Computer Science and Engineering

Give&Take

Project Management Plan

Version 2.0

Document Number: SPMP-002

Project Team Number B13

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REVIEW AND APPROVALS

Printed Name and Title	Function (Author, Reviewer, Approval)	Date	Signature
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REVISION LEVEL

Date	Revision Number	Purpose
11/9/2022	Version 1.0	Initial Release
2/12/2023	Version 2.0	Improvement

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1. OVERVIEW

1.1 Project Summary

Since the 21st century, the global environmental crisis has been a subject of lively public debate. As a contributor to that problem, clothing disposal is a matter that we should not ignore. It can take 200 and even more years for the clothing materials to decompose and potentially release toxic matter during the process. Therefore, the act of throwing away and repurchasing clothes is not just a waste of money, but also harmful to the environment. In order to motivate the populace to participate in the action of donating unwanted clothing, we want to make an online platform, Give&Take, for people to donate their unwanted clothes and receive some rewards in return regarding their benevolent actions.

The purpose of this SPMP is to serve as a guide for the overall software development phase. It outlines how the project will be carried out, monitored, and managed from start to end. The goal of this plan is to specify how the team will complete and deliver the project on time.

The intended audiences of the SPMP include project manager, project sponsor, and the whole project team.

1.2 Purpose, Scope, and Objectives

The Give&Take project is intended to focus on global environmental issues, specifically taking care of the waste of worn clothes. The project shall build an online platform where people can donate unused clothes and request clothes based on their needs. The project shall store users' personal information securely in the database. The project shall construct a non-commercial consumption system, ensuring donors can receive rewards based on their contribution and requesters can purchase clothes successfully without using actual money. The project shall build a communication system, enabling users to ask and answer questions and leave rating and reviews. The project shall establish an activity profile for users where they can view their past activities like previous transactions.

The Give&Take project will not allow users to make transactions using methods other than website credits. The project will not promote commercial personalized advertisements to users. The project will not permit users to make transactions without the surveillance of the website.

The business needs of the project include the following: people with the ability to finish the project; foundational services such as cloud system and database; physical tools such as personal computer; software such as coding applications and environment; internal testers and customers.

1.3 Assumptions and Constraints

There are several assumptions as shown below.

1. The application is designed for the PC users.
2. No user will transfer clothes between his/her own multiple accounts in order to earn more credits.
3. Each user has a good understanding of how to create a secured password.
4. The system will never receive any suspicious attack to steal or change users' data.

There are also several constraints as shown below.

1. *Time*: The project needs to be completed before May 2023, some additional features may not be implemented because of the time constraint.
2. *Hardware limitations and budget*: The local computers may not have enough space to hold a lot of user information. We may need some extra budgets for the cloud system to store user data.
3. *Development Languages*: Some developers in the team may not be familiar with the language such as SQL or HTML.
4. *Safety and Security*: The user information such as password may not be protected well in this system because of the limited budget and time to implement a highly secured system.

1.4 Project Deliverables

Products delivered	Date	Delivery Organization	Format	Quantity
Project proposal	9/22/2022	Team B13	Word	1
SRS-Domain	10/7/2022	Team B13	Word	1
SRS-Requirements	10/29/2022	Team B13	Word	1
SPMP	11/10/2022	Team B13	Word	1
SRS-Analysis	12/1/2022	Team B13	Word	1
Project Presentation	12/6/2022	Team B13	Oral	1

1.5 Schedule and Budget Summary

Schedule

9/22/2022: Determine the project and finish project proposal

10/7/2022: Finish SRS-Domain

10/29/2022: Finish SRS-Requirements

11/10/2022: Finish SPMP

12/1/2022: Finish SRS-Analysis

12/6/2022: Finish project presentation

A weekly-based team meeting will be held.

Budget

To be provided in later releases.

1.6 Evolution of the Plan

This SPMP (SPMP-001) is the first version. It will be reviewed and updated on a regular basis. If it is necessary to make additional updates, the team will meet and discuss about the changes. Then, the SPMP will be updated and all entries will be recorded. All revisions must be inspected by all team members before it is released.

