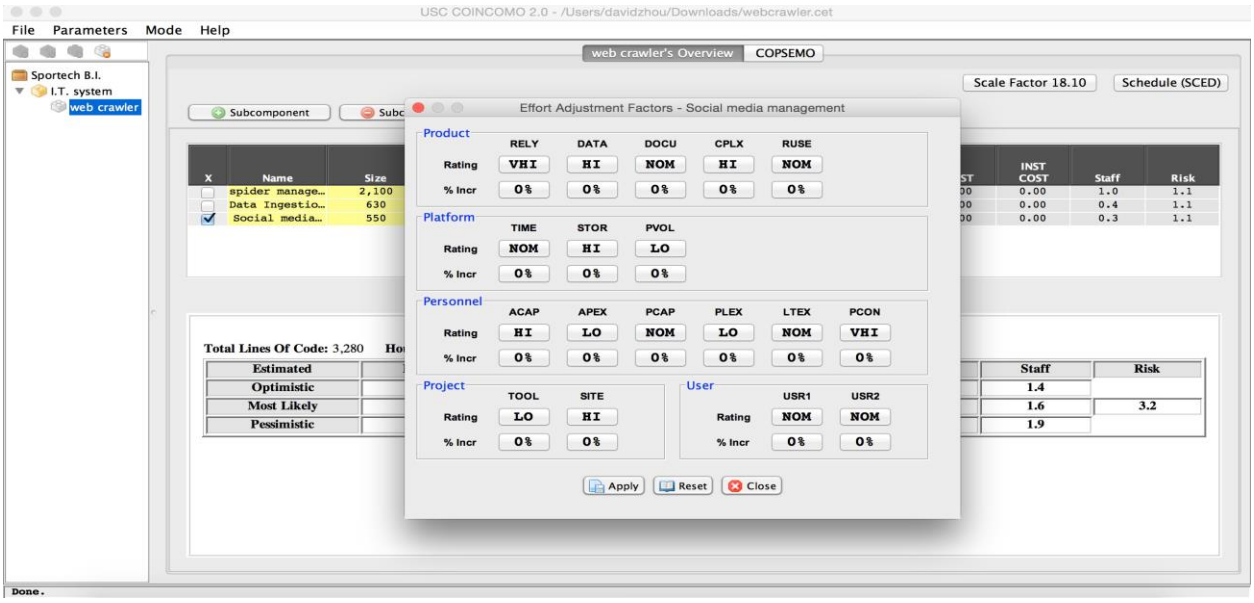

Figure 4: Social Media

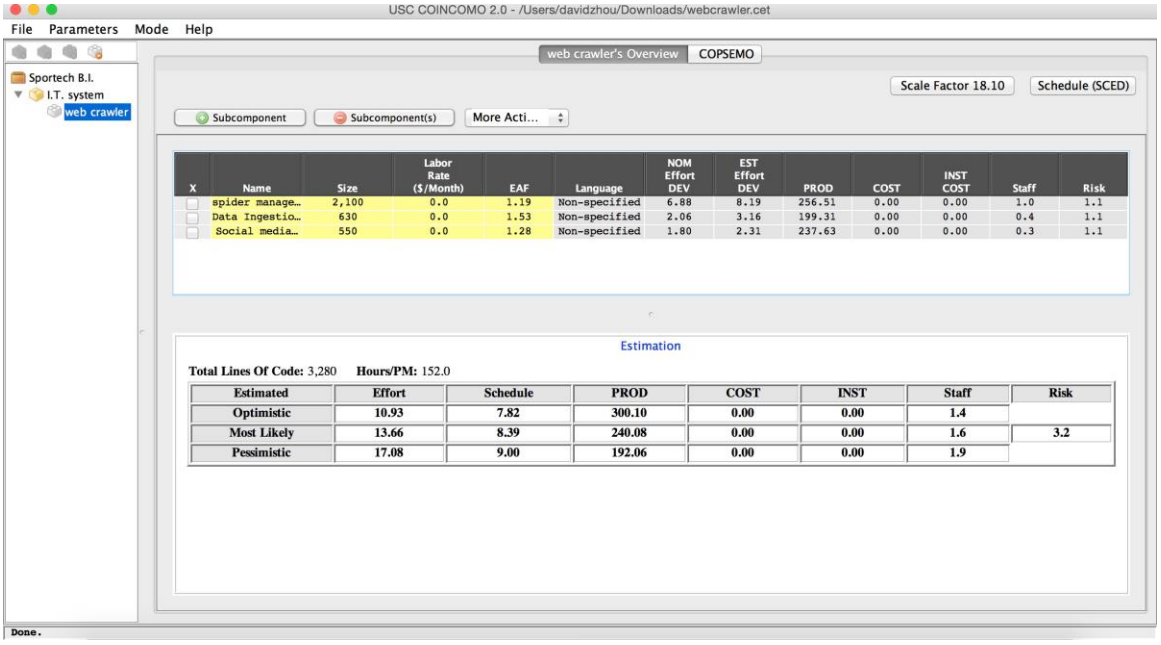

Figure 5: Feasibility Analysis using COINCOMOII 2.0

Summary:

According to COCOMO II Estimates for CSCI577, one team member effort = 1.67 COCOMO II person-months. The most likely effort from the COCOMO estimation above is 13.66, so the total number of team members need for this project = 13.66/1.67 = 8.17. We have 8 people to complete this project. So the project can be completed in the given time frame with a little extra effort from all the members.

6. Iteration plan

6.1 Plan

This project will have two iterations. In the first iteration, we will focus on developing spider module, data ingestion module and social media module. In the social media, we mainly focus on Facebook and Twitter through their API. In the second iteration, we will implement the developer UI and test recommended for project. Test cases designed for each capability will also be implemented in these two iterations and each capability will be tested at least one time. Next iteration will consist of developing the low priority features.

6.1.1 Capabilities to be implemented

Below are the capabilities which our team plans to develop in the development phase. The priorities of each capability are different and implemented according to it.

ID	Capability	Description	Priority	Iteration
1	Retrieve data from specific website	Develop function for crawling data from specific websites, which the client has provided.	1	1
2	Storing data into database	We need to scrap the crawled data to store it into the database	1	1
3	Retrieve data from Facebook	Using Facebook API to implement this function	1	1
4	Retrieve data from Twitter	Using Twitter API to implement this function	1	1
5	Retrieve data from You Tube	Using You Tube API to implement this function	3	3
