Department of Accounting, Finance, and Economics

ECON 211-PRINCIPLES OF MACROECONOMICS–Fall 2021

Research Project

**Due Date**: Dec. 7th 2021

**Project Goals**

The main goal of this project is to help students to build skills in data analysis by completing the IBM cognitive class on big data,by applying the methods learned to measure the Gross Domestic Product (GDP) and identify business cycles, and by drafting a two-page report on this analysis.

**Learning objectives**

Upon completing this research project, the student will be able to:

* Describe the GDP and its components;
* Collect data on the GDP components and use them as well as the GDP equation to measure GDP;
* Graph GDP;
* Describe the relationship between the GDP and each of its components.
* Identifying business cycle and its primary phases.

**Components of the project**

This project includes three components:

**Required:**

* **Completion of a three-hour IBM Cognitive Class course on Big Data;**

**Extra credit:**

* Creation/construction of a graph on the key macroeconomic indicators using FRED data; and
* Drafting of a two-page analysis of the evaluation of components of the Gross Domestic Product.

***1.Completion and certification of the cognitive class on Big Data 101***

Your assignment here is to complete successfully the three-hour cognitive courseBig Data 101. To complete the course, open the link below and follow the instructions <https://cognitiveclass.ai/courses/what-is-big-data>

* At the top right-hand corner of the screen click Sign-Up and create an account. Be sure to use your First and Last name.
* After signing up, log in to the Cognitive Class System.
* After logging in, at the top right side of the screen, search the term “Big Data 101.”
* Click the course labeled “Big Data 101.” (Red Image not the archived class)
* Next click the blue button labeled “Enroll” to enroll in the course.

The completion of this course must be proved by the Certificate of Completion. Upon completing the course, download or screen shot your certificate and attach it to your final report of this project which must be submitted through the assignment dropbox on blackboard no later than December 7 at 11:59 PM.

***2. Fred Graph***

With the attached excel file, use the data components of GDP to evaluate the equationof GDP, that is:

$$Y=C+I+G+(M-X)$$

Next, show a graphical representation of these variables and check that $Y=C+I+G+(M-X)$

Finally, identify and describe business cycle phases from GDP graph obtained previously.

***3. Written Report on the GDP***

First, you should describe the steps taken to constructthe graphs. In your analysis, describe the business cycle present in the GDP data, that is, describe recession period (decrease in GDP of more than 6 month), expansion (increase in GDP), peak (the highest GDP during the expansion), and trough (lowest GDP during the recession).

Use the GDP equation and data on GDP components to evaluate the equation. Is the GDP determined from the equation the same as the GDP data? Create different visualizations using each of the variables over the last decade (1999-2019) to show the relationship between GDP and each of its components. Which components seems to determine the behavior of theGDP? How can you identify unemployment or inflation from the GDP graph?

Next, determine the GDP share of consumption, GDP share of investment, GDP share of government spending, and GDP share of net exports. What GDP component has the largest share? What have you learned about measuring GDP from this assignment? Be sure to cite, using APA, any findings to back your argument and provide a bibliography.