

TECH-UB 24 002
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LocateYourWaste:

A Website to Lessen Pollution & Increase Personal Impact

New York City may be considered the world's greatest city to many, but its level of dirtiness says otherwise. Currently in New York City, 14 million tons of waste are produced each year. Additionally, around \$452 million are spent on shipping out 3.4 million tons of household trash, and around 7.8 million miles are driven by Diesel trucks carrying solely Manhattan's waste every year. Even with a \$1.83 billion budget on the city's sanitation, New York City is nowhere close to meeting its goals of sending 0 waste to landfills by 2030 or reaching a 33% recycling rate. Compared to other major cities such as Seattle, Los Angeles, Chicago, Boston, etc., New York City holds a 40-60% lower recycling rate and produces 9-12 million more tons annually, evidently holding a shockingly bad waste management and recycling problem. We believe that New York City's lack of proper waste collection, management, and recycling throughout the years can largely be attributed to the lack of transparency between residents and the city's waste management status, as well as a lack of emphasis on residents' responsibilities in alleviating the ongoing problem. This is why we created LocateYourWaste, a website dedicated to lessening pollution & increasing personal impact.

Through cleaning, combining, manipulating, and analyzing 6 NYC Open Data datasets that describe NYC's cleanliness rates, waste tonnage, recycling rates, and special waste drop-off locations, we have created LocateYourWaste, a one-stop shop to all relevant New York City waste, recycling, and cleanliness information. When creating the website, we had two major goals: increasing transparency and ease of finding New York City's waste information and allowing greater personal involvement and contributions of NYC residents in alleviating the waste issue. For greater transparency, the site generates and provides up-to-date data visualizations and analysis of waste and recycling management trends of the city as a whole, as well as separated into each of the five boroughs. For greater personal involvement, the site allows users to find specialized waste drop-off locations throughout the city and in each of the boroughs.

To accomplish our goals, we have created LocateYourWaste and separated the site into four main pages: the homepage, Waste in NYC, Waste by Borough, and Waste Drop-Off Locations. In the homepage, users can find some fast facts about New York City that introduce them to the ongoing and drastic waste mismanagement problem it has, the project motive and significance, and descriptions of the team behind the website. In the Waste in NYC page, users can find infographics of the city's overall annual total waste production from 1990 to 2022, annual waste production broken down by waste types (refuse, plastics, and paper), and annual waste production broken down by boroughs. To put things into clearer perspective, we've also included a borough rankings by the total amount of waste collected, 2022 in tons, and additional fast facts of the city's sanitation investments and implementations that serve to explain any significant trends depicted in the graphs. In the Waste By Borough page, users can personally interact with the page by choosing which of the five boroughs they would like to closely inspect. After either clicking on the interactive map or choosing from the drop-down list of boroughs, information of one of the 5 boroughs will pop out. Similar to the Waste in NYC page, the Waste By Borough page hosts infographics of the city's annual total waste overall and by type of waste, annual recycling rates, and street cleanliness ratings. Additionally, users can find demographic information of each borough and our analyses and rankings of each borough by waste tonnage, recycling rates, and cleanliness rates. Lastly, in the List Drop-Off Locations page, users can interact with the page by choosing one of the three types of specialized wastes they want to drop off as well as inputting the borough name or a portion of their address. After these inputs, users will be able to see a map of New York City with each of the drop-off locations as points on the map, as well as a list below with the relevant location names, addresses, borough, and additional notes that explain each location's open hours, operation days, etc.

Out of the 6 data sets that have been used, 3 are stored in the public database with teamH as the prefix. The remaining 3 data sets (Monthly Tonnage, Recycling, and Street Cleanliness) use NYC Open Data's API. The front-end of the website has been developed using Bootstrap. The visualizations have been generated through Chart.js and matplotlib. Majority of the data analysis has been performed in Python Pandas.

While there can always be further improvements to the website, we believe that LocateYourWaste is an effective first step to alleviating the waste overflow and insufficient recycling rates New York City has been experiencing for the past few decades. To truly create impact, we ensured that LocateYourWaste not only holds accurate, up-to-date information of the city's waste

collection, recycling, and cleanliness rates, but also provides users an interactive and fun way to learn and educate themselves, ultimately motivating them to hold better recycling habits and personally contribute to ending New York City's waste overflow. As the website header states, the rats don't run the city, we do; now is the time to make New York City be ours, be home once again.