6	Develop user-interface for the developer	The developer can use this interface to edit the list of websites the system should crawl and also can edit the player name list to fetch data from Facebook and Twitter	2	2

Table 13: Construction iteration capabilities to be implemented

Note: the iteration plan states the beginning for that particular task.

6.1.2 Capabilities to be tested

ID	Capability	Description	Priority	Iteration

1	Retrieve data from specific website	The system is capable of gathering data from a number of websites that are specified by the user. The list of website being crawled can be changed, so the system should be able to handle such changes.	1	1
2	Storing data into database	The system is capable of storing the data that it gathers from website into the database. The data should be in consistent from before it is stored in the database.	1	1
3	Retrieve data from Facebook	The system is capable of gathering data using Facebook public APIs for a list of players that are gathered by crawler component. The data includes but is not limited to number of likes, number of posts within last 6 months, and number of comments for each post.	1	1
4	Retrieve data from Twitter	The system is capable of gathering data from Twitter using its public APIs for a list of players that are gathered by crawler component. The data includes but is not limited to number of tweets, number of followers and number of re-tweets.	1	1
5	Develop user-interface for the developer	The system is capable of adding to /deleting from/updating the list of websites, teams, players and attributes that is used by the system through a developer user interface.	1	2

Table 14: Construction iteration capabilities to be tested

6.1.3 Capabilities not to be tested

We will be testing all the capabilities that we have agreed on with our clients.