Project 1 - World Energy Demand/ Supply and its Effects on Canadian Dollars

**Team Members**: Kelvin Deng, Thao Hoang, Yijing Su, May Ang

**Project Purpose:**

Our project will focus on examining ***how oil production and currency prices are connected***. The scope of this project will focus on North America (e.g. USA and CA). The motivation to start this project is to understand how a country’s currency and its economics are impacted in the events of crude oil supply fluctuations (such as crude oil war between USA and Saudi Arabia). This can be done by looking at the total crude production and the GDP contribution of oil export data of each country and find the correlation with their currency values. The results can also lead to further understandings of how currency values impacted in the near future, when the world is shifting towards cleaner, lower cost, and sustainable energy sources, and thus less relying on crude production.

**Questions to answer from this project:**

* Crude vs Dollars
  + Q1/ Correlation between **USD** and **crude production** **in US**
  + Q2/ Correlation between **CAD** and **crude production in CAD**
  + Q3/  **GDP contribution** of oil export from **USA and Canada** over the past 10 years.
  + Q4/ Correlation between **GDP contribution** of each country's oil export and **USD/CAD** values ?
* Renewable Energy vs Dollars
  + Q5/ **Renewable energy production in US/CA**in the past 10 years
  + Q6/ How USD/CAD dollars impacted in the near future when more oil fuel replaced by renewable energy?
* Crude Production Demand
  + Q7/ Changes in crude oil demands over the years (in US and CA).

**The data to be examined include:**

- Crude production from US in the last 10 years

- Crude production from CA in the last 10 years

- GDP contribution of crude export to US’s economics in the last 10 years

- GDP contribution of crude export to CA’s economics in the last 10 years

- USD values fluctuations in the last 10 years

- CAD values fluctuations in the last 10 years

- Renewable energy production in US in the last 10 years

- Renewable energy production in CA in the last 10 years

**Our sources of data include:**

* Open.data.ca
  + <https://open.canada.ca/data/en/dataset/76e6795d-eace-4def-b12b-911fde9a5adc>
  + As well as other data
* Kaggle
  + <https://www.kaggle.com/kianwee/foreign-exchange-rate-1994-2020>
  + As well as other related data

**Some reading resources to start:**

* Understanding how oil and currency prices are connected: <https://www.energyvoice.com/markets/259645/understanding-how-oil-and-currency-prices-are-connected/>
  + Oil is the world's most heavily traded natural resource
  + Fluctuations in crude prices have a strong impact on the planet's economics and finance, beyond the solely energy markets
  + Understand the correlation between crude prices and currency values is essential to shape economic trends for upcoming decades
* <https://www.investopedia.com/articles/forex/092415/oil-currencies-understanding-their-correlation.asp>
  + Correlation is due to many reasons:
    - Resource distribution
    - Balance of trade
    - Market psychology
  + USD has benefited from crude oil's precipitous decline since energy sector is a significant contributor to US GDP
  + Economic diversity has great impact on currency values