2 REFERENCES

Team B13, Give&Take, Project Proposal, Version 2.0, 10/04/2022

Team B13, Give&Take, SRS-Requirements, Version 2.0, 10/29/2022

3 DEFINITIONS

User: people who use this website.
Requester: people who request the clothes on the website.
Supplier: people who donate the clothes on the website.
Credit: item with trading value on the website; it is the only method and media for users to trade on the website.
Administrator: people who monitor the platform, make punishment, post relative articles, etc.

4 PROJECT ORGANIZATION

4.1 External Interfaces

The project will interface with the following individuals and organizations.
Requesters: The project is designed for both individual requester and clothing charity to use. Our team will work with them to evaluate the efficiency of the website and make further improvements.
Suppliers: The project is designed to provide a platform for people to donate their unwanted clothes. Our team will work closely with donators to encourage them to donate clothes instead of throwing them away. Our team will also listen to their suggestion and improve the website.
Our team will also work with other similar organizations.

4.2 Internal Structure

The software development process includes front-end web development, back-end web development, quality assurance, and post-delivery maintenance. Each team member will be responsible for one task. Also, one team member will be the team leader/manager and will organize the overall project development process. Team members will meet weekly to make updates and share ideas.

4.3 Roles and Responsibilities

A. Account Management, including ranking and yearly review
B. Database Management
C. Browsing Section
D. Request Section
E. Supply Section
F. Review Section
G. Credit System

1. Project Manager
2. Configuration Manager
3. Requirement Analyst
4. Software Architect
5. Software Designer
6. Software Developer
7. Inspector
8. Database Engineer
9. Technical Writer
10. Deployment Specialist
11. Publication Specialist

	A	B	C	D	E	F	G
1	HW	CS	JZ	ZZ	CS	JZ	HW

2	ZZ	HW	JZ	CS	ZZ	CS	HW
3	JZ	ZZ	CS	JZ	HW	ZZ	JZ
4	HW	ZZ	CS	CS	JZ	ZZ	HW
5	CS	JZ	ZZ	HW	HW	ZZ	CS
6	JZ	HW	CS	JZ	ZZ	CS	JZ
7	HW	ZZ	HW	CS	JZ	ZZ	CS
8	JZ	HW	ZZ	ZZ	JZ	HW	CS
9	HW	JZ	ZZ	CS	CS	JZ	ZZ
10	HW	CS	JZ	ZZ	CS	ZZ	HW
11	CS	JZ	HW	JZ	CS	ZZ	JZ

5 MANAGEMENT PROCESSES

5.1 Start-Up Plan

The team for this project came together for Give&Take. Every team member will work on all parts of the project, and there will be a team leader who organizes the meeting and other team activities. All code and documents will be reviewed under the whole team, and any modification needs more than two other approval in the team. All team members must have some coding and web design experience in order to finish this project.

5.1.1 Estimation Plan

To be provided in later releases.

5.1.2 Staffing Plan

To be provided in later releases.

5.1.3 Resource Acquisition Plan

To be provided in later releases.

5.1.4 Training Plan

All the team members will need to have sufficient knowledge on web development. The required skills include React.js for the frontend and Node.js or python flask for the backend. The learning will be done together following online lesson, documentation, etc. Members should be responsible for their own learning process and ask questions if needed.

5.2 Work Plan

5.2.1 Work Activities

Documentations completion is required on Project Proposal, System Requirements Specification (SRS), Software Project Management Plan (SPMP), Software Analysis Specification (RAS), Software Design Document (SDD).

Once the documents are finished and reviewed, team member will start with the learning and programing steps.

The tasks will be distributed among team members by project management(in our case in-group discussion).

All features of the project needs go through unit testing and quality assurance testing upon completion and once merged with the main branch.

The code will need to be inspected by other team members and the end of each sprint cycle.

5.2.2 Schedule Allocation

The documentation phase started around the middle of September and will be expected to finish around the start of December, specific dates can be viewed from the Project Proposal.

The programming steps will initiate around the end of January with the final delivery expected by May or June.

5.2.3 Resource Allocation

Team members will need to know React.js and Node.js/Python Flask in order to develop the software.

Tools for testing will also need to be learned.

Knowledge on administration software such as Microsoft word and PowerPoint are also required to properly deliver documentations and presentation.

