

Task 3: Case study to solve complex problem by applying design thinking phases

Design Thinking Phase	Key Activity	Solution
1.Scope	Define the problem: High food waste in a mid-sized city with limited recycling infrastructure. Goal: Reduce waste by 40% in 2 years.	Problem Framing: Focused on households, restaurants, and grocery stores. Excluded industrial waste due to limited resources.
2.Empathize	Conducted interviews, surveys, and observational studies with residents, chefs, and waste managers.	Insights: Households lacked composting access; restaurants feared cost increases from donation logistics; grocery stores had no system for near-expiry food redistribution.
3.Define	Synthesized data to identify root causes: fragmented systems, lack of incentives, and poor stakeholder coordination.	Problem Statement: “Urban stakeholders need a coordinated, low-cost system to reduce food waste while aligning economic and environmental incentives.”
4.Ideate	Hosted workshops with NGOs, tech developers, and city officials. Brainstormed 50+ ideas.	Top Solutions: 1. City-wide composting network with subsidized bins. 2. App linking restaurants/grocers to food banks. 3. Tax rebates for businesses donating surplus food.
5.Prototype	Piloted a composting program in one district and built a basic app for surplus food redistribution (tested with 10 restaurants).	Prototype Results: - 70% household participation in composting. - App diverted 1 ton of food/month to shelters. - Identified app usability issues (e.g., real-time inventory updates needed).
6.Validate	Tested prototypes for 3 months. Collected feedback via surveys and usage analytics. Adjusted composting logistics and app features.	Validated Solutions: - Scaled composting program city-wide with localized pickup schedules. - Upgraded app with AI-driven expiry alerts. - Partnered with local farms for compost distribution.

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7.Implement	Launched city-wide program with government funding, community training, and partnerships with tech startups.	Impact: <ul style="list-style-type: none">- 45% reduction in landfill-bound food waste within 18 months.- 200+ businesses enrolled in tax rebate program.- Compost reused in urban gardens, reducing fertilizer costs by 30%.
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