

American International University-Bangladesh (AIUB)  
**Department of Computer Science  
Faculty of Science & Technology (FST)**

**Food Cycle**

A Software Engineering Project Submitted

By

| **Semester: Summer\_21\_22** | | **Section:I** | **Group Number:** | |
| --- | --- | --- | --- | --- |
| SN | Student Name | Student ID | Contribution (CO1+CO2) | Individual Marks |
| 02 | Lima, Rashida Begum | 20-44095-2 |  |  |
| 14 | Chowdhury, Rashique Habib | 20-42269-1 |  |  |
| 17 | Rashid, Md. All Masud or | 20-43131-1 |  |  |
| 37 | Emon Md.Mahadi Hasan | 20-43099-1 |  |  |
| 39 |  |  |  |  |

The project will be Evaluated for the following Course Outcomes

| CO1: *Analyze* the impact of software engineering models over various context of software development to assess societal, health, safety, legal and cultural issues. | Total Marks | |
| --- | --- | --- |
|  | |
| Project Background Analysis and feasibility (needs, goal, benefits, etc.) | [5 Marks] |  |
| Analysis the impact of societal, health, safety, legal and cultural issues | [5Marks] |  |
| Review of existing Studies and Relevant Example | [5Marks] |  |
| CO2: *Explain* appropriate software engineering model, project management roles and their skills in the context of professional engineering practice and solutions to complex engineering problems in a software development environment. | Total Marks | |
|  | |
| Appropriate Process Model Selection and Argumentation with Evidence | [5Marks] |  |
| Evidence of Argumentation regarding process model selection | [5Marks] |  |
| Submission, Defense, Completeness, Spelling, grammar and Organization of the Project report | [5Marks] |  |

Description of Student’s Contribution in the Project work

| Student Name: Lima, Rashida Begum  Student ID:20-44095-2  Contribution in Percentage (%): 20  Contribution in the Project:   * Contribution Description 2.1 * Contribution Description help in 2.2   lima  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Signature of the Student |
| --- |
| Student Name: Chowdhury, Rashique Habib  Student ID:20-42269-1  Contribution in Percentage (%): 20  Contribution in the Project:   * Contribution Description 1.1 * Contribution Description help with 1.2   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Signature of the Student |
| Student Name: Rashid, Md. All Masud or  Student ID:20-43131-1  Contribution in Percentage (%): 20  Contribution in the Project:   * Contribution Description 1.2 * Contribution Description 2   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Signature of the Student |
| Student Name: Emon Md.Mahadi Hasan  Student ID: 20-43099-1  Contribution in Percentage (%): 20  Contribution in the Project:   * Contribution Description 2.1 * Contribution Description 2   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Signature of the Student  Student Name:  Student ID:  Contribution in Percentage (%): 20  Contribution in the Project:   * Contribution Description 2.2 * Contribution Description 2   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Signature of the Student |

# PROJECT PROPOSAL

## Background to the Problem

* Food waste is the intentional discarding of edible items. Mainly by retailers and consumers about 1:3 billion tons of food is wasted globally per year. This is about one-third of all food being produced for human consumption. This waste food can fulfill 3 billion people’s needs. Again this wasted food destroys the ecological balance. So if consumer and retailer can deliver their wasted food to the needy people it can remove the hunger and this problem can be solved and reduced.
* The root of this problem is that the food is not eaten. It happens during production, processing, distribution retail, and food service sales and consumption. This problem is important because of needy people and keeps our environment fresh.

## Solution to the Problem

Wasted food will be stored in a booth and an organization will collect them and distribute them through the website to the neddy people and animals.

We will build a website to solve the problem. Food is wasted all over around if we create a properly organized system then the problem might be solved. There are lots of NGOs that work with food it can save their time and also money as well.

The basic functionalities are there a login function to food donor and collector on both sides. On the donor side, there will be two types of food categories one is for humans and one for animals. There will also be quantity functionalities, A suggestion box, and a submit button. Two types of donor restaurants and homeowners On the other hand admin side, there will have a food quantities calculator. If store enough food then informs their worker to collect food. The worker can log in and can see the order from the admin. Admin also contacts with locality informer that where the foods necessary. Locality informer can log in and informs their locality of food necessities. Also, everyone can log out from the system. It will provide food for needy people and needy animals and also it will keep the environment clean.

