CSI Data Compiler README

To be able to use machine learning techniques to find if there is a correlation in the CSI data the raw data needs to be compiled into a more useful state. The following program can do that. It has two different ways to compile the data. The first way is to take all of the magnitudes of CSI data and put them on a line followed by who won (Bob or Eve). The second way takes the average, variance, max, min, and range of each of the groupings and puts them on a line followed by who won.

The following is how to call and use the program:

```
python data_compile.py csi_log_file num_groupings bob_csv eve_csv output_csv mode
```

parameter csi_log_file: The binary log file from Alice containing the CSI data

parameter num_groupings: The number of groupings of CSI data to compile

parameter bob_csv: The csv file that contains the sequence numbers that bob collected

parameter eve_csv: The csv file that contains the sequence numbers that eve collected

parameter output_csv: The csv file that compiled data will go into

parameter mode: The mode in which the program compiles the data, put a 1 for just magnitudes and a 2 for statistical analysis compilation, 3 is to add more magnitudes to an already created output.csv file, 4 is to add more statistical analysis lines to an already created output.csv file

The final product of this program will be written to the output_csv which can then be put into a pandas dataframe and then inputted into some machine learning algorithm.

An example of using this program in mode 1 where we will do 4 groups of CSI data is:

```
python data_compile.py alice5.dat 4 bob1.csv eve1.csv output.csv 1
```

Another example of added more magnitudes to an already created output.csv is:

```
python data_compile.py alice4.data bob4.csv eve4.csv output.csv 3
```

The code can be found at https://github.com/apal6981/CSI_data_compiler