LONDON METROPOLITAN UNIVERSITY

Module Code & Title

CS6P05 Final Year Project

Food Share – Android App

Assessment Weightage & Type

Final Year Project Proposal (5%)

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Contents

1. Introduction: 1
1.1. Problem Statement 1
1.2. Project as Solutions 1
1.3. Aims and Objectives: 2
1.4. Expected Outcomes and Deliverables: 3
2. Project risk, threats and contingency plans: 3
3. Methodology 4
3.1. Waterfall Methodologies 4
3.2. Scrum Methodology (Agile) 5
3.3. Prototyping Methodology 6
3.4. Select Methodology 7
4. Resource Requirements: 9
4.1. Hardware 9
4.2. Software 9
4. Work breakdown structure: 11
5. Milestones: 12
6. Project Gantt Chart: 13
7. Conclusion: 15
Bibliography 16

List of Table

Table 1:Advantage and disadvantages of Scrum 4

Table 2: Advantages and Disadvantages of Scrum 8

Table 3: Software Requirements 10

List of Figure

Figure 1: Waterfall Methodology 5

Figure 2: Scrum Methodology 6

Figure 3: Prototyping Methodology 7

Figure 4: Scrum Methodology Evolutionary 8

Figure 5: Project Plans 11

Figure 6: Work Breakdown Structural Chart 12

Figure 7: Gantt Chart 14

1. Introduction:

In a world where technology continues to transform various facets of our lives, it's not surprising that the realm of charitable food donation is also benefiting from these advancements. The Weaste Food Donation App, known as "Food Share," represents a significant step forward in leveraging technology to address the critical issue of food scarcity and waste. The Food Share app seeks to revolutionize the way we approach food donations and redistribution.

Food scarcity and hunger remain persistent challenges globally, with countless individuals and families struggling to access nutritious meals. Simultaneously, an alarming amount of edible food goes to waste, contributing to environmental degradation. Recognizing these dual issues, the Food Share app aims to bridge the gap between surplus food sources and those in need, while also reducing food wastage. (Colony, 2022)

1.1. Problem Statement

Food waste is a significant global issue that encompasses the loss of edible food at various stages of the food supply chain, from production and distribution to consumption and disposal. The problem of food waste is a complex and interconnected issue with significant social, environmental, economic, and ethical dimensions. Addressing this problem requires a multifaceted approach that involves individuals, businesses, governments, and organizations at all levels to reduce food waste and its associated consequences. Addressing this problem requires local, national, and international coordinated efforts to reduce waste and ensure a more sustainable and equitable food system. Key aspects of the problem include:

1.2. Project as Solutions

This project will help to overcome the above problem statement. This application helps the food industry where donating and sharing to manage waste food. First and foremost, increased public awareness and education campaigns should inform individuals about the importance of donating edible surplus food, the safety

guidelines involved, and the positive social and environmental impact it can have. Additionally, technology can play a pivotal role in connecting donors with surplus food to organizations in need, minimizing logistical challenges. Finally, incentivizing food donations through tax incentives or other financial benefits can further encourage businesses and individuals to participate in this critical effort to reduce food waste and alleviate hunger.

- Utilize the waste food and waste food reduction.
- Utilize surplus food effectively,
- Raise social awareness about food waste,
- Facilitate food donation and distribution,
- Encourage responsible food handling and safety practices,
- Promote a sense of community and social responsibility,

1.3. Aims and Objectives:

Aims and Objectives:

The food donation app aims to efficiently bridge the gap between surplus food sources and individuals facing food insecurity, with a primary focus on redistributing edible food to those in need, thereby minimizing food waste and contributing to improved food access and reduced hunger in the community.

- To learn about the Android platform and its various features.
- To understand and implement a database management system in the real world with the help of a relational database.
- To understand the working mechanism of mobile application
- To learn about API programming (Rest API)
- To learn Android UI and material design with interactive design
- To learn how to use different Adobe products which will be used in different designing stages of this app development.
- Research and implementation of current tools and technology that can be integrated into mobile applications.

1.4. Expected Outcomes and Deliverables:

- User views the history and user profile.
- To find the donate locations and effectively collect, and efficiently distribute food provisions.
- Provide opportunities for those who are interested in food donation and social work.
- The volunteers can find the donated food location and they can contact donors.
- Donners can get food distribution email message notification after completing the donation with feedback(rating)
- After contact with donors and receiver donors cannot be provided or donate food and the receiver cannot receive food for donations, they can complain to the admin.
- The food shop, restaurant, hotel, also food provide for the animal farmer for revenues generated.

