

Zero Waste Connect-Sprint 1 Coursework

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Sprint 1 Zerowaste Connect:

Group Members: Sanna and Jochebed

Project Description

ZeroWasteConnect is a dynamic, database driven web application designed to tackle the pressing issue of food waste by creating a platform where people can share excess food with others in their local community. The application allows users to post listings of surplus food items before they go to waste, making them freely available for collection by anyone nearby who can use them. This could include students who bought too many ingredients for a recipe, families clearing out their fridge before going away, or local restaurants with unsold items at the end of the day.

The project addresses food waste from multiple angles. From an environmental perspective, it helps divert perfectly good food from landfills where it would decompose and release methane, a potent greenhouse gas. It also reduces the waste of all the water, energy, and resources that went into producing, packaging, and transporting that food. From a social perspective, the platform builds connections between neighbours and community members who might not otherwise interact, creating opportunities for meaningful exchanges around a shared value of sustainability. It also provides practical support for students managing tight budgets, families looking to reduce grocery costs, and anyone who wants to live more sustainably.

The platform will include several core features to make food sharing straightforward and safe. Users will register and create accounts with authentication to ensure security. Once registered, they can create detailed listings that include a description of the food item, the quantity available, dietary information if relevant, a photo of the item, when it needs to be collected by, and where it can be picked up from. Other users will be able to browse available listings, with search and filter options to find items near their location or specific types of food they're looking for. To coordinate collections, we'll build an in-app messaging system so users can communicate about pickup times and arrangements without sharing personal contact details immediately. The platform will also include user profiles where people can build up ratings and reviews over time, which helps establish trust within the community.

We're building Zero Waste Connect using the technology stack covered in the Software Engineering module. The backend will run on Node.js with the Express.js framework to handle routing, API endpoints, and server-side logic. For data storage, we'll use a MySQL database to manage user accounts, food listings, messages, and ratings, with properly

structured tables and relationships between them. The entire development environment will be containerised using Docker, which means we can define exactly what software versions and configurations are needed and ensure we're both working in identical environments. This also makes deployment much more reliable. For the frontend, we're using HTML, CSS, and JavaScript to create a responsive interface that works well on both desktop and mobile devices, which is important since many people will probably access the platform from their phones. We'll be working in Visual Studio Code as our development environment and using GitHub for version control, collaboration, and implementing continuous integration and deployment practices with GitHub Actions.

This project fits perfectly with the 2026 module theme of "Sharing, exchange and building community." It's a practical demonstration of how technology can facilitate collaborative consumption and create connections between people around shared environmental values. Rather than food being a purely transactional commodity, the platform reframes it as something that can be shared and exchanged in ways that benefit everyone involved and strengthen community bonds. The act of sharing excess food becomes an opportunity for people to connect with their neighbours, reduce waste together, and participate in building a more sustainable local food system.

Code of Conduct

Purpose of code of conduct in the project

This Code of Conduct establishes clear expectations for all members of the ZeroWasteConnect project team, aiming to cultivate a respectful, inclusive, and professional environment that fosters collaboration, accountability, and the achievement of high-quality project outcomes. It applies to all team members, regardless of role or experience, and provides guidance for conduct across meetings, online communications, task management, decision-making, and software development activities. The Code promotes open, honest, and constructive communication, ensures that all member's ideas and contributions are recognised and valued equally, and nurtures an inclusive culture that embraces diverse skills, perspectives, and experiences. It also provides a structured framework for resolving conflicts transparently and professionally, reinforces accountability and responsibility through equitable task and deadline management, and supports ethical conduct aligned with social, environmental, and academic standards. By aligning team behaviour with project objectives, fostering continuous reflection and improvement, and clarifying expectations, this Code establishes a foundation for a productive, cohesive, and collaborative team environment,

enabling all members to contribute effectively to the mission of reducing food waste and promoting sustainability through the ZeroWasteConnect platform.

2. Commitment

All team members commit to:

- Treating each other with respect, courtesy, and professionalism at all times
- Valuing all member's ideas and contributions equally
- Collaborating constructively to achieve project goals
- Encouraging an inclusive and supportive team culture
- Create an environment where all members feel comfortable sharing ideas, asking questions, and taking initiative.
- Provide constructive feedback respectfully, helping teammates improve without discouraging them.

