# Nationwide Takehome Evaluation

## Preamble

You are not to discuss this with any other persons. This should reflect your own work and though processes.

Please return to *John Honaker* by email (*honakj3@nationwide.com*) by noon on Monday, November 16th, 2020.

The following is a fictional scenario designed to assess your ability to think critically about a business problem. You will be given a brief problem statement and a data set.

You may use any programming language (R or Python are preferred) or output format (R Markdown, Jupyter notebook, PDF, etc.) that you wish to complete this exercise.

Please provide evidence or arguments to support your statements and conclusions. These may take the form of independent exploratory data analysis, model diagnostics, logical arguments, simulations, or other things not listed.

We are aware that this is a fairly open ended request, and that there are many avenues to approach this task. Be prepared to discuss any choices or decisions you made during the interview.

## Problem Statement

The ability to properly assess risk is a key skill for insurance companies. In this assessment, you are part of the team charged with developing a model to predict the riskiness of drivers for a new auto insurance product. You company has paid to monitor the driving behavior of a sample of people for the last year. The dataset contains basic demographic information and driving history consisting of the following five variables:

- age: The age of the driver under consideration
- edu: The education level of the driver. High School or College
- inc: The yearly income of the driver in dollars
- car: The car type of the driver. Standard, Luxury, Truck
- acc: The number of accidents the driver has been in over the last two years.

Clearly state any assumptions you make about the data or otherwise, since you cannot ask the fictional modeling team any clarifying questions.

### Tasks

Complete and provide work for all of the following objectives.

- Perform an exploratory analysis of the dataset.
- Build a model that identifies the risk of an auto accident for a driver
  - Clearly state how you are approaching "risk of an auto accident."
- Assess your model, provide enough evidence to convince business partners it does a reasonable job of assessing risk.
- If there were any limitations in the available data or anything else that you felt prevented you from doing something or answering the question properly, please describe them.
- Prepare a short (~10 minutes) presentation or report to explain and support your findings.
  - You will present this during the debriefing interview.
  - It may be created using PowerPoint, LaTeX/Beamer, R Markdown, or whatever else you wish.