2. Project risk, threats, and contingency plans:

Risk is described as the potential for exposure to hazard. Risk analysis is the process of examining a risk's potential effects. The following hazards might emerge in my project:

Risk and Threats	Contingency Plans
Social networking risks in the system where users do unnecessary work or crime.	Use network monitoring tools and intrusion detection systems to promptly detect and respond to suspicious network activity.
The system has increased the server	User login or any server hit function control where data is saved in the local

cost.	server and get from a local database.
Default to interactive designing UI/UX for the user.	Research and learn about the designing
The problem of DBMS creation and migration	Research directions and seek potential enhancements
Difficulties in getting real-time data transactions from API through mobile and web servers.	Research the following topic and get help from the supervisor.
Device or System crash	Back up the project in the Cloud
Difficult on the remote server to data fetch	Research and learn difficult parts and API authentication
Not support in old version devices	Testing and rebuilding the project

Table 1:Advantage and disadvantages of scrum

3. Methodology

3.1. Waterfall Methodologies

The Waterfall methodology is predicated on the idea that all project specifications can be acquired and comprehended in advance. The project manager makes every effort to fully comprehend the project sponsor's needs. Written requirements are used to explain each stage of the project, including the expenses, assumptions, risks, dependencies, success metrics, and dates for completion. These requirements are typically provided in a single document. During the analysis and design process, developers can identify design flaws,

preventing them from producing flawed code during the implementation step. Each stage of the process is delayed when one is, and vice versa. (Team, 2022)

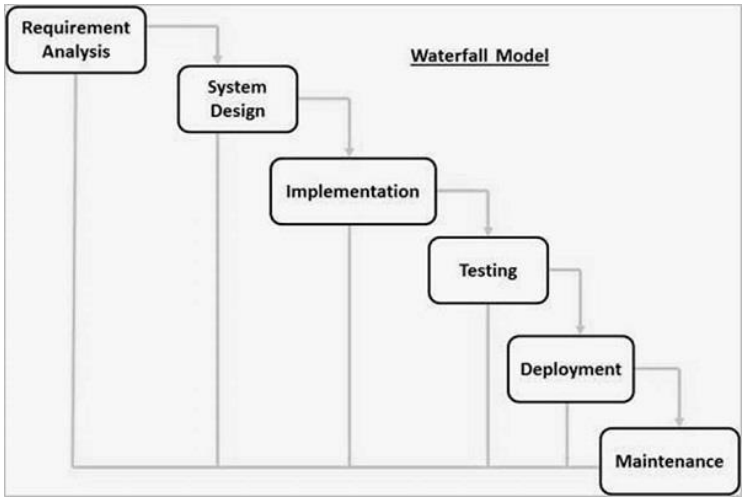


Figure 1: Waterfall methodology

3.2. Scrum Methodology (Agile)

The Scrum methodology would be a good fit for the software creation project for “Allgemein”, as it is an Agile framework that emphasizes iterative development and continuous feedback. Given the dynamic nature of the entertainment and transport industries, it is important to have a flexible and adaptive approach to software. Scrum also promotes collaboration between cross-functional teams where this project does not team, but it can be useful for a project that involves different aspects. Additionally, the Scrum framework includes regular meetings and feedback sessions, which can help ensure that the software meets the company's evolving needs and requirements.

The Scrum methodology is well-suited for projects with changing or uncertain requirements, which is often the case in software development. Scrum can help the team adapt to changing needs and requirements over time by breaking the project into smaller, manageable chunks. (S, 2023)

