Independent Study Project Proposal

I.   Project Goal

   A. The goal of the project is to create a statistics tool

      that can analyze data in various ways, provide

      visualizations of the data in various forms, and

      flexibly integrate new modules of function as needed

      or developed.

II. Project Components

   A. Command Line Environment

      1. Shell-esque interface with internal commands the

         user can invoke, similar to Gnu Debugger (GDB)

      2. Provides access to other modules through commands

      3. Parses mathematical expressions concerning the

         data entered

      4. Provides a help function to explain the commands

   B. Data Entry Module

      1. Allows for convenient data entry through the

         command line or a text file (like a CSV file)

   C. Analysis Module

      1. Uses data from the Data Entry Module

2. Provides for summary statistics, like mean, median, interquartile range, standard deviation, percentiles, etc.

3. I will add more here as we learn more in Statistics

4. Provides textual output

D. Graphing Module

1. Uses data from the Data Entry Module and the Analysis Module

2. Displays graphs in GUI window

3. Displays bar charts, pie charts for categorical data

4. Displays histograms, boxplots for quantitative data

5. More graph types may be implemented

6. Saves image to file optionally

III. Project Scope

A. The program is designed to utilize lists of floating point numbers, given manually or in a text file.

B. The program is not designed to parse spreadsheets.

C. The program will utilize Java and its built-in libraries, running on any computer.

D. I, Carson Foster, will be responsible for the entirety of the project's creation.