

1. Explore Google Trends <https://trends.google.com/> . Find a topic of interest to you with more than a year of trend data, and export it.
  - a. Import the data into a pandas dataframe
  - b. Decide whether ARIMA or SARIMA makes more sense for the dataset
  - c. Run either an ARIMA or SARIMA on it
  - d. Explain the results
  - e. Discuss your findings with your group and explain what trend someone else chose and why they chose the model they did
2. What is a fourier transform? Perform one on  $y = \text{np.cos}(x/2)$ , and both show (with code) and explain the key elements.