Hands-on Activity 14.1 Build a Narrative on a Storyboard	
Course Code: CPE311	**Program:** Computer Engineering
Course Title: Computational Thinking with Python	**Date Performed:** 05-13-2025
Section: CPE22S3	**Date Submitted:** 05-13-2025
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1. Discussion

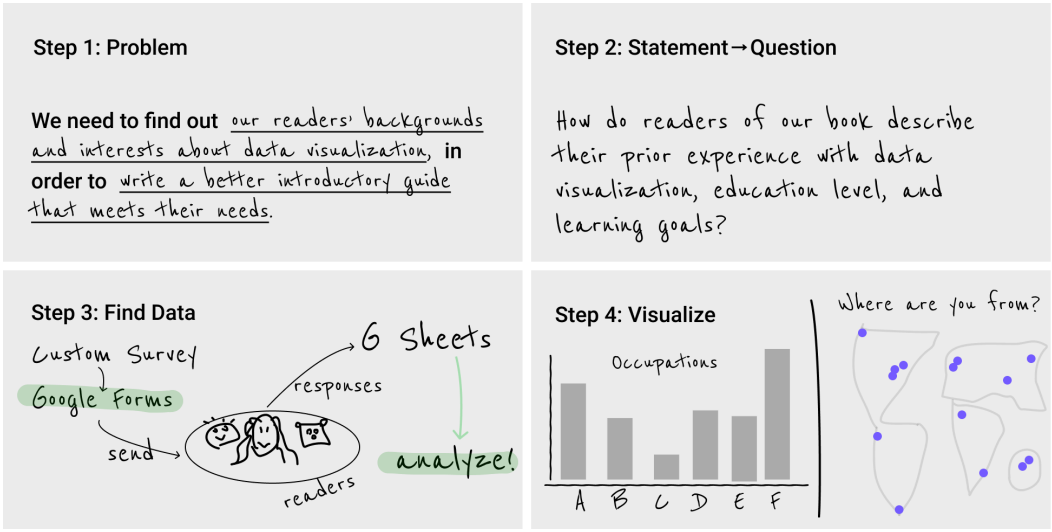
"Writers have an old saying—“show, don’t tell”—which means to let readers experience a story through the actions and feelings of its characters, rather than narration by the author. But we take a different stance, as shown in our chapter title: “tell and show” your data story. Make a regular habit of these three steps: tell your audience what you found that’s interesting in the data, show them the visual evidence to support your argument, and remind us why it matters. In three words: tell—show—why. Whatever you do, avoid the bad habit of showing lots of pictures and leaving it up to the audience to guess what it all means. Because we rely on you, the storyteller, to guide us on a journey through the data and what aspects deserve our attention. Describe the forest, not every tree, but point out a few special trees as examples to help us understand how different parts of the forest stand out."

Read full text here: Chapter 15 Tell and Show Your Data Story | Hands-On Data VisualizationLinks to an external site.

2. Materials and Equipment

computer - used for research

3. Procedure



Step 1: Clearly answer for the problem.
We need to find out _____ in order to _____.
Step 2: Statement Question
Step 3: Find Data
Step 4: Visualize

4. Output

TOPIC : Recommendation for the Food Waste problem through Filipinos Crop Harvest

Introduction

Food waste is an ongoing issue that needs to be solved not only in the country, but also in the ASEAN nations. When looking at the data provided by the Yale Center for Environmental Law & Policy, the Philippines ranks at the top 40% with a rank of 61 out of 180 countries about wasting food while other ASEAN nations rank around the top 100 with even some of them making it to the top 10.[1] With a score of -0.6 for the 10 year delta, the Philippines has an increased food waste per capita. Looking at the World Population Review there is a ~60% decrease in both food waste both overall as well as per capita from 2021 to 2024.[2] While there is a significant decrease and improvement in food waste but the problem still remains that there is still a presence of it present as well as there can be hindrances present preventing in full absolvement of this problem.

