This is a pseudocode to convert a macro enabled Excel (.xlsm) workbook into multiple comma separated value (.csv) files. The number of csv files are equal to the number of sheets in .xlsm workbook. The .xlsm workbook has multiple sheets. These sheets contain the raw data extracted from the different data sources or websites. There is also a cleaned dataset sheet in the .xlsm workbook that has the selected and curated data for further visualization. The .csv file of cleaned dataset is used to visualize the streamed data as charts on the webpage.

**The actual code was written in VBA script.**

**Start:**

Declare Excel.Worksheet *ws*

Declare String *SaveToDirectory*

Initialize *SaveToDirectory* as “Streaming-Visualization\Web Visualization\data\”

# Start loop

For Each *ws* in ThisWorkbook.Worksheets //ThisWorkbook.Worksheets is a VBA method that returns all the //worksheets in the Excel Workbook

*ws*.SaveAs *SaveToDirectory* & *ws*.Name, xlCSV //Save the excel sheet as the csv format with respective sheet name as csv file name.

Next

# End loop

**End.**

This is a pseudocode for visualizing streaming data. Consider only curated data in the csv format generated from the above step.

**Start:**

**Function** parseData(createGraph)

Extract the CleanedDataset.csv using Papa Parse library

// CleanedDataset.data is the excel data extracted from CleanedDataset.csv

Call createGraph (CleanedDataset.data)

**End Function**

**Function** createGraph(data)

Initialize array variable t*ime*.

Initialize array variables for each cryptos and stock mentioned in the CleanedDataset.csv

**For Loop:**

Push the time data from the CleanedDataset.csv to *time* array

Push all the excel data of cryptos and stocks to the respective arrays

**End Loop**

Generate chart using c3 library by mentioning x-axis and y axis

X-axis as time array data

Y-axis as all the cryptos and stocks

**Function** timedRefresh (timeoutPeriod)

// timeoutPeriod (milliseconds) is the period of time for which the web page refreshes

// Web page will reload for every 60 seconds i.e. 6000ms

**End Function**

**End Function**

**End**