3. Expected Behaviour

Team members are expected to:

- Communicate openly, clearly, and professionally
- Listen actively and consider diverse perspectives
- Take responsibility for assigned tasks and deadlines
- Attend all meetings or provide advance notice if unable to attend
- Support fellow team members when needed
- Provide and receive constructive feedback in a professional manner
- Assist each other in given tasks and roles

4. Unacceptable Behaviour

The following behaviours will not be tolerated:

- Harassment, bullying, or discrimination of any kind
- Excluding or ignoring contributions from team members
- Disrespectful, offensive, or aggressive communication
- Taking credit for others' work

- Repeatedly missing deadlines or failing to contribute without communication
- Intentional obstruction of project progress

5. Conflict Resolution

If conflicts arise, the team will:

1. Attempt to resolve issues respectfully within the team
2. Listen to and consider all perspectives before reaching a decision
3. Seek compromise wherever possible
4. Escalate unresolved issues to the course supervisor according to university guidelines

6. Accountability

- All team members are responsible for upholding this Code of Conduct
- Breaches will first be addressed within the team
- Persistent or serious issues will be escalated to the course supervisor
- Accountability ensures a fair, productive, and positive team environment

7. Agreement

By participating in the ZeroWasteConnect project, all team members agree to follow this Code of Conduct throughout the duration of the project.

Persona Template:

Persona 1:



Persona 1 Household User (Primary key User)

Name: Lena Lu

Age: 28

Occupation: Master's student & part-time café worker

Location: Urban apartment

Background:

Lena is a busy postgraduate student who lives alone in a small apartment. She cares about sustainability and reducing waste but often finds it difficult to manage groceries effectively due to her hectic schedule. She frequently buys more food than she can consume before it spoils. Lena wants to take practical steps toward sustainability while saving money, but she needs simple, convenient solutions.

Goals:

- Reduce household food waste and avoid unnecessary disposal of edible food
- Access nearby surplus food to save money on groceries
- Contribute to environmental sustainability within her community
- Find a simple and convenient way to donate or share leftover food

Frustration Points:

- Frequently forgets about food in her fridge, leading to spoilage
- Doesn't know where to donate excess food quickly and safely
- Current waste reduction apps or systems feel cumbersome or confusing
- Feels guilty about wasting food but lacks an easy solution

How ZeroWasteConnect Helps:

- Provides a mobile friendly interface to post surplus food quickly
- Shows available nearby food or resources that Lena can claim
- Offers guidance on food donation and sharing etiquette
- Sends reminders or notifications to help manage food before it spoils

- Connects her with local community initiatives and sustainability programs

Persona 2:



Persona 2 Business User

Name: Tom Webb

Age: 42

Occupation: Owner of a local bakery shop

Location: Town Centre`

Background:

Tom owns a small bakery and often has unsold bread and pastries at the end of the day. Throwing food is wasteful and costly, but he currently lacks a structured way to redistribute surplus items. He is interested in sustainability and wants to improve his bakery's reputation in the local community. Currently, Tom has no structured process for redistributing surplus food. He occasionally gives leftover items to a neighbor or donates to local charities, but this process is inconsistent, time consuming, and difficult to coordinate. He is aware of food safety regulations and wants to avoid legal risks while being socially responsible

Goals:

- Reduce food waste from his bakery
- Donate surplus food efficiently and safely
- Build a positive environmental and social reputation for his business
- Support local community initiatives and charities

Frustrations / Pain Points:

- Throwing away edible food is wasteful and financially inefficient
- Existing donation channels are time consuming and disorganized

- Uncertainty about logistics and legal responsibilities for donations
- Difficulty in reaching the right recipients quickly and consistently

How ZeroWasteConnect Helps:

- Allows Mark to post surplus items quickly at the end of the day
- Matches his bakery with nearby charities, food banks, or individuals
- Provides clear pickup and scheduling arrangements
- Improves community engagement and the bakery's sustainability image