The target group of users is lots of organizers who work for food. They should be benefited because it will be a smart and first system and also it will save a lot of o money and will save wasted food that makes a bad impact on the environment.

According to the age of the modern era, where we are developed through artificial intelligence, people are more dependent on the smartphone. There are different applications, which are developed to control the wastage of food, and it gives the opportunity to send that extra food to the people who need it. There are many applications, which control food waste. ‘Mobile phone Based Waste Food Supply Chain for Aurangabad Using GIS Location-Based and Google Web Services’, published in 2014, combine the client-server GIS and mobile application to make a craving-free city. The application for the client side gives the option to donate food to the people in demand. There is a lot of literature on this topic but our system will collect food from the root also it will collect dusty food for animals and distribute it to needy people where it is actually needed. It will also connect with the locality which is the main feature.

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There is software like a food waste management system. They collect food and distribute it to the needy but our software has the flexibility to collect food from door to door and also from restaurants and connectivity with locality also it is a combined package they can provide humans as well as animals.

# SOFTWARE DEVELOPMENT LIFE CYCLE

## Process Model

As we mentioned earlier, our project is a website that manages a food cycle system where wasted food will store in a booth and the organization will collect them and distribute them through the website where needed. As a dynamic website, it needs constant development according to the needs of users and the staff members who will use it daily. The requirements may change as per business policy. So, we need a development method that is not rigid to the requirements. And it allows changes as per time and needs so our environment should be adaptive. After studying all the models and discussing them among the members of our team, we have decided to use "XP" as our development method for this project.

The main reason we chose "XP" as our development model over others is that it is an Agile process. The length of each iteration is a key distinction between agile and previous iterative methods. Iterations in the past could have lasted three to six months. Iteration lengths in agile methods range from one to four weeks and are limited to no more than 30 days. Shorter iterations, according to research, have lower complexity and risk, better feedback, and higher productivity and success rates. The scalability of the agile methodology is limited to small products and teams, whereas in plan-driven processes, products are large and teams are difficult to scale down. Our project will be dynamic, and agile is ideal for such projects. On the other hand, plan-driven processes are better for stable projects. Especially in the safety critical model we use the waterfall model. We chose "XP" over "FDD" because the "FDD" model is for complex, large projects. We need a project that is more connected to customers and business-friendly. The key to DSDM is to deliver what the business needs when it needs it, which is accomplished by utilizing the framework's various techniques and flexing requirements. Rather than attacking all perceived possibilities, the goal is always to address the current and imminent needs of the business. Even though our project is business-based, it will be much more expensive if we follow the "DSDM" method because of frequent changes. The main reason we are not using "SCRUM" is its frequent meeting process. As we understand the importance of customer requirements, too many meetings will make the project lengthy and time-consuming as per our requirements.

We're using "XP" because the method is based on common-sense principles and simple practices. There is no one-size-fits-all process; rather, simple practices should be tailored to each project. The "XP" method addresses issues such as slipping schedules, change costs, defect rates, misunderstanding the business, business changes, and staff turnover. The "XP" method provides short development cycles, extensive ongoing testing, a system that is always operational, unit tests, and customer tests in which the customer is a team member. Changes are welcomed and encourage intense teamwork. In this model, the customer has a maximum work week of 40 hours. The customer has to be present and available full-time for the team.Coding rules exist and are followed by the programmers. Communication through the code should be emphasized. A large room with small cubicles is preferred. The team has its own rules that are followed but can also be changed at any time. The changes have to be agreed upon and their impact has to be assessed. Which makes this model perfect for our project.

## Project Role Identification and Responsibilities

**Customer:** Writes the narrative and functional tests, as well as assesses when each requirement has been fulfilled. The client determines the order in which the requirements are implemented.

**Programmer:** makes the program code as clear and concise as possible.

**Tester**: assists the customer in writing functional tests, as well as running functional tests regularly, broadcasting test results, and maintaining testing tools.

