Assignment 06 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:


Assigned zyLabs completion Screenshot:

Assignment

Program description:
Program Shifting Values and Parallel Arrays

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.
string name, double score, int position
b. Describe the program output. What is displayed to the user? What are the data types of the output? Define the output variables.
Displayed to the user will be a 2 column table: Names in the 1st column, corresponding scores in the 2nd column.

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.

No calculations needed for this algorithm.

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.

User will be prompted to enter a name, score, and position that it will be placed within the names and scores arrays. A for loop will be implemented for each array, starting from "size" variable and iterating up to the value of "position". In each iteration, the next element in the array will be replaced by the previous element. Then once those elements are shifted, the new score and name will be dropped into the given position in each array. Lastly, the "size" variable will be incremented by 1 to represent that each array grew in size by one element.

e. Include 2 Sample Program Runs for your program using your own set of data. This data set must be different from my Sample Runs in the Assignment document. This process is similar to Unit Testing and will help you test your program better.

Sample Program Run 1:

```
Amy Goyal        95.4
Priya Sekar      95.5
Rama Noel        78.6

Name: Nathan
Score: 100
Position: 2

Amy Goyal        95.4
Priya Sekar      95.5
Nathan           100
Rama Noel        78.6
```

Sample Program Run 2:

Amy Goyal 95.4
Priya Sekar 95.5
Rama Noel 78.6

Name: Christian
Score: 102
Position: 3

Amy Goyal 95.4
Priya Sekar 95.5
Rama Noel 78.6
Christian 102