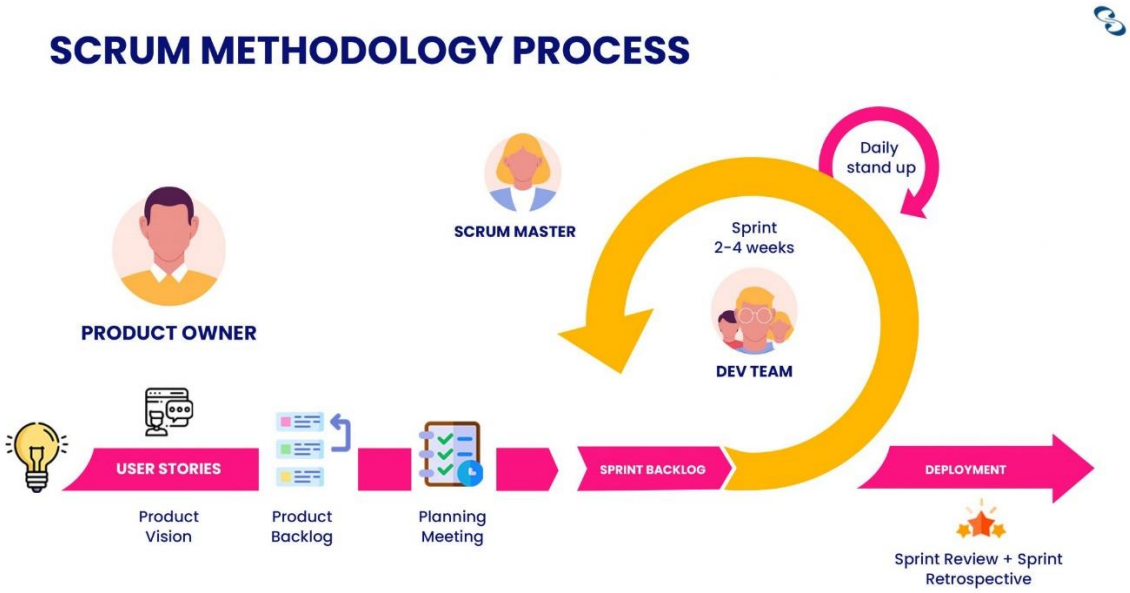


Figure 2: Scrum Methodology

3.3. Prototyping Methodology

A prototype is produced, tested, and revised until it is acceptable according to the prototyping paradigm of software development. It also lays the groundwork for the creation of the finished software or system. It functions well in circumstances where the project requirements are not fully understood. The process is iterative and based on trial and error between the client and developer. Users have an active role in the development process. As a result, problems can be found early on in the software development process. Since a prototype is ultimately discarded, the investment in creating one is completely wasted. The use of prototypes could induce too many modification requests. (Martin, 2023)

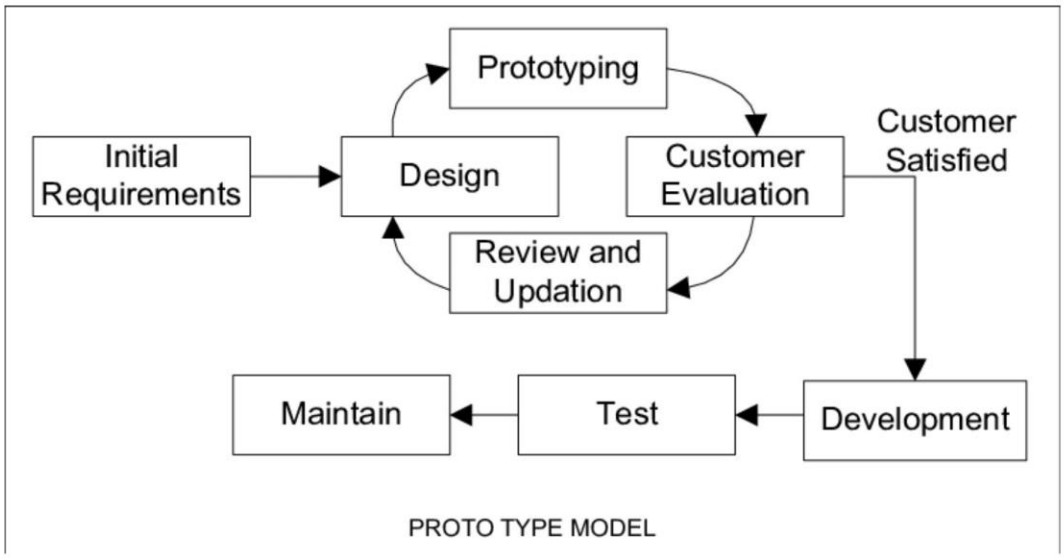


Figure 3: Prototyping Methodology

3.4. Select Methodology

Evolutionary Scrum:

The Scrum methodology is well-suited for projects with changing or uncertain requirements, which is often the case in software development. Scrum can help them adapt to changing needs and requirements over time by breaking the project into smaller, manageable chunks. It accommodates iterative development, making it suitable for projects with evolving goals. The scrum methodology can make it easy to adapt some changes and features and it can be helpful to my project. So, I will choose this methodology for the FYP project.

