Predict Waste Production for its Reduction

Challenge Provider: UrbanAI

UrbanAI is a Think Tank that federates a global community of pioneers in the emerging field of Urban Artificial Intelligence (Urban AI).

Together, we are investigating this technology and we propose ethical modes of governance and sustainable uses of Urban AI.

Context

According to the World Bank, in 2016 cities generated 2.01 billion tons of solid waste. Per person, this is around 0.74 kg/day! With the rapid growth of cities, this number is only expected to increase. As cities are growing, it is urgent that optimization processes for waste processing and more targeted public education on waste management and separation. Finally, it is also important to note that waste collection also has an impact on air pollution.

Goal

The goal of this challenge is to help identify trends in waste production and help to create insights into how to reduce waste and optimize its collection.

Sustainable Development Goal

GOAL 11: Sustainable Cities and Communities
Target 11.6: Reduce the environmental impacts of cities

Outcome

The expected outcome to this challenge is to identify waste trends and to produce an explainable model for predicting future waste production.
Finally, don't forget to propose the application (product) for the model and study its impact.

Available Resources

The following list of resources is available for you to use:

- Daily Waste Collection Report for Austin
- Population per year (1840-2016)
- 2020 Census Data on Austin
- OpenWeather API

As a reminder, you can also use any data that is open, free and legally available. Austin has an Open Data Portal with more than 4000 datasets. **For historical weather data**, you can use the OpenWeather API.

Tips

- Combine the above open data with any publicly available data or generated synthetic data. Create assumptions as required to support the illustration of a solution.
- The dataset is also available on Google BigQuery.

Submissions

Deadline: Wed, 23 March 23h59 AoE (Anywhere on Earth)

Don't forget that you will need to submit the solution report (notebook template with the link below) and executive summary (markdown template below). You also need to submit a **3-minute** video summary of your solution.

Solution report template: https://bit.ly/wdl_2022_jupyter_template
Executive summary template: https://bit.ly/wdl_2022_exec_sum