Solution Design Documentation

**Choosing a Stock Exchange**

### **Do World Markets Dance in Sync?**

To provide the list of valid stock exchanges of the world and the various market indices from which users of the application, I will download list of world exchanges and the various indices available on them from yahoo finance. From the downloaded data I will prepare a csv file containing all the exchanges and the different indices available on them along side the country of domicile file and hard code them as a list in my application against which user input will be check for correctness and validity.

When this is accomplished users input will be validated against the hard coded list using a while construct for the user input so that input error can be properly handle without crashing the system and also providing multiple try for the user.

The application present user with the list of available exchanges around the world from where they are expected to select any five, the user choices are expected to be a listed with comma separating them. The application accepts user input convert it to uppercase letters and then compares with the market indices label already downloaded if found then the actual market indices data for the selected exchanges and indexes is downloaded from YAHOO FINANCE using panda\_datareader and fix\_yahoo\_finance libraries with the this

The returned market indices is then parse and the trade date and adjusted close columns of the pandas data frame extracted by data frame slicing, this was made into a matrix. The correlation coefficients of monthly returns was then calculated for each pair of the indices using the corr() function of a matrix data structure.

The correlation coefficients was then plot with matshow() from matplotlib. The said graph is show below.