Figure 4: Scrum Methodology evolutionary

The advantages and disadvantages of evolutionary prototyping are:

Advantages	**Disadvantages**
It is highly adaptable and allows teams to respond quickly to changing requirements and priorities.	A solo practitioner might miss potential risks or not have the resources to address them effectively.
Weekly Standup meetings facilitate information sharing, issue resolution, and team synchronization.	A solo practitioner may struggle to gather diverse perspectives, potentially leading to tunnel vision and less informed choices.
It is highly adaptable and allows teams to respond quickly to changing requirements and priorities.	Scrum defines specific roles like Product Owner, Scrum Master, and Development Team. Working alone makes it unclear who should fulfil these roles, leading to role ambiguity.

Table 2: Advantages and Disadvantages of Scrum

4. Resource Requirements:

This project needs various hardware and software tools that are given below:

- Emulator: Android Mobile or Default Android Studio Emulator
- Internet Connection
- IDE: Android Studio
- Code Editor: Visual Studio Code
- Programming Language: Kotlin, Python, HTML/CSS
- Framework: Django, Rest and JetPack Compose
- Database: SQLite, Room
- Version Control: GitHub
- Tools: Draw.io, TeamGantt, Balsmiq, etc.

4.1. Hardware

The hardware requirements are given below:

- PC with window 10
- Android Mobile Phone

4.2. Software

The software requirements are given below:

Tools & Technologies	Version	Purpose
Kotlin 1. Jet Pack Compose	1.9.10 1.5.1	Kotlin is the programming language and compose is the modern design tool kids(framework) that will be used in the front-end development of the project.
Python 2. Django	3.11.2 4.2.5	Python is used for backend development in Django and Rest Framework will be

3. Rest Framework	(LTS) 3.14.0	used in the project.
Database • SQLite • Room	3.8.3 2.5.2	It can be used for data storage on local and remote servers.
HTML		HTML will be used to develop the webpage that displays all the necessary information that is admin panel with the help of Bootstrap.
Firebase		Firebase is used for real-time data analysis and push notifications.
Documentation Software & Design Tools		Various software is required for the process of documentation. Some of them are MS Word (Microsoft Word), Design tools (Draw.io, TeamGantt, Balsmiq, Lucidchart) etc.

Table 3: Software requirements

4. Work breakdown structure:

4.1 Project plans

Research to topic			Durations	Stat Date	End Date
Phase 1: Planning and Requirement Analysis			**17 days**	**13/092023**	**29/09/2023**
Task 1: Research and project finalize			6 days	13/092023	18/09/2023
Task 2: Scrum planning			7 days	19/09/2023	25/09/2023
Task 3: Client meeting			2 days	26/09/2023	27/09/2023
Task 4: Requirement collection			2 days	28/09/2023	29/09/2023
Phase 2: Defining Requirements			**2 weeks**	**1/10/2023**	**14/10/2023**
Task 1: User stories			7 days	1/10/2023	7/10/2023
Task 2: Product Backlog			7 days	8/10/2023	14/10/2023
Phase 3: Designing the Project Architecture			**3 weeks**	**15/10/2023**	**11/11/2023**
Task 1: Usecase, Sequence, and Context diagram develop			7 days	15/10/2023	21/10/2023
Task 2: DFD, class diagram, Activity diagram develop			7 days	29/10/2023	4/11/2023
Task 3: ERD, System Architecture, Wireframe develop			7 days	5/11/2023	11/11/2023
Phase 4: Building or Developing the Project			**14 weeks**	**20/11/2023**	**9/3/2024**
Sprint 1: DBMS creation			**2 weeks**	**19/11/2023**	**5/12/2023**
	Sprint Planning		1 day	19/11/2023	19/11/2023
	Sprint Backlog		1 day	20/11/2023	20/11/2023
	Development		7 days	21/11/2023	29/11/2023
	Testing		2 days	30/11/2023	1/12/2023
	Sprint Review, Retrospective and Release		1 day	4/11/2023	5/12/2023
Sprint 2: API development	Same process of Sprint 1		**2 weeks**	**3/12/2023**	**16/12/2023**
Sprint 3: Web development with UI	Same process of Sprint 1		**2 weeks**	**17/12/2023**	**30/12/2024**
Sprint 4: Local database with CRUD and Retrofit to API call	Same process of Sprint 1		**2 weeks**	**31/12/2023**	**13/1/2024**
Sprint 5: Mobile UI development	Same process of Sprint 1		**2 weeks**	**14/1/2024**	**27/01/2-24**
Sprint 6: Authentication development	Same process of Sprint 1		**2 weeks**	**28/01/2024**	**10/02/2024**
Sprint 7: Frontend and backend connection	Same process of Sprint 1		**2 weeks**	**11/02/2024**	**24/2/2024**
Sprint 8: Google services and Firebase implement	Same process of Sprint 1		**2 weeks**	**25/2/2024**	**09/03/2024**
Phase 5: Testing			**2 weeks**	**10/3/2024**	**16/03/2024**
Task 1: Final Testing					
Phase 6: Project Deployment			**3 weeks**	**17/03/2024**	**06/04/2024**
Task 1: Summarize the deployment project			7 days	17/03/2024	23/03/2024
Task 2: Document and mitigate risks			14 days	24/03/2024	6/4/2024
Phase 7: Maintenance and Release			**2 weeks**	**7/4/2024**	**20/4/2024**
Task 1: Budge and problem maintain			7 days	7/4/2024	13/4/2024
Task 2: Project review and submit			7 days	14/4/2024	20/4/2024

