Thank you for taking the time to talk with us. We enjoyed hearing from you and would like to move you on to the next stage of our hiring process—the data challenge. You will find detailed instructions below; we look forward to seeing what you can do!

This is intended to be a short exercise of your skills and thought process. Don’t worry about getting the answers “right” or striving for perfection, and please don’t spend more than three (3) hours on it total. Consult any materials you wish, but you must work alone. Put your analysis in a GitHub repository and email to link to [dataoffice@mass.gov](mailto:dataoffice@mass.gov) at least 24 hours in advance of your interview. Be sure to include the methodology you used to analyze the data and any code you wrote.

**Data Challenge**

The City of Goodeats is looking for ways to improve 1) how it conducts food safety inspections for food establishments (e.g. restaurants); and 2) how food establishments perform on the inspections. The Commissioner has come to you for help. She has provided you with two datasets: “food establishment violations” and “food establishment grades.” “Food establishment violations” records every violation for every inspection on every food establishment in the City (e.g. level=restaurant🡪inspection🡪violation). "Food establishment grades” scores each inspection based on the number and severity of the violations observed and presents a score and grade for each inspection performed (level=restaurant🡪inspection). The Commissioner would like you to use the data to generate insights into the City’s inspection process and/or inspection results that she can use to make improvements. Please choose **one** (1) of the bullets below and answer the questions using one or both datasets:

* Is the City conducting inspections effectively? Are poorer performing establishments inspected more often than better performing establishments? What are the trends over time?
* Are there commonalities or trends among establishments that perform poorly?
* How do establishments perform on re-inspections? How long does it take after an initial inspection for establishments to correct all violations?
* Do establishments improve their performance on inspections over time?
* What changes, if any, would you make to the scoring/grading system to better reflect inspection performance?

Prepare a brief memo or presentation for the Commissioner. Include a short explanation of how you approached the question(s), a statement of your main finding(s), and a set of data visualizations that show your analysis. You may visualize your analysis in any form or medium you choose and use any tools or applications you wish, but please complete any coding work in either R or Python.

You will find each dataset and corresponding dictionary file at <http://open.data.test.s3-website-us-east-1.amazonaws.com/>

Good luck!