**#README**

(TOBE DELETED)

*All teams must:*

*Create README.md file in the github repo in your team folder. This must summarize what the project is, what the team did, how to navigate the different files in the repo, and the information any future users would need to have in order to get the code running.*

#### **##Project Description**

BU Sustainability supports the transformation of Boston University’s planning, operations, and culture toward a sustainable and equitable future.They have pulled multiple spreadsheets with data from their 3rd party vendor Contelligent and our waste vendor Casella. Contelligent provides PSI fullness monitoring of our compactors. The client has provided detailed data sets from each monitor, overall data, temperature data, and waste generation spreadsheet by data from Casella. The analysis of these datasets will inform BU Sustainability how they can potentially improve where to store waste if there are adverse weather effects.

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Zeqi Wang: The research I focused on was finding out if there is a relationship between temperature and the compressor's psi value. The dataset I was using was the ‘readings\_device.#####.csv’. The time frame of the data record was from 2021-07-01 to 2022-10-02, and 24 compressor machines were located at the BU campus (Charles, Fenway, and MED). I performed Correlation analysis and Linear regression prediction for psi values and temperature for each compressor. To run the code in my section, simply go to my folder, select the desired Deliverable folder, then change the path for csv files based on your machine.

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Timur Zhunussov:

I have addressed additional data like inconsistencies in the temperature data by merging readings from different locations and comparing them with historical data from NCEI CDO, resulting in nearly identical data. Additionally, I tried to distinguish between compactions and waste pickups, although interpreting the data was challenging due to its density. By applying smoothing techniques and analyzing the PSI values, we gained insights into waste pickup patterns. Finally, have tested three models: Linear Regression, Decision Trees, and SVM, to predict temperature. While Linear Regression and SVM showed low or no correlation, Decision Trees performed better, but the possibility of overfitting must be considered.

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Akshad Ramnath:

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Baicheng Fang:

Firstly, I use the extracted data from BU\_Daily\_Weights\_FY22 to examine the correlation between waste production and temperature. In some certain cases, there is some correlation but far from fitting to a model.

Obviously I need to do more feature engineering to improve the model’s performance, so I try to add more features to do multiple linear regression to further analyze the correlation between temperature and other parameters.

The domain knowledge of waste production yields many factors. Apart from temperature, we suppose pressure is also important. So I use the psi reading data preprocessed by Zeqi. I examine with OLS and simple MSE. I choose 5 out of all given sites for fitting tests, BU #38 Life Sciences 20 has the best performance. I will test the rest in the immediate future. The code has been uploaded to the project's git repository under my branch.