Figure 5: Project plans

4.2 WBS

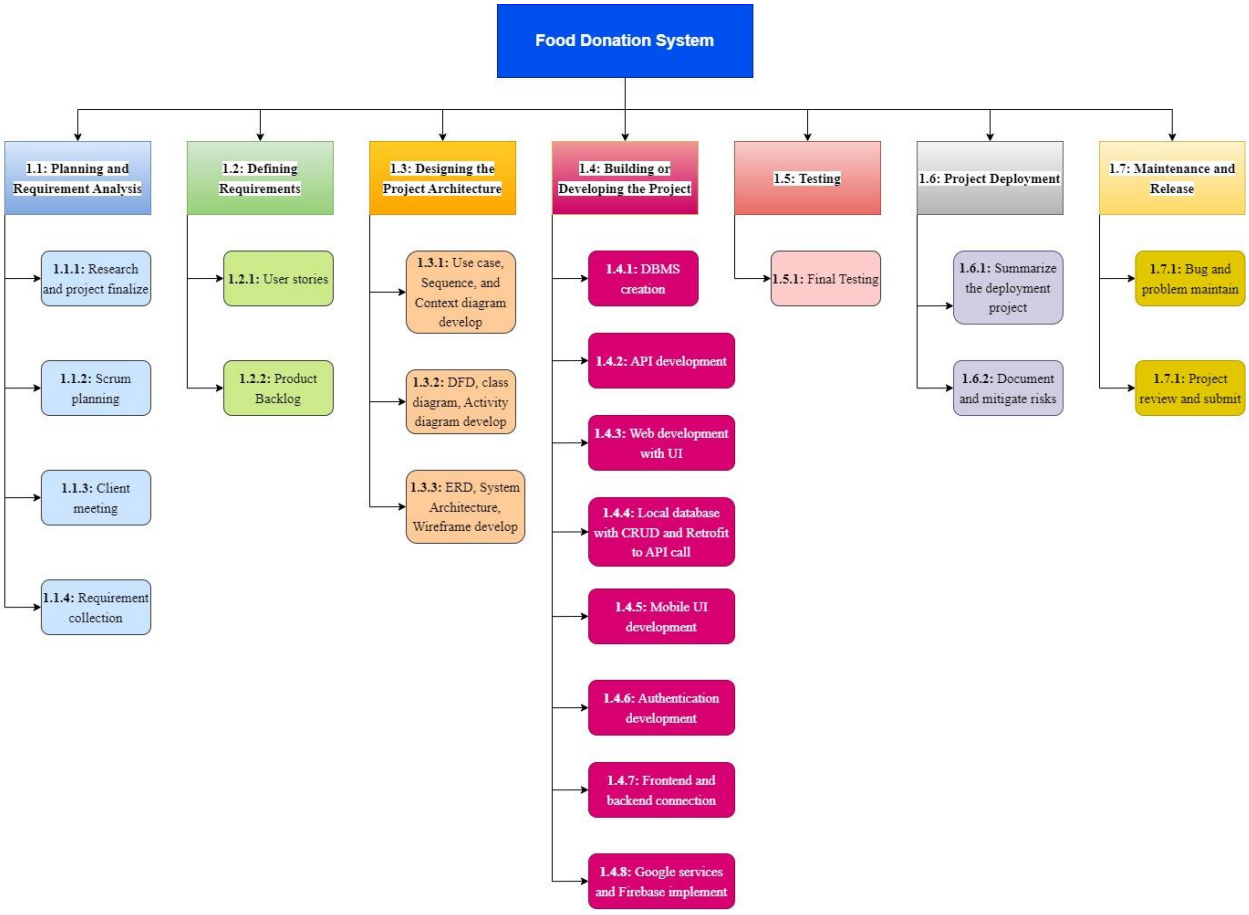


Figure 6: Work Breakdown Structural Chart

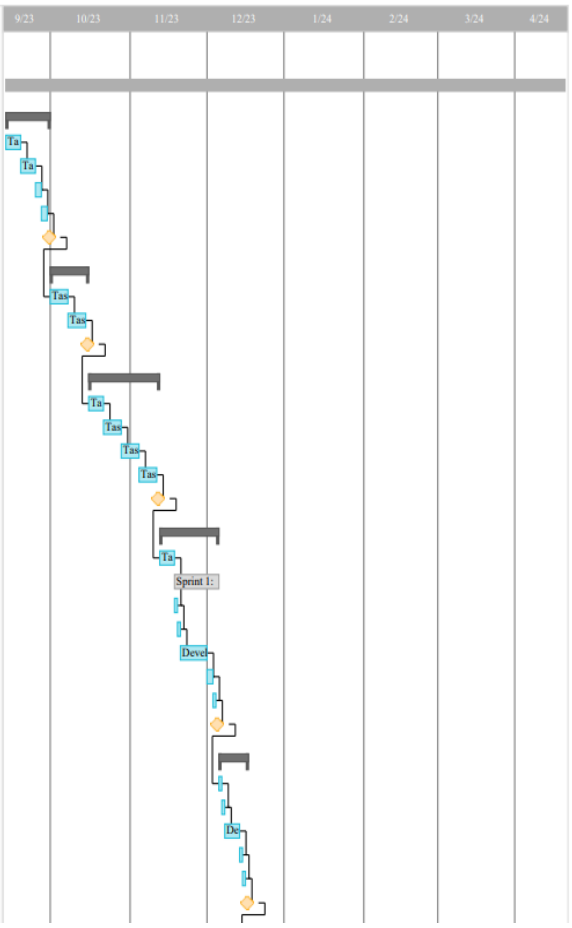
5. Milestones:

- ✓ Milestone 1: Planning and Requirement Analysis
- ✓ Milestone 2: Requirements Gathering
- ✓ Milestone 3: Designing the Project Architecture
- ✓ Milestone 4: Building or Developing the Project
- ✓ Milestone 5: Testing
- ✓ Milestone 6: Project Deployment
- ✓ Milestone 7: Maintenance and Release