	flagCode	country	FoodWaste_AnnualWastePerCapita_Kg_2024	FoodWaste_TotalPerYear_Tons_2024	FoodWaste2021kgcapitayear	FoodWaste2021tonsyear
97	LA	Laos	86.724145	673831.0	83.050882	618994.0
101	TH	Thailand	86.237484	6180468.0	76.380012	5478532.0
141	KH	Cambodia	80.494762	1419831.0	83.856006	1423397.0
148	MY	Malaysia	77.474302	2754808.0	85.220901	2921577.0
149	MM	Myanmar	77.466757	4221946.0	87.401732	4666125.0
174	SG	Singapore	70.156831	409182.0	83.909244	465385.0
203	ID	Indonesia	51.954100	14728364.0	75.655454	20938252.0
214	PH	Philippines	25.504817	2954580.0	82.532223	9334477.0

Figure 4.1. Validating that the problem still exists in the Philippines

	country	rank	Score	10y Δ
4	Laos	5	94.9	0.0
8	Cambodia	9	85.7	0.0
19	Myanmar	19	78.1	0.0
22	Viet Nam	23	74.2	0.0
60	Philippines	61	55.9	-0.6
80	Indonesia	81	48.0	0.0
96	Singapore	97	42.0	2.7
103	Thailand	104	38.0	2.8
113	Brunei Darussalam	114	34.9	0.0
122	Malaysia	122	32.7	0.8

Figure 4.2. Validating that the problem still exists in the Philippines

Problem

When it comes to food waste, some of this waste also comes not only directly on households but also comes specifically on during both production, transportation, and selling of it. Due to laws of supply and demand, some foods are wasted due to the spoilage since not only are there too many products that are supplied in the market, some of these products may also be overpriced leading consumers to avoid buying them, this avoidance leads to produce in the market spoiling contributing to food waste.

The sellers themselves are the ones that are being damaged by these on top of the farmers themselves due to the fact that not only are they being faced with these spoiled food, they are making a deficit since there are chances in not being able to take back their initial investment in buying the produce from the farmers themselves such as wholesalers facing 10% losses and 5-8% for retailers.[3] Another contributing factor are these sellers themselves since the more people are trying to sell a product, the more the price may and will fluctuate since they will be the ones that can impose prices for these product which will lead to a pricy final Manufacturer's Suggested Retail Price (msrp), this msrp can lead to some consumers in avoiding the ingredient entirely in search of an alternative.[4] While it is true that these sellers can be seen as another problem when it comes to produce being spoiled, it still should be clarified and remembered that some of this middlemen use this platform as their main source of income so taking them out of the equation cannot be a solution.

On top of the sellers, they also contribute largely for the product lost among others in the Food Value Chain such that ~50% are lost to the initial harvesting, grading, packaging and transportation from field to storage and distribution to the consumers. [5] A study conducted by the International Journal on Food, Agriculture, and Natural Resources at Pasig Mega Market, Pasig City showed an average of 100-200 kilograms of waste were collected in the market daily, with leafy vegetables, watermelon, melon, and saba as common types. [6]

A study conducted by the International Society for Horticultural Science found that traditional and modern retail chains had similar players: farmers, commission agents, wholesalers and retailers. The total losses for cabbages were estimated at 26 to 27% in both chains. [7] While both chains have differing reasons on why the product is being spoiled such as poor handling during transportation leading to a shortened shelf life or it is simply too pricey, the issue still remains that there are still losses in the selling phase of this product. While the following are 10 years outdated, a news source recently highlights that there still exists an ongoing issue due to this poor logistics such that 30% of crops are being wasted from this. [8]

Statement of the Problem
There is food wasted in the selling phase of produce such that because of the supply and demand as well as the price being marked by the sellers, people are being hesitant in purchasing this produce which in turn will leave some excess products left to be sold which will sooner spoil, contributing to food waste.

