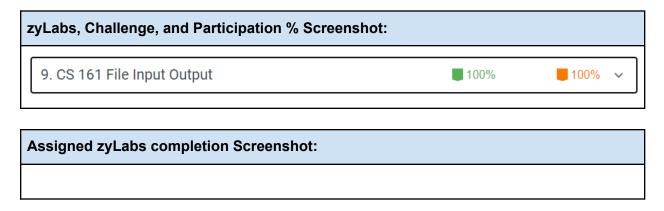# Assignment xx Algorithmic Design Document

Make a copy before you begin (File -> Make a copy). Add the Assignment # above and complete the sections below BEFORE you begin to code and submit with your Assignment to D2L (File -> Download -> PDF). The sections will expand as you type.

zyBooks

Add your zyBooks screenshots for the % and assigned zyLabs completions below. Required percentages: all assigned zyLabs, Challenge Activity with at least 70%, and Participation Activity with at least 80%.

zyLabs, Challenge, and Participation % Screenshot:
9. CS 161 File Input Output   ▮100%   ▮100%   ⌄

Assigned zyLabs completion Screenshot:

Assignment

Program description:
Using dataset from [Southern Poverty Law Center](#) on hate groups in the US in 2020, the user will input the state of interest and find the most popular hate-group ideology in the state by count of organizations. A second function will find the largest organization by number of chapters, if applicable.

Before you begin coding, **you must first plan out the logic** and think about what data you will use to test your program for correctness. All programmers plan before coding - this saves a lot of time and frustration! Use the steps below to identify the inputs and outputs, calculations, and steps needed to solve the problem.

Algorithmic design:
a. Identify all of the user input. What are the data types of the inputs? Define the input variables.
User will input "[filename].csv" and then input the state abbreviation under review.

Output will be welcome message, user entry request (and validation failures) and then the most popular hate group ideology, as well as the largest hate group organization.

c. What calculations do you need to do to transform inputs into outputs? List all formulas needed, if applicable. If there are no calculations needed, state there are no calculations for this algorithm.

Calculations will be comparative analysis for most popular ideology within a state, and then the largest organization with the most chapters.

d. Design the logic of your program using pseudocode or flowcharts. Here is where you would use conditionals, loops, functions or array constructs (if applicable) and list the steps in transforming inputs into outputs. Walk through your logic steps with the test data from the assignment document.

```
FUNCTION OUTPUT welcome();
FUNCTION INPUT csv filename
FUNCTION VALIDATE filename.csv
FUNCTION READ filename.csv
FUNCTION INPUT char userState[]
FUNCTION MATCH userState[] in filename.csv
FUNCTION COUNT all unique hate group ideologies, sort and store names
and counts in parallel arrays
FUNCTION COUNT all unique hate groups, sort and store names and
counts in parallel arrays
FUNCTION DISPLAY most popular hate ideology and largest organization
by number of chapters
```