6. Project Gantt Chart:

teamgantt
Created with Free Edition

Gantt Chart	start	end	0h	0%
Phase 1: Planning and Requirement Analysis	**13/09/23**	**29/09/23**	**0h**	**0%**
Task 1: Research and project finalize	13/09	18/09	0	0%
Task 2: Scrum planning	19/09	24/09	0	0%
Task 3: Client meeting	25/09	26/09	0	0%
Task 4: Requirements collection	27/09	28/09	0	0%
Complete the planning and requirement analysis	29/09	29/09	0	0%
Phase 2: Defining Requirements	**01/10/23**	**15/10/23**	**0h**	**0%**
Task 1: User stories	01/10	06/10	0	0%
Task 2: Product backlog	08/10	13/10	0	0%
Complete the Requirement defining	15/10	15/10	0	0%
Designing the Project Architecture	**16/10/23**	**12/11/23**	**0h**	**0%**
Task 1: Use case, Sequence Diagram develop...	16/10	20/10	0	0%
Task 2: Research the designing on Dashain vaca...	22/10	27/10	0	0%
Task 3: Context Diagram, DFD, Activity Diagr...	29/10	03/11	0	0%
Task 4: Wireframe, ERD, System Architectural	05/11	10/11	0	0%
complete the design architecture	12/11	12/11	0	0%
Building or Development the Project:	**13/11/23**	**05/12/23**	**0h**	**0%**
Task 1: Tihar vacation where research about the...	13/11	17/11	0	0%
Sprint 1: DBMS Creation	19/11	05/12	0	0%
Sprint planning: make plan for DBMS	19/11	19/11	0	0%
Sprint backlog: create a task for this sprint	20/11	20/11	0	0%
Development: coding for DBMS	21/11	30/11	0	0%
Testing: test for develop project	01/12	03/12	0	0%
Sprint review, retrospective and release	04/12	04/12	0	0%
Sprint 1 complete	05/12	05/12	0	0%
Sprint 2: API development	**06/12/23**	**17/12/23**	**0h**	**0%**
Sprint planning: make plan for API development	06/12	06/12	0	0%
Sprint backlog: create a task for this sprint	07/12	07/12	0	0%
Development: coding for APIs	08/12	13/12	0	0%
Testing: test for develop APIs	14/12	14/12	0	0%
Sprint review, retrospective and release	15/12	15/12	0	0%
Sprint 2 complete	17/12	17/12	0	0%



Sprint 3: Web admin panel development	**18/12/23**	**29/12/23**	**0h**	**0%**
Sprint planning: make a plan for Web Applicati...	18/12	18/12	0	0%
Sprint backlog: create a task for this sprint	19/12	19/12	0	0%
Development: coding for web	20/12	26/12	0	0%
Testing: test for developing web application	27/12	27/12	0	0%
Sprint review, retrospective and release	28/12	28/12	0	0%
Sprint 3 complete	29/12	29/12	0	0%
Sprint 4: Local database CRUD and Retrofit w...	**31/12/23**	**12/01/24**	**0h**	**0%**
Sprint planning: make plan for local database a...	31/12	31/12	0	0%
Sprint backlog: create a task for this sprint	01/01	01/01	0	0%