**Tracker:** In XP, the tracker provides feedback. He follows the team's estimates and provides feedback on how accurate they are to improve future estimates. He also tracks the progress of each iteration and determines whether the goal is attainable within the given resource and time constraints, or if changes to the process are required.

**Coach:** The coach is the person in charge of the entire process. A solid understanding of XP is essential in this role, as it allows the coach to guide the other team members through the process.

**Consultant:** A consultant is a third-party expert who has the necessary technical knowledge.

**Manager (Big Boss):** The manager is in charge of making choices.

To be successful, a software development project requires other roles in addition to developers. The quality of the professionals and the configuration of a multidisciplinary team determine the success of a software project. These two factors must be present to achieve good results. Only when key team members are in the right place do software projects move forward. When it comes to software development projects, everyone is important. Mistakes can occur when roles are poorly chosen and responsibilities are not clearly and incorrectly defined. It is critical to assemble the ideal team to achieve ideal results. The answer depends on the project's specific requirements.

## Rubric for Project Assessment (CO1)

| Marking Criteria | Marks Distribution (Maximum 3X5=15) | | | | Acquired Marks |
| --- | --- | --- | --- | --- | --- |
| **Inadequate (1-2)** | **Satisfactory (3)** | **Good (4)** | **Excellent (5)** |
|  |  |  |  |  |  |
| Background  Analysis | No background information regarding the project is  given; project goals and benefits are  missing. | Insufficient background information is given; project goals and benefits are  poorly stated | Sufficient background information is given; the purpose and goals of the project are explained. | Thorough and relevant background information  is given; project goals are clear and easy to identify. |  |
| Analysis the impact of societal, health, safety, legal and cultural issues | Student vaguely discuss the impact of societal, health, safety, legal and cultural issues in their project | Student provided with partial relevance to the impact of societal, health, safety, legal and cultural issues in their project | Student fairly provided the analysis to the impact of societal, health, safety, legal and cultural issues in their project | Student comprehensively provided the analysis to the impact of societal, health, safety, legal and cultural issues in their project |  |
| Existing Studies and Relevant Example | Ambiguous representative example. | Partially identify / indicate towards real-life example. | Real-life example is fairly connected towards the definition. | Comprehensively defend with real life example. |  |
| Acquired Marks: | | | | |  |
| CO Pass / Fail: | | | | |  |

## Rubric for Project Assessment (CO2)

|  | Criteria | Marks distribution (Max 3X5= 15) | | | | Acquired  Marks |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Inadequate (1-2)** | **Satisfactory (3)** | **Good (4)** | **Excellent (5)** |
|  | Argumentation of Model selection with Evidence of Argumentation | Does not articulate a position or argument of choosing appropriate model. Does not present any evidence to support the arguments for the choice of the model | Articulates a position or argument for choosing models that is unfocused or ambiguous. Presents incomplete/vague evidence to support argument for model choice | Articulates a position or argument of choosing models that is limited in scope. Does not present enough evidence to support the argument for the choice of the model | Clearly articulates a position or argument for the choosing software engineering models. Presents sufficient amount of evidence to support argument for the model selection |  |
|  | Role identification and Responsibility Allocation | The project has poor project management plans for identifying roles and assigning the responsibilities | Identify few roles in the project management where some of the roles are left alone with any project responsibilities | Identify most of the roles in the project management and assign their responsibilities | Well planned project with proper role identification and responsibility allocation in the project management activities |  |
|  | Submission, Completeness, Spelling, grammar and Organization of the Project report | Project report is not complete and Several errors in spelling and grammar. Present a Confusing organization of concepts, supporting  arguments, and  real-life example.  Sentences rambling, and details are repeated. | Some errors in spelling and grammar. Some problems  of organizing the answer in a logical order of defining,  elaborating, and providing real-life examples. | Few errors in spelling and grammar. Presents most of the details in a logical flow of  organization in  definition,  details, and  example. | Project report is complete and No errors in spelling and grammar. Consistently  presents a logical  and effective  organization of definition,  details, and real-life example of  the topic. |  |
|  | Acquired marks: | | | | |  |
| CO Pass / Fail: | | | | | |  |