Ada Developers Academy

Cohort 11 Data Analysis Instructions

## WHAT WE’RE LOOKING FOR

## Demonstration of an aptitude to recognize patterns, try different paths, and conclude logical findings

## Ability to clearly document thought process, assumptions, and conclusions

## Please detail your thinking and problem solving process. We evaluate this more than the final correct answer.

## DATA

The data set that you will need to analyze comes from the [United States Department of Agriculture’s report on major land use](https://www.ers.usda.gov/data-products/major-land-uses/major-land-uses/) categories for US states. The report includes survey data from 1945 through 2012, taken roughly every 5 years.

The dataset, in CSV format, along with a [glossary](https://www.ers.usda.gov/data-products/major-land-uses/glossary/) file that includes definitions for each type of land use should be downloaded [from us](https://drive.google.com/drive/folders/1kZZU2eT9RCyrKBN5pTyciN8-PqvQGTiI). To open these files you are welcome to use Excel, the free alternative [LibreOffice](https://www.libreoffice.org/download/libreoffice-fresh/), or any other program that opens CSV files.

If you prefer to work with Google Sheets, please use [this link](https://docs.google.com/spreadsheets/d/1vyuI6lqWehAEnF0HTw7C9e36xbDcar_3ITCDEKye8r0). You will need to make your own copy in order to edit and organize the data to answer the questions below.  
  
If you cannot open the file on your computer, you should try a local public library. If you have exhausted all options, please email [admissions@adadevelopersacademy.org](mailto:admissions@adadevelopersacademy.org).

## OVERVIEW

There are five questions related to the above datasets, in order of increasing complexity and ambiguity. For each of the five questions you will need to provide both your answer and an explanation of your process, assumptions, choices, and reasoning.

For each question, we are looking for logical argument to support your answer and to understand your approach. For all questions we ask that you keep your explanation concise (under 700 words per question) as our reviewers have a large number of applications to process.

## BEFORE YOU BEGIN

Before beginning to work on any of the following questions first exclude all rows where:

* The region is “AK and HI”, “48 States”, or “U.S. Total”.
* The state is “District of Columbia”.
* The state includes the letter “y”.

## QUESTIONS

**Question 1**: Which region had the most "Grassland pasture and range" in 1974?

**Question 2**: How many states had at least 2,000 in the “Land in Urban areas” column for any year prior to 1987?

**Question 3**: What is the average value of the “Cropland used for pasture” column among all states within the Pacific and Mountain regions for 1964?

**Question 4**: Consider the original 13 colonies of England which became what is now the United States. Of the states that have land within the territory of those 13 colonies, which state made the largest contribution to its region's total “Forest-use land” in 2012?

**Question 5**: Which region has had the largest shift in its land use between 1945 and 2012? Please explain your reasoning, including the data that you used to reach that conclusion.