Predicting Food Inspection Outcomes in Chicago

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Objectives

This research project explores modeling outcomes of health inspections of food establishments in the city of Chicago. We had the following goals:

- Design a model that can be portably applied to new data.
- Define a reasonable cost function.
- Successfully predict inspection outcomes to optimize the social costs of inspections

Introduction

The City of Chicago's Department of Public Health is responsible for inspecting upwards of 15,000 establishments that sell food within the city limits. Previous work published by the City of Chicago's advanced analytics team showed that using historical inspection data and a variety of other information helped predict establishments that were at the highest risk of critical violations. That previous work is already several years old. In this project, we aimed to replicate the results of the previous study on an updated dataset and, where possible, to include new, potentially more predictive data to optimize the inspection process further.

This project is an example of data science applied for the public good. Citizens are less likely to be exposed to critically unsafe food establishments, while inspectors are able to work more effectively.

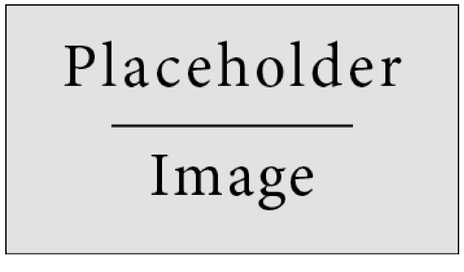

Figure 1: Figure caption

Data Collection

The following materials were required to complete the research:

- Curabitur pellentesque dignissim
- Eu facilisis est tempus quis
- Duis porta consequat lorem
- Eu facilisis est tempus quis

The materials were prepared according to the steps outlined below:

1. Curabitur pellentesque dignissim
2. Eu facilisis est tempus quis
3. Duis porta consequat lorem
4. Curabitur pellentesque dignissim

Methods

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Important Result

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Mathematical Section

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$$E = mc^2 \tag{1}$$

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$$\cos^3\theta = \frac{1}{4}\cos\theta + \frac{3}{4}\cos 3\theta \tag{2}$$

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$$\kappa = \frac{\xi}{E_{\max}} \tag{3}$$

Results

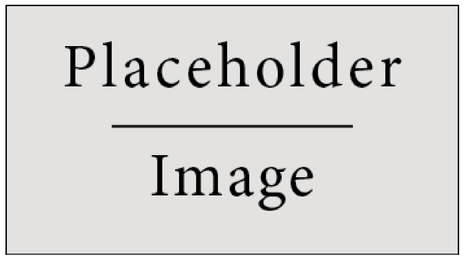

Figure 2: Figure caption

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Treatments	Response 1	Response 2
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

Table 1: Table caption

Conclusion

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Future Work and Open Questions

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References

Acknowledgements

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