Ethical Issues Identified

1. Data Privacy and User Security

One of the primary ethical concerns with ZeroWaste Connect is the personal information users will need to share to use the platform effectively. To arrange food collections, users will inevitably need to share their general location, and eventually their specific address or a nearby meeting point. They may also share contact details like phone numbers or email addresses to coordinate pickups. This creates significant privacy and security risks, particularly if this information falls into the wrong hands or if users feel pressured to share more than they're comfortable with. We need to take data protection seriously by implementing several safeguards. All user passwords must be properly hashed using crypt or a similar secure hashing algorithm, never stored in plain text. All data transmission should happen over HTTPS to prevent interception. The MySQL database needs to be properly secured with appropriate access controls and regular backups. More importantly, users should have granular control over their privacy settings. We're planning to show only approximate locations publicly, perhaps at the neighbourhood or postcode area level, with exact addresses only revealed once someone has committed to collecting an item. Users should be able to choose how much information appears on their public profile. We also need to provide clear privacy policies that explain in straightforward language what data we collect, why we need it, how it's used, and who can access it. Users should have the ability to download all their data and to delete their account and associated information if they choose to stop using the platform.

2. Food Safety and Legal Liability

Food safety is perhaps the most significant ethical and legal challenge we face with this project. Unlike regulated food businesses like restaurants or supermarkets that must follow

strict food safety standards and health inspections, peer-to-peer food sharing happens outside these traditional frameworks. We have no way to verify whether food listed on the platform has been stored at safe temperatures, handled hygienically, or is still safe to eat. There's a real risk that someone could become ill from consuming food they collected through the platform. We need to be completely clear that ZeroWaste Connect is purely a connection platform that brings people together, not a food business or marketplace. We cannot and do not take any responsibility for the quality or safety of food that users choose to share or collect. This needs to be communicated through comprehensive disclaimers that users must acknowledge when they register. We should require users to explicitly agree that they share and collect food entirely at their own risk, understanding that the platform makes no guarantees about food safety. Beyond legal disclaimers, we have a responsibility to educate users about safe practices. We could provide guidelines about what types of food are generally safer to share, like sealed packaged goods, versus higher-risk items like homemade dishes containing meat or dairy that have been sitting out. We should explain the difference between "best before" dates, which are about quality, and "use by" dates, which are about safety. Information about proper food storage temperatures, signs that food has gone bad, and basic food hygiene could help users make informed decisions. The key is striking a balance between not creating unrealistic fear about food sharing, which happens informally all the time, while also ensuring people understand the responsibility they're taking on.

3. Protection of Vulnerable Users

We need to think carefully about the fact that some people using ZeroWaste Connect might be experiencing food insecurity or financial hardship. While the platform could genuinely help people in difficult circumstances access food they need, we have an ethical obligation to ensure we're not exploiting vulnerable individuals or creating experiences that feel stigmatising or demeaning. The language and design of the entire platform need to treat all users with equal dignity and respect. We should avoid framing food sharing as charity or creating any sense of hierarchy between people who are "giving" and people who are "receiving." Everyone should feel equally empowered a user's offer food they don't need and request food that others are food listings reality is that most people will do both at different times. A student might share leftover ingredients one week and pick up someone's excess bread the next week. By framing this as community exchange rather than one-directional giving, we can help prevent stigma. We absolutely should not collect or display any information about why someone wants available food or require users to justify their circumstances. It's nobody's business whether someone is taking food because they're struggling financially, because they're interested in reducing waste, or simply because they like free things. Privacy features become especially important in this context. Users should be able to participate without their neighbours, classmates, or colleagues necessarily

knowing they're using the platform if they prefer to keep it private. Profile pictures and real names could be optional rather than mandatory.