Development: coding for local database and AP...	02/01	09/01	0	0%
Testing: test for develop project	10/01	10/01	0	0%
Sprint review, retrospective and release	11/01	11/01	0	0%
Sprint 4 complete	12/01	12/01	0	0%
Sprint 5: Mobile UI development	**14/01/24**	**26/01/24**	**0h**	**0%**
Sprint planning: make a plan for UI developme...	14/01	14/01	0	0%
Sprint backlog: create a task for this sprint	15/01	15/01	0	0%
Development: coding for mobile UI	16/01	23/01	0	0%
Testing: test for develop UI	24/01	24/01	0	0%
Sprint review, retrospective and release	25/01	25/01	0	0%
Sprint 5 complete	26/01	26/01	0	0%
Sprint 6: Authentication development	**28/01/24**	**09/02/24**	**0h**	**0%**
Sprint planning: make a plan for authentication	28/01	28/01	0	0%
Sprint backlog: create a task for this sprint	29/01	29/01	0	0%
Development: coding for authentication	30/01	06/02	0	0%
Testing: test for develop authenticate	07/02	07/02	0	0%
Sprint review, retrospective and release	08/02	08/02	0	0%
Sprint 6 complete	09/02	09/02	0	0%
Sprint 7: Frontend and backend connection	**11/02/24**	**23/02/24**	**0h**	**0%**
Sprint planning: make a plan for server connect...	11/02	11/02	0	0%
Sprint backlog: create a task for this sprint	12/02	12/02	0	0%
Development: coding for frontend and backend...	13/02	20/02	0	0%
Testing: test for develop project	21/02	21/02	0	0%
Sprint review, retrospective and release	22/02	22/02	0	0%
Sprint 7 complete	23/02	23/02	0	0%
Sprint 8: Google services and Firebase implem...	**25/02/24**	**08/03/24**	**0h**	**0%**
Sprint planning: make a plan for google and Fir...	25/02	25/02	0	0%
Sprint backlog: create a task for this sprint	26/02	26/02	0	0%
Development: coding for notification and map ...	27/02	04/03	0	0%
Testing: test for develop project	05/03	06/03	0	0%
Sprint review, retrospective and release	07/03	07/03	0	0%
Sprint 8 complete	08/03	08/03	0	0%
Phase 5: Testing	**10/03/24**	**17/03/24**	**0h**	**0%**
Task 1: Final testing in the system	10/03	15/03	0	0%
Testing complete	17/03	17/03	0	0%
Phase 6: Project Deployment	**18/03/24**	**05/04/24**	**0h**	**0%**
Task 1: Summarize the deployment project	18/03	22/03	0	0%
Task 2: Document and mitigate risks	24/03	04/04	0	0%
Project deployment complete	05/04	05/04	0	0%
Phase 7: Maintenance	**07/04/24**	**19/04/24**	**0h**	**0%**
Task 1: Maintain the project level problem	07/04	12/04	0	0%
Task 2: Project review and sumbit	14/04	18/04	0	0%
Complete the maintainace and project release	19/04	19/04	0	0%