5.2.4 Budget Allocation

To be provided in later release.

5.3 Control Plan

5.3.1 Requirement Control and Traceability

GitHub will be used to manage changed and product requirements. The project will be broken into different parts based on features. Every single part will be a branch and the feature will be able to be tracked through GitHub.
Branches include development branch, production branch, and other smaller branches such as donator branch and receiver branch. The team will have weekly sprints to track progress, review changes and fix bugs. Each branch must be in a stable state before being merged. All PR requests will be reviewed and approved by 2 people.

5.3.2 Schedule Tacking and Adjustment

The team will have weekly meeting to track progress of each part, review all the work done, discuss and assign future tasks. It's also time for team members to bring issues of the project or bring up their own difficulties. Major delays will also need to be addressed during meetings so that the team will be able to figure out a way to catch up together.
Delays and completions must be reported so that the schedule can be adjusted accordingly.

5.3.3 Budget Tracking and Adjustment

There will be a spread sheet to record all the budgets and spendings. Every time there's a transaction, the team member will need to input the spending into the spreadsheet and upload the receipt if possible.

5.3.4 Quality Control

To ensure the quality of the product, a variety of dummy data /cases will be used for debugging, manual checks, and all types of testing.

Also, the team member will go through the code during weekly meetings. All the cases / features listed must be passed. If there's a defect, it will be recording and then added to the sprint to resolve.

5.3.5 Reporting Mechanisms

To be provided in later releases.

5.3.6 Metrics Collection Plan

Every team member will need to record metrics including completed and upcoming tasks. Using software such as Trello or Jira can also help the team to estimate a velocity curve to better adjust the schedule.

5.4 Risk Management Plan

Project risks include delays in development, over budget, compromise in database security, and management of user privacy.

Project risks will be identified and analyzed through weekly meetings. All the potential risks will be reported and documented.

5.5 Post Implementation Plan

To be provided in later releases.

6 TECHNICAL PROCESSES

6.1 Process Model

For the initiation of the project, we decided to build a website and an application for people to exchange clothes without spending money. We also support the cloth donation to charities.

We use the incremental development for the interleaved specification, development and validation.

The basic browsing activity is designed and tested first, then the user login and view personal information is designed and tested, next design and test is the listing and requesting activity and the last is the view and give rating activity.

Each work product is expected to be completed within 2 weeks, and each team member is expected to do the unit testing for their own parts before meeting together for the system testing and review. After complete all the work

products, the system will be sent to the school testing team for further testing and review.

Major milestones will include the database design and testing, the website design and testing and the request/supply function design and testing. The baseline is the successful running of the browsing and viewing information, login, requesting, supplying and rating.

Each requirement shall be approved by each team member, the instructor and the project testing team.

The termination activity of this project shall be the completion of all documents, the successful work of the system and the acceptance of the functions from the project testing team and clients.

6.2 Methods, Tools, and Techniques

The programming languages used for this project will be Python, JavaScript, HTML and SQL.

We may use Python Flask to build the backend server. Other cloud storage systems may be used to store user information.

Entity relationship diagram and relationship schema will be used for the database design.

We will use GitHub for collaboration and integration of our work.

Before each development, each team member should agree upon the specification and the implementation process. Any modification to the system should be agreed by all team members and well recorded. If there is any confliction regarding the development and modification between team members, each team shall vote to decide whether to perform the implementation and modification.

6.3 Infrastructure Plan

Each team member shall have a personal computer for the development and testing of the project.

Operating system used for this project will include but are not limited to Windows, MacOS or Linux.

Amazon RDS may be used as a cloud database for our project. XAMPP may be used for local testing.

The system testing will be conducted by the university testing team.

6.4 Product Acceptance and Migration Plan

To be provided in later releases.

7 SUPPORTING PROCESSES PLANS

7.1 Configuration Management Plan

All repositories of this project will be stored in the GitHub repository shared between each team member.

All documents of this project will be in the Google Docs shared between each team member.

Any change shall be discussed between each team member before modification. Changes to the repository shall be agreed by all team members and recorded in the change management document. Every change shall be pushed to the GitHub for other team members to see. The document shall be updated after every change. A back-up copy of the repository should be stored and shared between each team member before making any change.