4. Accessibility and Digital Inclusion

Creating a digital-only solution inevitably raises questions about who gets excluded. Not everyone has a smartphone or regular internet access, and those who might benefit most from accessing free food may be the same people who face digital exclusion due to cost or other barriers. While we can't completely solve this problem within the scope of a student project, we can design thoughtfully to minimise unnecessary exclusion. The web application needs to be genuinely responsive and functional on older, cheaper smartphones with limited processing power and memory, not just the latest high-end devices. We should optimise for low data usage since some users might have limited mobile data allowances. The interface should be straightforward and intuitive, avoiding unnecessary complexity that might create barriers for people who aren't confident with technology. We also need to follow web accessibility standards so the platform works properly with assistive technologies like screen readers for users with visual impairments. This includes proper semantic HTML, good colour contrast ratios for users with colour blindness or low vision, and keyboard navigation for people who can't use a mouse. Text should be readable at different sizes, and important information shouldn't rely solely on colour to convey meaning. While this project focuses on a web application, we could consider future extensions like SMS notifications for people without smartphones, or integration with community notice boards in libraries or community centres to reach less digitally connected residents.

5. Truthfulness in Environmental Impact Claims

Environmental benefits are a core motivation for this project, but we need to be careful about making exaggerated or misleading claims about Zero Wasteform's impact. While it's true that reducing food waste has environmental benefits, we need to be honest and realistic about what Zero Waste Connect can achieve. Any statistics we cite about carbon emissions, water usage, or resource waste Zero Waste come from credible sources like WRAP (Waste and Resources Action Programme), the UN Food and Agriculture Organization, or peer-reviewed environmental research. We should present these figures with appropriate context and caveats rather than making sweeping claims. We also need to acknowledge the limitations of the platform. Individual peer-to-peer food sharing is a small part of a much larger food waste problem that includes a detailed. One, distribution, retail, and household levels. Systemic changes in how food is produced, packaged, distributed, and sold would have far more significant environmental impacts than our platform alone could achieve. We should position Zero Waste Connect honestly as one tool among many for people who want to reduce waste

in their own lives and communities, while recognising it's not a comprehensive solution to food waste. The environmental messaging should focus on personal action and community building rather than claiming the platform will single-handedly solve major environmental problems.

6. User Safety in Physical Interactions

Since food collection typically requires people to meet in person, often strangers who've only connected through the app, we need to consider personal safety carefully. While most interactions will likely be perfectly fine, we have a responsibility to help users make safe choices and avoid potentially dangerous situations. The platform should actively encourage safe meeting practices. We could suggest public meeting locations like supermarket car parks, library entrances, or coffee shops rather than private residences, especially for first-time exchanges between users who don't know each other. We might recommend daytime collections when possible and suggest users bring a friend if they'd feel more comfortable doing so. Clear safety guidelines should be prominently displayed, advising users to trust their instincts, meet in well-lit public places, tell someone else where they're going, and not feel pressured to go through with a collection if something feels off. We should implement a rating and review system that allows users to build up positive reputations over time through successful exchanges. Someone with twenty positive reviews is probably more trustworthy than a brand new user with no history, though we need to be careful that this doesn't waste barriers for new users to get started. We absolutely need clear reporting mechanisms and a process for handling complaints about inappropriate behaviour, harassment, or anything concerning. Users should be able to block other users and report problems, and we need to take such reports seriously even though as students we have limited capacity to investigate or enforce consequences.

Meeting Records

Meeting 1: Project Selection and Initial Planning

Date: Tuesday, 4 February 2025

Time: 12:00 - 15:00

Location: University Library, Study Room

Attendees: Sanna, Jochebed

We started by going through the assessment brief together to make sure we both understood what was required for the group project. We looked at the indicative project ideas provided

by the module team and discussed which ones interested us most. We talked about study buddies for students, ride sharing to the university, recipe swaps, and minimising food waste by sharing excess food. The food waste topic kept coming up in conversation because it's something we've both personally experienced as students. I mentioned how I often buy ingredients for a specific recipe and then have leftovers that end up going bad before I can use them again. Jochebed talked about buying vegetables that seem like a good deal but then not using them quickly enough. We also discussed how it feels wasteful to throw away perfectly good food when we know other students might need it or would use it.

We looked at some existing food sharing apps like Olio and Too Good To Go. Olio lets people share food with neighbours while Too Good to Go focuses on businesses selling surplus food cheaply at the end of the day. We noticed that these platforms mainly connect individuals with businesses rather than facilitating peer-to-peer sharing among regular people in a community, which gave us confidence that our idea would offer something slightly different. We discussed whether we wanted to focus just on students or open it up to the wider community around the university, and decided to keep it broad so anyone could participate. This feels more aligned with the theme of building community connections rather than just solving a student-specific problem.