5. Supplementary Activity

1. Map out your datasets to your described objective.
objective 1 - validate the existence of food waste first
dataset(s)
- https://www.kaggle.com/datasets/joebeachcapital/food-waste/data [raw]
- https://epi.yale.edu/measure/2024/WPC [web scrapped]
- https://worldpopulationreview.com/country-rankings/food-waste-by-country [requested for raw]

objective 2 - validate the existence of food wasted during the selling phase of the product
dataset(s)
- none as of yet

objective 3 - data to segway for recommendation of a solution, whether the solution is already existent.
dataset(s)
- none as of yet

2. Link and cite all your data.
[1] Yale Center for Environmental Law & Policy. (2024). Waste generated per capita (WPC). Environmental Performance Index. https://epi.yale.edu/measure/2024/WPC

[2] World Population Review. (2025). Food waste by country 2025. https://worldpopulationreview.com/country-rankings/food-waste-by-country

[3] Digal, Larry & Carbonell, Alessa & Aguinaldo, Roxanne & Orbeta, Marvin Louie & Shuck, Vlademir & Dijkxhoorn, Youri & Piters, Bart. (2024). Reducing post-harvest losses and enhancing food safety: The role of the midstream traders in the case of mango and vegetable value chains in southern Philippines. 10.13140/RG.2.2.29332.41606. https://www.researchgate.net/publication/388633206_Reducing_post-harvest_losses_and_enhancing_food_safety_The_role_of_the_midstream_traders_in_the_case_of_mango_and_vegetable_value_chains_in_southern_Philippines

[4] Arcalas, J. Y. (2022, July 11). Agri leaders: Cut middlemen layers to lower food prices. BusinessMirror. https://businessmirror.com.ph/2022/07/11/agri-leaders-cut-middlemen-layers-to-lower-food-prices/

[5] Lotis E. Mopera, (2016, August 04), Food Loss in the Food Value Chain: The Philippine Agriculture Scenario, Journal of Developments in Sustainable Agriculture, 2016, Volume 11, Issue 1, Pages 8-16, Released on J-STAGE, Online ISSN 1880-3024, Print ISSN 1880-3016, https://doi.org/10.11178/jdsa.11.8, https://www.jstage.jst.go.jp/article/jdsa/11/1/11_8/_article/-char/en

[6] Buhion, R. P., Barrion, A. S., & Lanorio, M. C. (2024). Fruit and vegetable waste characteristics and management practices at Pasig Mega Market in Pasig City, Philippines. International Journal on Food, Agriculture and Natural Resources, 5(1), 8–14. https://doi.org/10.46676/ij-fanres.v5i1.233

[7] Acedo, A., Gonzales, L.M., Valida, A., Salabao, A., Benitez, M., Sudaria, E., Rivera, F.R. and Ekman, J. (2015).

Supply chain losses of vegetables in the Central Philippines. Acta Hortic. 1103, 1-10
DOI: 10.17660/ActaHortic.2015.1103.1
https://www.ishs.org/ishs-article/1103_1

[8] Romero, A. (2024, January 17). DA: 30 percent of crops wasted due to poor logistics. The Philippine Star. https://www.philstar.com/headlines/2024/01/17/2326363/da-30-percent-crops-wasted-due-poor-logistics

3. What do you aim to prove with your dataset and visualization?
To validate that the problem does exist which will aid in justifying the further data, serving as their foundation on why they will be created.

4. What is the narrative you want to write based on your data?
Food waste doesn't only happen in households. It may also occur during production, transportation, and selling. Products were spoiled due to oversupply even before they could be sold. To reduce waste, NGO and LGU may support sellers by giving financial aid in exchange for near expiring products. In which, the product will then be redistributed immediately to people that don't have a capacity to buy food.

6. Conclusion/Analysis

De Guzman
In building a storyboard, a proper outline must first be understood and planned ahead in order to create and construct a proper visualization such that the problem must first be understood properly along with validity of it which will cascade in understanding possible data visualization and recommendation. Additionally, avoidance of a bottom-down approach is highly frowned upon such that focusing on a solution is not flexible in the long run in a sense that most of the ideas will use the concept of that solution as a foundation meaning that if even one of it fails then you must rebuild from the bottom up. Focusing more and finalizing the main problem first is a must in this sense such that identifying the more focused problem will leave room for further improvement in an event that it may fail since some revision will be the only problem needed to be tackled rather than starting from scratch.

This activity is exactly for this reason such that both the revision and further clarification of the problem itself can be further expounded upon since when it comes to telling a story for the storyboard, you must first understand not only your problem but also your audience. Focusing on telling the story to the audience enables understanding the problem at hand much closer since this will lead to the foundation in better explaining the story at hand which additionally helps in explaining the recommendation as well since the problem itself serves as the "*plot*" of the story.

