Program Design Document Spring, 2017

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CS155 – Section 01

Project #8 – Another Dimension

Due: Tuesday April 25th, 2017

**Program Requirements:**

This program will take input from a user to select different options. Each option will do something different such as filling an array with data read from a file, printing the array, getting the sum of the entire array, getting various stats of the array and printing the diagonal of the array if the array is square.

**Program Inputs:**

Use input from 0 – 6 to select various options as well as reading the matrix size and data from a file.

**Program Outputs:**

The program will be able to output a menu showing possible choices, it will be able to display the matrix, display the sum and stats such as average, minimum, and maximum, and will be able to display the diagonal.

**Solution Overview:**

The program will display menu choices and then begin a loop using the user choice. At the end of each loop the program will then ask for a new input. If the user inputs 1 the program will fill the matrix with data available from an external file. If the input is 2 the program will output the data contained with In the matrix in a tabular format. Input of 3 will calculate the sum of all cells. Input of 4 will calculate the average and get the minimum number and the maximum number. An input of 5 will print the diagonal of the matrix if the matrix is square (length and width are equal). And an input of 6 will reprint the menu. Selecting 0 will exit the program.

**Algorithm Flowchart:**

C:\Users\arisher\AppData\Local\Microsoft\Windows\INetCache\Content.Word\project8.png

**Test Plan:**

Test plan includes having the test file filled with various amounts of rows and columns as well as filling those rows and columns with various numbers to ensure that that the proper totals are returned from the functions.