We decided to go with minimising food waste by sharing excess food as our project topic and agreed to call it ZeroWaste Connect. We committed to using all the required technologies from the module, specifically Node.js and Express for the backend, MySQL for the database, Docker for containerisation, and HTML, CSS, and JavaScript for the frontend. We agreed we'd both work in Visual Studio Code since we're already familiar with it from other modules. We set up our main communication channels, creating a WhatsApp group for quick day-to-day coordination and deciding to use Microsoft Teams for longer video calls if we needed to work together remotely. We also agreed that all code discussion and technical decisions should happen through GitHub so we have a proper record of everything.

Before our next meeting, we both agreed to do some background research. I said I'd look more closely at how Olio and similar platforms work, taking notes on features we might want to include and things that could be done better. Jochebad agreed to research food safety regulations and guidelines, particularly around informal food sharing, to help us understand the ethical and legal issues we'd need to address. We both planned to review the Docker documentation and refresh our knowledge of MySQL since we'd be relying heavily on those technologies. I also volunteered to create the GitHub repository and make sure we were both set up as collaborators before the next meeting. We scheduled our next meeting for Wednesday, 5 February at noon in the same library study room.

Meeting 2: Requirements Definition and Ethical Considerations

Date: Wednesday, 5 February 2025

Time: 12:00 - 15:00

Location: University Library, Study Room

Attendees: Sanna, Jochebed

We started by sharing what we'd each researched since the last meeting. I had explored Olio in detail and showed how their app works, pointing out features like the photo upload for listings, the map view to see what's available nearby, and their rating system where users can review each other after successful pickups. I also mentioned OLIO's "Food Waste Heroes" who collect food from businesses, though we agreed that was beyond the scope of what we needed to build. Jochebed presented findings on food safety, which led to a really

important discussion about liability and ethical responsibilities. We learned that peer-to-peer food sharing Zero Waste a bit of a grey area legally since it's not a commercial activity but still involves food changing hands. We talked about how we can't realistically verify whether food people share is safe to eat, which means we need very clear disclaimers making it explicit that users share and collect food at their own risk. This raised questions about what our responsibilities are as the platform creators.

We spent quite a bit of time discussing privacy and security issues. Users will need to share their location to make the platform work, but we don't want to require people to publicly post their home address for obvious safety reasons. We decided that showing approximate locations publicly and only revealing specific addresses once someone commits to a pickup makes more sense. We also discussed vulnerable users and how to make sure the platform doesn't create a charity-like dynamic that might feel uncomfortable or stigmatising for people who need food. We want it to feel like community sharing where everyone can both give and receive without judgment.

From a technical perspective, we started mapping out the database structure. We identified that we'd need tables for users, food listings, messages between users, and probably ratings or reviews. We discussed how these tables would relate to each other through foreign keys and what fields each table would need. We also talked through the basic user journey, from creating an account through posting a listing or claiming food someone else posted.

We finalised the core features we want to build for the application. Users need to be able to register and log in securely, create listings with details like food description, quantity, photo, collection location, and use-by date, browse available listings with the ability to search by location and filter by food type, message each other to arrange collection times and details,

and rate each other after successful exchanges to build trust in the community. We agreed on a privacy-focused approach where user locations are only shown at neighbourhood level publicly, with exact details shared privately when arranging pickup. We decided the database schema would include a user's table with authentication details and profile information, a food listings table with all the listing details linked to user IDs, a messages table for the in-app communication system, and a ratings table to store reviews users give each other. We committed to writing comprehensive disclaimers about food safety and user responsibility that people must agree to when registering. We also agreed we'd include educational content about safe food sharing practices, like understanding date labels and basic food hygiene, even though we can't enforce these practices.

For the next meeting, we divided up the remaining Sprint 1 work. Jochebed agreed to write the Code of Conduct and develop the two user personas since she'd been thinking about different user types and their needs. I said I'd work on the ethical issues section and the project description, making sure they clearly explained what Zero Waste Connect does, why it matters, the ethical considerations we need to address, and how it all relates to the module theme. I also volunteered to set up the initial Docker configuration files so we could start testing the development environment. We scheduled our final Sprint 1 meeting for Thursday, 6 February at noon.

