

Modified Big Data Project – Phase 3

The Goal:

Perform single-variable analysis on your two different variables, and plan for your two-variable analysis.

The Analysis:

You must show your work...you may show all calculations in appendix or make sure they are visible in your spreadsheets

- ✓ Use appropriate one variable statistics:
 - measures of central tendency
 - measures of spread
 - shape of distribution
- ✓ Create appropriate graphs to help communicate your data:
 - histogram to analyze the type of distribution
 - box-and-whisker diagram to analyze the variables
 - bar graphs, cumulative frequency diagram
- ✓ Consider z-scores in a meaningful way (only if it makes sense for your data)

Conclusions:

- ✓ Effectively summarize the results of the statistical analysis and relate back to your thesis
- ✓ Draw conclusions about the graphs you have put together and how they support or deny your thesis
 - For example:
 - What do the various measures tell you?
 - Does the type of distribution indicate anything useful? (Bi-modal, etc?)
- ✓ Identify shortcomings and makes suggestions to improve further research

Phase 4 rough work:

- ✓ Create a scatterplot and describe in point form...
 - The evident relationship
 - Which regression type is appropriate
 - The r and r^2 values and what they mean
 - Consider possible sources of bias in the study
 - Compare results to other secondary studies (only if applicable)

The following structure is recommended for the report:

- Title page
- Brief restatement of thesis and a description of each of your two variables
- In depth analysis of each variable in turn
- Conclusions
- Phase 4 rough work

Assessment Rubric

Category	Below Level 1	Level 1 50 - 59 Beginning	Level 2 60 – 69 Developing	Level 3 70 – 79 Meets	Level 4 80 – 100 Exceeds
One-Variable Analysis - Uses data analysis tools appropriately - Mathematical procedures shown are correct and appropriate	No analysis is evident	Limited analysis completed Limited effective use of data analysis tools	Some analysis completed Some effectiveness in the use of data analysis tools	Competent in completing analysis General effectiveness in the use of data analysis tools	Excellent analysis of data collected Thorough effectiveness in the use of data analysis tools
Figures - Quality - Relevance - Analysis	No figures shown	There is only one figure Figure shows little relevance to thesis Analysis of figure is poorly conducted Student does not connect the figure to the thesis	There are 1-2 figures present Effort is somewhat evident, figures show some relevance to thesis Analyses of the figures are somewhat conducted Student is somewhat able to connect the figures to the thesis	There are 3 figures present Effort is evident, figures are relevant to thesis Proper analysis of the figures are completed Student is able to connect the figures to the thesis	There are 3 figures present Effort is clearly apparent, figures show excellent relevance to thesis Analyses of the figures are thorough and detailed Student exceeds expectations in connecting figures to thesis
Conclusions - Clarity and completeness of explanations - Uses terminology and notation that is correct - Identifies assumptions and limitations of the data analysis - Makes Conclusions that are justified by mathematical analysis	No attempts to make conclusions	Shows limited ability to draw reasonable, valid, logical, and insightful conclusions based on analysis of research findings	Is able to draw some reasonable, valid, logical, and insightful conclusions based on analysis of research findings	Shows competent ability to draw reasonable, valid, logical, and insightful conclusions based on analysis of research findings	Shows excellent ability to draw reasonable, valid, logical, and insightful conclusions based on analysis of research findings
Organization	No apparent flow	The report is generally confusing and hard to follow.	Some effort is made to organize the report.	The report is organized and relatively easy to follow.	The report is very well organized and easy to follow.
Effort	Very little	Limited	Some	Considerable	Excellent
Phase 4 Rough Work	The is none	There is a scatterplot of the two variables	The scatterplot is present and some key points are made	The scatterplot is present the descriptions are clearly focusing on a topic	The scatterplot is present and all major important pieces of information are present