7.2 Qualification (Verification and Validation) Plan

The verification and validation plan for this project include self-check, peer review and inspection.

For self-check, each team member shall check and test their own parts, find defects, record and perform modification.

For peer review, each team member shall check other members work and report defects. When a team member receives a defect report from other team members, modification and improvement shall be performed.

For inspection, the system is sent to the university testing team for checking and testing. When the group receives a defect report from the testing team, all team members shall meet together to discuss the improvement. The defect should be traced to each team member and identify this defect is from which member's work. Each team member shall modify their work to meet the quality standard according to the improvement discussion.

The regression tool is used to check other parts after a change has been made to some specific part. The regression tool can ensure other parts will not be degraded by the latest change. If a change causes a side-effect to another part, the team member who is responsible for this

part shall modify it for the consistency.

7.3 Documentation (library) Plan

The repository document will include the README file for the manuals, source code and executable code. The repository document will be stored in the GitHub shared between each team member. The reference shall be “GiveNTake-latest”.

The back-up copies of the repository shall be generated before make any modification to the current version. They shall be shared between each team member and stored in every member’s local computer. The reference shall be “GiveNTake-copy-date".

The change documents will be stored in the Google doc and GitHub. Each change document has its own reference number and date and will record every change made before complete each deliverable. The change documents are shared between each team member. The reference shall be “changes-date”.

The defect tracking document will be stored in Google doc and shared between each team member. The document will include member’s names and defects of their parts. Every defect has its own status. The document reference will be “Defect Tracking”.

The SRS document is stored in BrightSpace and Google doc, and it is reviewed by the course instructor.

7.4 Quality Assurance Plan

Each function shall be checked to ensure they meet the requirements.

Every user shall be able to explore the website.

The login function shall allow the authorized user to login successfully with a correct password. Any unauthorized user shall not be able to login.

The authorized user shall be able to request and supply clothes. The defects shall be reported and reviewed if the user can request a cloth without enough credits.

The credits shall be calculated correctly after every transaction. Any miscalculation defect shall be reported and reviewed.

After receiving an item, the user shall be able to give a rating to the supplier. The defect shall be reported and reviewed if the user can give ratings before they confirm the receive or did not request the cloth from this supplier.

The defect shall be reported and reviewed if the searching function takes more than 1 minute with a good internet connection.

7.5 Reviews and Audits

The system will be sent to the university testing team for checking and reviewing. If any defect is found, it shall be recorded and traced back to the team member who implemented this part.

7.6 Problem Resolution Plans

After receiving a defect report regarding some parts of the system, the team member who is responsible for this part shall update the defect tracking document by adding the new defects to his part. The status of each part shall be included and updated in time, and the status shall be “received”, “reviewed”, “in progress” and “completed”. The defect should be resolved according to the data it reported. The least recent defect shall be solved first.

After each team member solved the defects, other members shall check his work before submitting to the testing team again.

7.7 Environment Management Plans

To be provided in later releases.

7.8 Process Improvement Plan

To be provided in later releases.

To be provided in later releases.

8 ADDITIONAL PLANS

9 INDEX

None

10 RATIONALE

None

11 NOTES

None

12 APPENDICES

12.1 Schedule Tracking

Hours

Artifact or Deliverable	Who (individual and team)	Estimated	Actual	Difference
SRS – Business Domain	Heng Wu	2.0	1.5	-0.5
	Zhaoyan Zhu	2.0	3.0	+1.0
	Jin Zhou	1.5	2.5	+1.0
	Carrie Song	1.5	2.0	+0.5
	Summary for entire team	7.0	9.0	+2.0

Artifact or Deliverable	Who (individual and team)	Estimated	Actual	Difference
SRS – Requirements	Heng Wu	2.0	2.5	+0.5
	Zhaoyan Zhu	3.0	2.0	-1.0
	Jin Zhou	1.5	3.0	+1.5
	Carrie Song	4.0	2.0	-2.0
	Summary for entire team	10.5	9.5	-1.0