Meeting 3: Technical Setup and Sprint 1 Completion

Date: Thursday, 6 February 2025

Time: 12:00 - 15:00

Location: University Library, Study Room

Attendees: Sanna, Jochebed

We started this meeting by working through the Docker setup together since I had created the initial configuration files. I opened the files in Visual Studio Code and explained what each part does. The docker-compose file defines two services, one for the Node.js application and one for the MySQL database. We made sure both of our laptops had Docker Desktop installed and running properly. Jochebed initially had an issue where Docker wasn't starting, but we realised Windows Subsystem for Linux wasn't enabled, so we fixed that in the Windows features settings and got it working. Once we ran the Docker file, we tested the setup by running the containers and checking they could communicate with each other. It was quite satisfying to see it work on both machines the same way, which is the whole point of using Docker.

We reviewed the GitHub repository structure that I had set up. I'd created folders for /src where our application code will go, /docker for the containerisation files, and /docs for documentation. The README.md file had a basic project description that we improved based on what we'd written for this deliverable. We both made test commits to the repository to confirm we could push and pull changes, and we set up branch protection on the main branch so we'll have to create pull requests rather than pushing directly, which should help us maintain code quality and review each other's work.

We then went through everything we'd written for Sprint 1. I had completed the ethical issues section, covering data privacy, food safety, vulnerable users, accessibility, environmental claims, and physical safety. We discussed each point and Jochebed helped me refine the wording in a few places to make sure it accurately reflected our thinking. My project description clearly explained what ZeroWaste Connect is, why it matters, and how it connects to the module theme of sharing and building community. Jochebed had done excellent work on the Code of Conduct and the two user personas. The Code of Conduct covers mutual respect, equal contribution, regular attendance at meetings, responding to messages within 24 hours, using pull requests for all code changes, and constructive code reviews. The personas she created were really detailed. One focusing on a budget-conscious, environmentally minded student, and another about a working parent wanting to reduce waste and connect with neighbours. We both felt the personas captured different motivations for using the platform and would help us design with real user needs in mind.

We finalised all the Sprint 1 deliverable components and confirmed they were ready for submission. The project description clearly explains ZeroWaste Connect and links to the module theme. The ethical issues section comprehensively addresses the key concerns we identified. Jochebed's Code of Conduct and personas were thorough and well-thought-out. The meeting records document our process and decisions. We confirmed that the GitHub repository is properly set up with appropriate folder structure, README file, and both of us added as collaborators with write access. We verified that both of us can successfully run the Docker development environment on our machines. We created a GitHub Project board with a basic Kanban structure including Backlog, To Do, In Progress, Review, and Done columns. We populated it with initial tasks for Sprint 2, including creating wireframes for key user journeys, design the standard detailed database schema with all tables and relationships, and starting to build the basic Express server structure.

We agreed that I would compile all the materials into the final PDF document for Sprint 1, ensuring it is properly formatted and complete. Both of us will review the final PDF before submission to check for any typos or formatting issues. The Sprint 1 deliverable is due on Moodle by 9 February, which provides a comfortable buffer for final adjustments. For Sprint

2, we divided the initial tasks. Jochebed will begin working on the requirements specification and the use case diagrams, while I will start creating wireframes for the main user journeys, including registering, creating a listing, and browsing available food. We will collaborate on designing the complete database schema, defining all tables, fields, data types, and relationships clearly. Our next meeting is scheduled for Tuesday, 10 February at noon in the library study room, where we will properly kick off Sprint 2 and review the assignment requirements for Submission 2.

These meeting records document our collaborative approach to Sprint 1. We've had productive discussions about both the conceptual and technical aspects of the project, divided work fairly between us, and ensured we're both set up with the necessary tools and environment to move forward with development. All our decisions have been made jointly, and we've maintained clear documentation throughout. We're both committed to the success of Zero Waste Connect and to demonstrating strong teamwork throughout the project.