Criterion B: Analysis

Proposed solution:

After our conversation, Keith and I considered the following ideas:

- A computer program with CSV file reading capabilities
- A computer program that can only manipulate data manually entered
- A website to sort the data with CSV file reading capabilities

We decided that a computer program with CSV file reading capabilities would be the most efficient solution to the problem.

Requirement specification

IT system requirements

- Hardware: 2019 Dell Latitude 5400 with 1.6 GHz Intel Core i5 and 8 GB of memory, external hard drive for backup, Internet connection (WiFi).
- Software: Gmail for receiving the files that contain the data needing sorting, Google Sheets or Microsoft Excel for opening spreadsheet files in case they need formatting. Visual Studio will be utilized to code the program itself.

System interaction

- Gmail is needed to email CSV files between computers for data compiling.
- Visual Studio must be compatible with the Dell Latitude 5400.
- The solution program needs to be compatible with other types of computers.
- The solution program also needs to be able to read CSV files.

Input/output requirements

Input requirements

- Users must input the CSV files containing data.
- The aggregation types needed must be inputted.
- The preferred output style of the data must also be selected.

Output requirements

- State aggregation rate(s) for the categories selected by the user.
- Extraneous rates the user did not select should not appear in the output of the program.
- The data shall be displayed in the style selected by the user.

Processing

- The solution program will be created and coded in Visual Studio.
- The program will need to have CSV file reading capabilities coded into it in Visual Studio.
- The solution program needs to be able to perform mathematical calculations.
- The solution program will also need to be able to distinguish between necessary and unnecessary data
- The program will need to be able to generate proper graphs or charts for the output method the user selects.

Security

- The client is the only person to whom the program is given to.
- It will be given on a flashdrive, therefore it cannot be accessed by others unless given.

Specific performance criteria

1) The program must display only the aggregation types the user selects.
2) The data must be displayed with the correct output method the user selected.
3) The program must perform the mathematical calculations correctly.
4) The process of using the program and the time it takes to sort the data must be faster than previous methods the client has used

Justification of Chosen Solution

The chosen solution is the best for the client, Keith Davis, because it will be the most time-efficient manner in which any grouping of data can be manipulated. A computer program with CSV file reading capabilities is able to sort the data into categories, like Keith needs, while eliminating the need for any extraneous manual efforts. The user simply just needs to upload the spreadsheet files, downloaded in a CSV format, that contain the data that needs aggregation and select the sorting criteria. This is the minimum amount of interaction needed to ensure the data manipulation is correct while saving as much time as possible for the client. While the CSV files that will be uploaded will require proper formatting in order to be correctly read by the program, even if the files are incorrectly formatted initially, the time it would take to properly format the files afterward would take far less time than manual data manipulation.

While a website with CSV file reading capabilities could accomplish the same processes that a program could in the same amount of time, a website requires internet connectivity, while a computer program does not. Due to this, a computer program is a more effective solution because in the event that Keith loses internet connection, he will still be able to access the program to ensure he will not be wasting his time. Similarly, a computer program without file reading capabilities would be able to successfully manipulate the data in the ways Keith would desire, but a lack of CSV file reading capabilities would require Keith to manually enter the data

into the program. This would waste lots of time for Keith, which would not be ideal because time efficiency is his biggest concern with his current situation.

The chosen solution requires only free software to be created and operated. In addition, all the IT resources needed to produce and use the solution are accessible to the client as well as myself. The solution is also straightforward to use and prompts the user with basic prompting questions in order to produce the results that the user desires without any complex input.

Word count: 357