

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 ARMA, ARIMA, or SARIMA makes more sense for the dataset
 - c. Run either an ARMA, 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.