Quantitative Skills and Reasoning

Data Analysis and Research Project

1. **INTRODUCTION**

   With the increasing demand of data analysis and data presentation skills in the workplace, college graduates are required to demonstrate their proficiency in these areas upon entering the workforce (Arnett, 2017). As one of the most popular productivity software packages in the world, Microsoft Excel is one of the required digital skills that can help a candidate find a job (Weber, 2015). There are many resources to learn about Microsoft Excel. Many of these materials focus on how to do certain tasks using the program. However, this task-based data analysis project will provide students with what they will encounter when working in real-world organizations by focusing on critical thinking skills that will help prepare students for their future careers in all disciplines upon graduation (Harris, 2017).

Objective: the student will use Microsoft Excel to analyze a "large and complex" data set and interpret the results of their analysis in the context of the "real" world.

   - Critical thinking is one of many skills employers are looking for from college graduates. In this assignment, students will work on developing this important skill using Microsoft Excel as a tool. You will use Excel to develop and examine a "theme" which is contained in the data set. The theme is based upon how **you choose to explore** the data and present it.
   - Prerequisites Skills for using Microsoft Excel include:
     1. Open, save, close, and navigate through a workbook and worksheet
     2. Plan and create a workbook
     3. Enter text, dates, and numbers data
     4. Enter basic formulas
     5. Enter basic SUM, AVERAGE, and COUNT functions

2. **PROJECT: EXCEL DATA ANALYTICS and VISUALIZATION WITH PIVOT TABLE and DASHBOARDS**
   - Prerequisites Microsoft Excel Skills Required:
     1. Create and modify a PivotTable
     2. Apply PivotTable styles and formatting
     3. Filter a PivotTable
     4. Insert a slicer to filter a PivotTable
     5. Create a PivotChart
     6. Create Dashboard
   - Select a "large and complex" data set from https://www.data.gov , http://data.un.org/Default.aspx , https://data.gov.uk/ , or

. <mark>Your selection and proposed plan of research **must** be approved by me prior to proceeding to the data analysis and research stage.</mark>

- ➢ Explore, analyze, and understand the overall structure of the data set – What is the data set about? What does it attempt to explain or teach us? What can we learn from this data set? What larger trends, beyond just the topic of the set, does the data illuminate? Can we extrapolate beyond the data to larger societal issues or concerns – that is, does the data fit into a larger area of concern?

- ➢ Use the Pivot Table tools and Dashboard options available on Microsoft Excel to develop an "in-depth" understanding of some aspect of the data set that is of interest to you or provides insights into your career goals. Though the data set will contain a large amount of information, your task is to develop a "theme" and to present a "story" which is contained within the data. In short, you are making "sense" of the data for us! It is not uncommon for a large data set to contain many potential areas of analysis and interpretation.

- ➢ Provide a finished project report on your "analysis and research" which includes your Microsoft Excel Workbook and a written document no longer than three type written pages. All files will be submitted electronically which will include your Excel Workbook file containing the "raw" data set, successive sheets used to analyze the data, Pivot Table files, and the Dashboard. You may use any appropriate style for the written portion: MLA, APA, or Chicago – your choice. You need to include a minimum of three separate "academic" sources (citations) to support or refute your research and position. The first paragraph of your report will be an abstract which explains the data set you chose and the conclusions you have drawn. The remaining body of the report will delve deeper into the "story" you are telling (with supporting citations). There shall be a separate fourth page with your citations.

- ➢ Your Excel data analysis and project report will be evaluated on a scale ranging from zero to one-hundred based upon thoroughness, in-depth knowledge of the data set, proficiency in using Excel and its tools, academic resources, and overall professionalism of the presentation.

REFERENCES

Arnett, A. A. (2017). Report: Data science and analytics skills critical for today's workforce. Retrieved from http://www.educationdive.com/news/reportdata-science-and-analytics-skills-critical-fortodays-workforce/439444/

Harris, Ranida (2017). Data Analytics Projects with Microsoft Excel. Retrieved from http://proc.iscap.info/2017/cases/4476.pdf

Weber, L. (2015). The Key to a Good-Paying Job Is… Microsoft Excel? Retrieved from https://blogs.wsj.com/atwork/2015/03/05/ microsoft-excel-skills-the-key-to-middleclass-earnings/