This is the reason that is followed in creating the storyline in constructing the narrative of our story. With the main story of Food Waste, our *plot* revolves around the interaction of the food waste during the selling phase of raw produce such that we first validated and understood that the food waste first exists in order to justify that this is really a problem and that it must be further focused upon. In validating this problem, it is deeply focused upon further such that the *plot* will now resolve during the selling phase of wet products. We identified that this *plot* is indeed factual since based on the data gathered, it does exists and that there really are food being wasted during the selling phase for reasons such as they are either damaged during transport leading to a shorter shelf life or they simply are not being sold weld, all leading to spoilage contributing to the main story of food waste.

From that, the main story and the main plot are validated, the datasets to expound or visualize them further to tell the story will now be the thing left remaining.

Masangkay

In conclusion, identifying the main problem and its sub-problem is crucial in creating a storyboard. Without it, the idea will be too broad to discuss and provide solutions. Our narrative became loose because of unclear problems but we certainly have an idea why we came up with a particular solution at first. Food waste problem really exists, and upon researching top countries battling food waste, they either donate near-expiry products or give incentives to the ones that turn them over. Another unique way that South Korea did was to ask for fees equivalent to food waste produced. Food banks are one way to solve the food waste problem, they collect and redistribute near expiry products. In some sense we can't directly suggest doubling their effort for faster and broader redistribution. A solution that Philippines is currently doing is the Kadiwa Store where they sell produce at discounted price. This cleared my confusion on why our country managed to lower the food waste per capita per year but doesn't rank among the top countries battling food waste because in the first place our country doesn't have that much waste because it was already being redistributed through discounts and 'ayuda'.

I realized that it is more about telling a story and impacting the audience using data. But since the initial idea still doesn't have any other correlation rather than just redistribution of food correlating with food waste. What we did is we took a turn into giving incentives to whoever turnovers the near-expiry produce.

7. Assessment Rubric

Lab Activity Rubric

Criteria	Ratings						Pts
SO 7 PI 1 **Student Outcome 7.1** Acquire and apply new knowledge from outside sources. threshold: 4.8 pts	6 pts Excellent | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently and applies knowledge learned into practice	5 pts Good | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently	4 pts Satisfactory | Look beyond classroom requirements, showing interest in pursuing knowledge independently	3 pts Unsatisfactory | Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently	2 pts Poor | Relies on classroom instruction only	1 pts Very Poor | No initiative or interest in acquiring new knowledge	6 pts
SO 7 PI 2 **Student Outcome 7.2** Learn independently threshold: 4.8 pts	6 pts Excellent | Completes an assigned task independently and practices continuous improvement	5 pts Good | Completes an assigned task without supervision or guidance	4 pts Satisfactory | Requires minimal guidance to complete an assigned task	3 pts Unsatisfactory | Requires detailed or step-by-step instructions to complete a task	2 pts Poor | Shows little interest to complete a task independently	1 pts Very Poor | No interest to complete a task independently	6 pts
SO 7 PI 3 **Student Outcome 7.3** Critical thinking in the broadest context of technological change threshold: 4.8 pts	6 pts Excellent | Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions	5 pts Good | Evaluate information from a variety of sources; formulates a clear and precise perspective.	4 pts Satisfactory | Analyze information from a variety of sources; formulates a clear and precise perspective.	3 pts Unsatisfactory | Apply the gathered information to formulate the problem	2 pts Poor | Gather and summarized the information from a variety of sources but failed to formulate the problem	1 pts Very Poor | Gather information from a variety of sources	6 pts
SO 7 PI 4 **Student Outcome 7.4** Creativity and adaptability to new and emerging technologies threshold: 4.8 pts	6 pts Excellent | Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts Good | Ideas are creative and adapt the new knowledge to solve a problem or address an issue	4 pts Satisfactory | Ideas are creative in solving a problem, or address an issue	3 pts Unsatisfactory | Shows some creative ways to solve the problem	2 pts Poor | Shows initiative and attempt to develop creative ideas to solve the problem	1 pts Very Poor | Ideas are copied or restated from the sources consulted	6 pts
							Total Points: 24