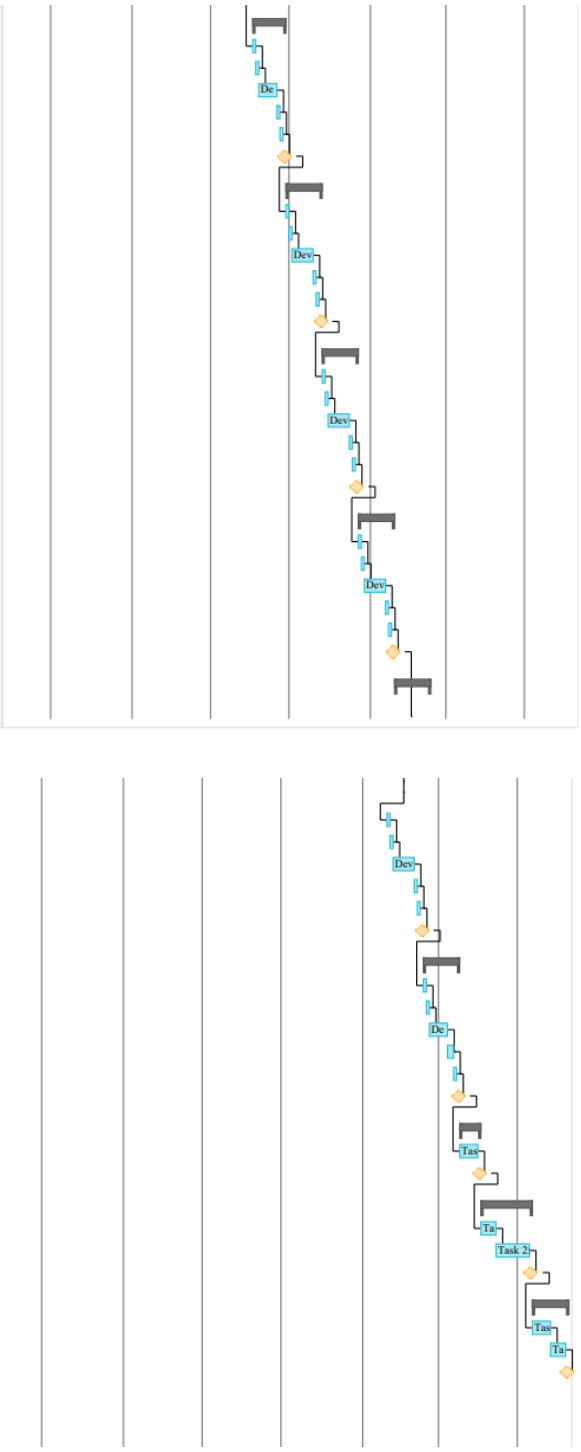


Figure 7: Gantt Chart

7. Conclusion:

The proposed "Food Share" app represents a significant step forward in addressing the critical issue of food waste while fostering a sense of community and social responsibility. The displaced Food Donations app has the potential to make a substantial impact on reducing food waste, alleviating hunger, and a more environmentally conscious society. It encourages individuals, businesses, and organizations to participate actively in a shared mission of reducing food waste and ensuring that edible surplus food reaches those who can benefit from it.

This project will adopt an evolutionary scrum methodology and will cater specifically to individuals in need, particularly the impoverished or homeless, who require access to fresh food and are willing to participate in food donation through the utilization of technology in a systematic manner. The project timeline estimates a completion period of 6 to 7 months from the initial start date, with this goal achieved by breaking down the project into smaller, manageable tasks.

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