# Analyst Hiring Exercise

Thank you for your interest in TNTP. Our organization’s hiring process includes a focus on exercises that are similar to the day-to-day work for the open position. This gives you an opportunity to make a meaningful assessment of how a role will fit you, and allows us to observe your skills first-hand.

The Analyst’s most important responsibilities include drawing lessons from the best available data to inform and advance the organization’s mission of ensuring all students have access to effective teachers. The exercise below is designed to simulate these responsibilities on a small scale. The skills required to do well in this exercise are the same as those our Analysts currently use in our work throughout the country.

There is no one right answer. We are looking for responses that demonstrate efficient and accurate analytical skills, attention to detail, and the ability to communicate effectively, both in words and visuals, to a client.

Please complete the exercise below and submit your work to the Staffing Manager by the given deadline. We value your time and have designed the exercise with that in mind; please spend no more than a few hours on this project.

## Show your work

You may complete this assignment in whatever software you feel is best suited for the task. We are as interested in the way you do your work as we are in the results. Please show all your work in a way that allows us to follow each step of your analysis.

If you use a statistical programming language, submit an annotated script to show and explain your work, including any steps to prepare and analyze the data. Please also submit a copy of your script in PDF (or similar), to avoid any potential difficulty in opening different file formats.

If you complete this project in Excel or similar software, submit a workbook that retains all formulas, cells, or sheets that are helpful in following your work. Please also annotate your workbook to clearly show the steps you took to answer each question.

## Data sources:

**StudentScores.csv**

This file contains aggregated student test results for the 2013-2014 state assessment for all schools in a district, with results broken out by grade and subgroup.

**EducatorEffectivenessSnapshot.csv**

This file contains a summary of teacher effectiveness ratings broken out by school. Teachers are assigned a rating of Highly Effective, Effective, Minimally Effective, or Ineffective based on the district’s teacher evaluation rubric.

These files are subsets of real, publicly available data, and represent the sort of files that the Analyst will interact with in the course of their day-to-day work.

**Business rules to use in analysis:**

* Values of “<10” may be omitted (i.e., treated as NA)
* Ensure that every school on the Student Scores list has a match on the Educator Effectiveness Snapshot list

Exercise:

Part 1: Summarize the Student Scores data to show the percent of students who are proficient or higher in math at each school.

1. Populate a table showing the top ten schools in math proficiency along with their proficiency rates (percent of students scoring at proficient or higher). There should be one percentage per school that accounts for all students at the school.

Part 2: Explore the relationship between math proficiency and educator effectiveness at the school level.

* 1. Calculate the correlation between the percent of students at a school who are proficient in math (the result of Part 1) and the percent of educators at a school who are rated Effective or Highly Effective. All schools in the Student Scores file should be used in this correlation.
  2. The client for this work is the district’s Director of School Improvement. Provide the Director with a brief (no more than a paragraph or two) interpretation of the result of this correlation. What did you find? What do you think the district can learn from this result?

Part 3: Examine the spread of educator ratings in the district. The district is interested in how the evaluation rating scale has been used in practice.

1. Create a chart illustrating a main message that you see in the ratings data. The audience for this chart is the Director of School Improvement.
2. Provide a short accompanying description for your chart. What trend(s) do you notice and how might they be actionable for the district?