Artifact or Deliverable	Who (individual and team)	Estimated	Actual	Difference
SRS – Analysis - Complete	Heng Wu	1.0	1.5	+0.5
	Zhaoyan Zhu	2.0	2.0	0
	Jin Zhou	1.5	2.0	+0.5
	Carrie Song	3.0	2.0	-1.0
	Summary for entire team	7.5	7.5	0

Artifact or Deliverable	Who (individual and team)	Estimated	Actual	Difference
SPMP	Heng Wu	2.0	1.5	-0.5
	Zhaoyan Zhu	3.0	4.0	+1.0
	Jin Zhou	2.5	2.0	-0.5
	Carrie Song	3.0	2.5	-0.5
	Summary for entire team	10.5	10.0	-0.5

Cumulative

Who (individual and Team)	Estimated	Actual	Difference
Heng Wu	7.0	7.0	0
Zhaoyan Zhu	10.0	11.0	+1.0
Jin Zhou	10.0	9.5	-0.5
Carrie Song	11.5	8.5	-3.0
Summary for entire team	38.5	36.0	-2.5

12.2 Defect Tracking

Counts

Artifact or Deliverable	Who (individual and team)	Estimated	Actual	Difference
CSRS – Business Domain	Heng Wu	5	3	-2
	Zhaoyan Zhu	0	2	+2
	Jin Zhou	3	2	-1
	Carrie Song	2	3	+1
	Summary for entire team	10	10	0

Artifact or Deliverable	Who (individual and team)	Estimated	Actual	Difference
SRS – Requirements	Heng Wu	4	4	0
	Zhaoyan Zhu	1	2	+1
	Jin Zhou	2	3	+1
	Carrie Song	4	3	-1
	Summary for entire team	11	12	+1

Artifact or Deliverable	Who (individual and team)	Estimated	Actual	Difference
SRS – Analysis - Complete	Heng Wu	2	2	0
	Zhaoyan Zhu	3	2	-1
	Jin Zhou	3	3	0
	Carrie Song	2	3	+1
	Summary for entire team	10	10	0

Artifact or Deliverable	Who (individual and team)	Estimated	Actual	Difference
SPMP	Heng Wu	5	4	-1
	Zhaoyan Zhu	3	2	-1
	Jin Zhou	2	4	+2
	Carrie Song	1	3	+2
	Summary for entire team	11	13	+2

Cumulative

Who (individual and team)	Estimated	Actual	Difference
Heng Wu	16	13	-3
Zhaoyan Zhu	7	8	+1
Jin Zhou	10	12	+2
Carrie Song	9	12	+3
Summary for entire team	42	45	+3

12.3 Gantt Chart/Microsoft Project/Spreadsheet Schedule

WBS	Activity	Task	Assigned	Start Date/Time	End Date/Time	Duration	Status
1.0	SPMP		Team	Oct 27, 2022 9:30 AM	Nov 10, 2022 10:00 PM	14d 12.5h	Completed
1.1	Risk assessment		Zhaoyan Zhu	Nov 8, 2022 10:00 AM	Nov 8, 2022 12:00 AM	0d 2h	Completed
1.2	Work Product – Create SPMP						
1.2.1		Write sections 1, 2, 3, 4	Hend Wu	Nov 6, 2022 1:00 PM	Nov 6, 2022 5:00 PM	0d 4h	Completed
1.2.2		Write sections 5	Jin Zhou	Nov 8, 2022 8:00 PM	Nov 8, 2022 12:00 AM	0d 4h	Completed
		Write sections 5	Carrie Song	Nov 9, 2022 6:30 PM	Nov 9, 2022 9:30 PM	0d 3h	Completed
		Rest of document	Zhaoyan Zhu	Nov 8, 2022 2:30 PM	Nov 8, 2022 4:30 PM	0d 2h	Completed
		Compile Document	Team	Nov 9, 2022 9:00 PM	Nov 9, 2022 11:00 PM	0d 2h	Completed
1.3	Review/inspect		SQA Team				
1.3.1		Rework					
1.4	Post/delivery						
2.0	SRS - Domain		Team	Sep 30, 2022 12:00 PM	Oct 6, 2022 10:38 PM	6D 21.5h	

3.0	SRS - Requirements		Team	Oct 15, 2022 2:00 PM	Oct 29, 2022 2:47 AM	14d 0.8h	