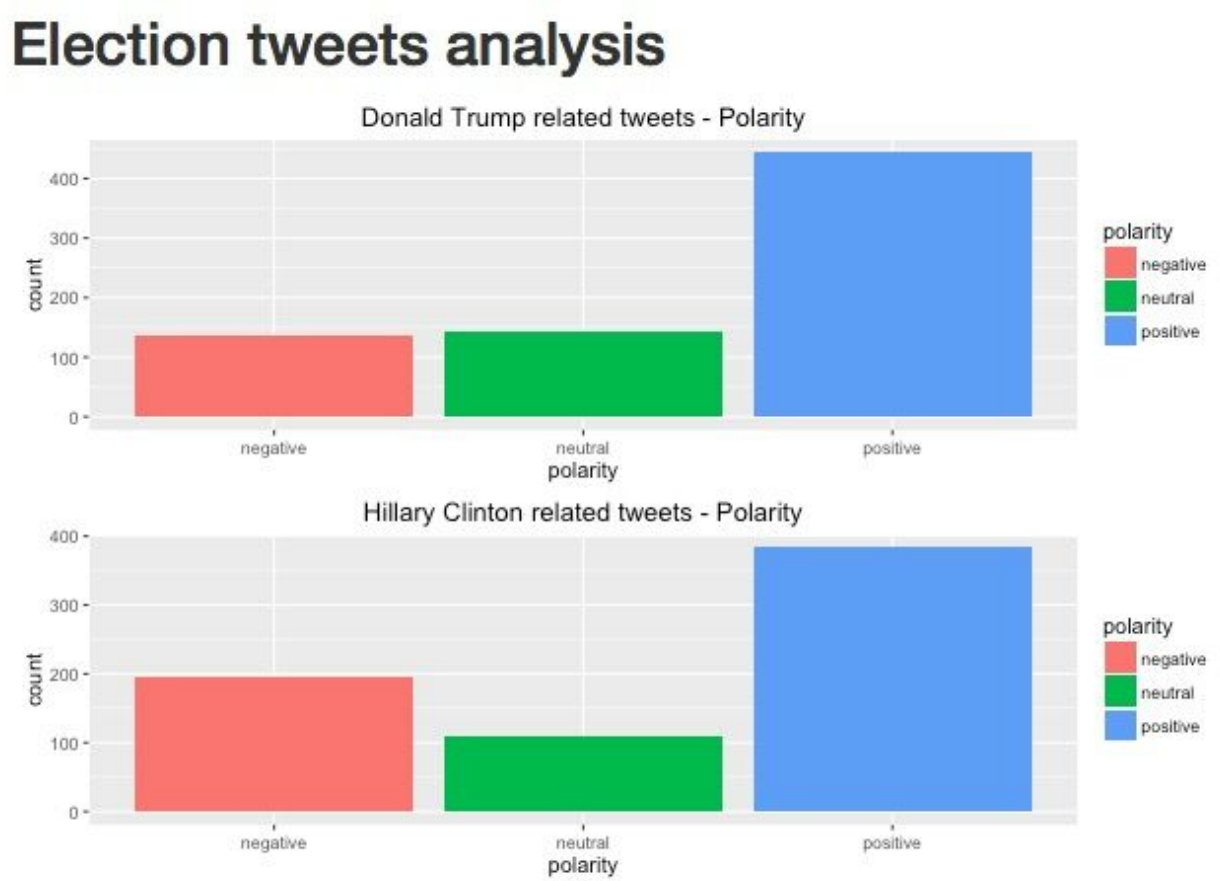
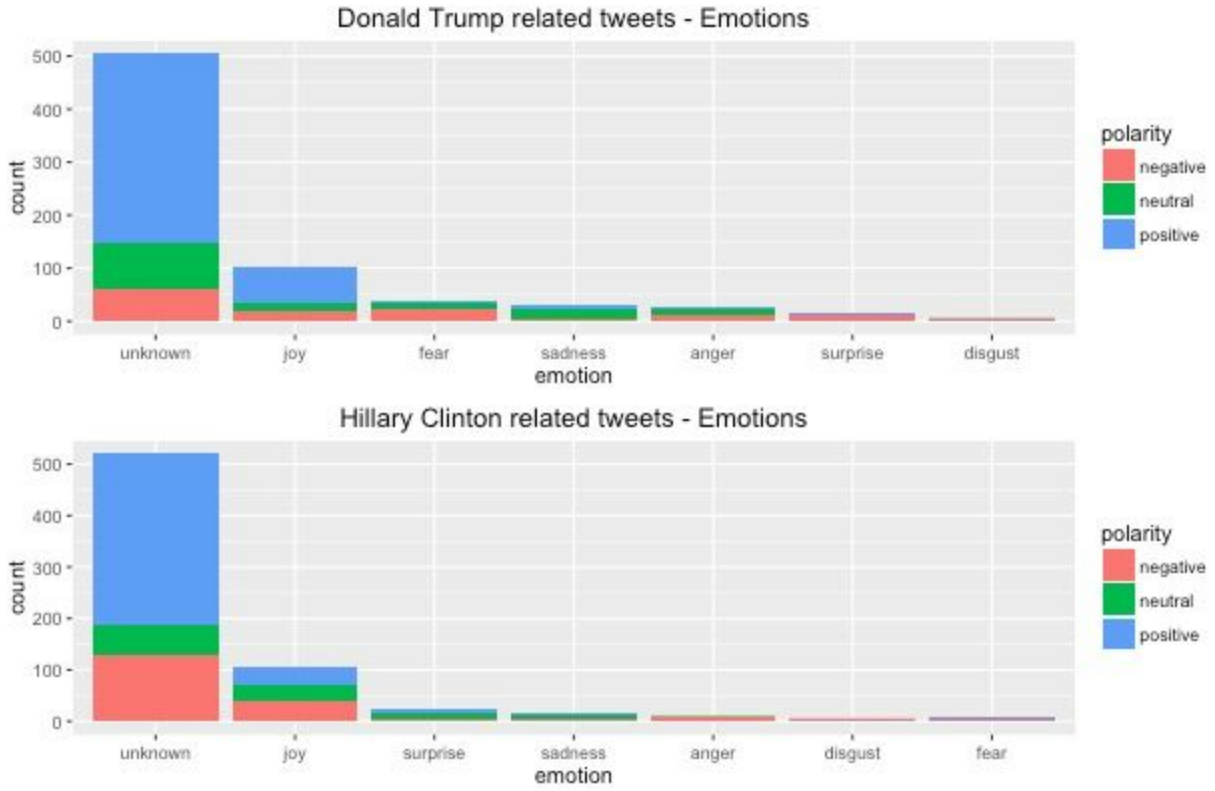
Problem 5: Stream Processing

Shiny is a package from RStudio that can be used to build interactive web pages with R. Different layouts can be defined to display widgets and output plots, many types of widgets are there to collect inputs interactively and much more can be done. Also, live streaming of data can be done by forming a stream pipeline between source and shiny server.

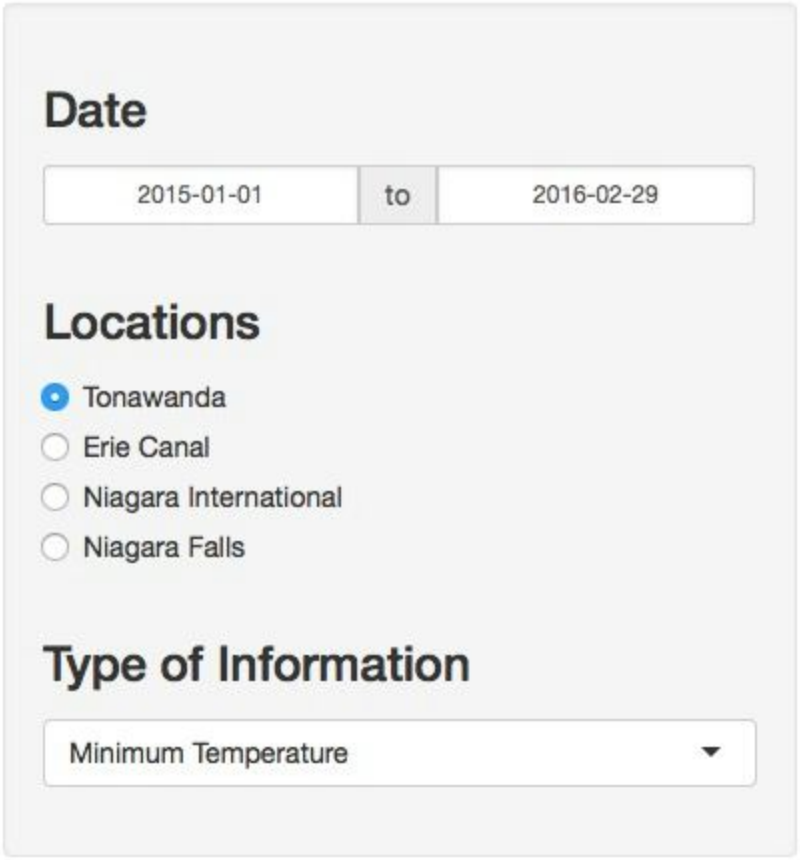
To show the live streaming of data, analysis of current election related tweets are downloaded and showed as chart according to users' view. These charts are refreshed after every three minutes showing the same result of live tweets. First the tweets of one week is shown which has the following result. After refreshing the they follow the same pattern. From the plots it can be inferred that users' views are more towards negative for Hillary Clinton even though people talk a lot positively about both Donald Trump and Hillary Clinton.



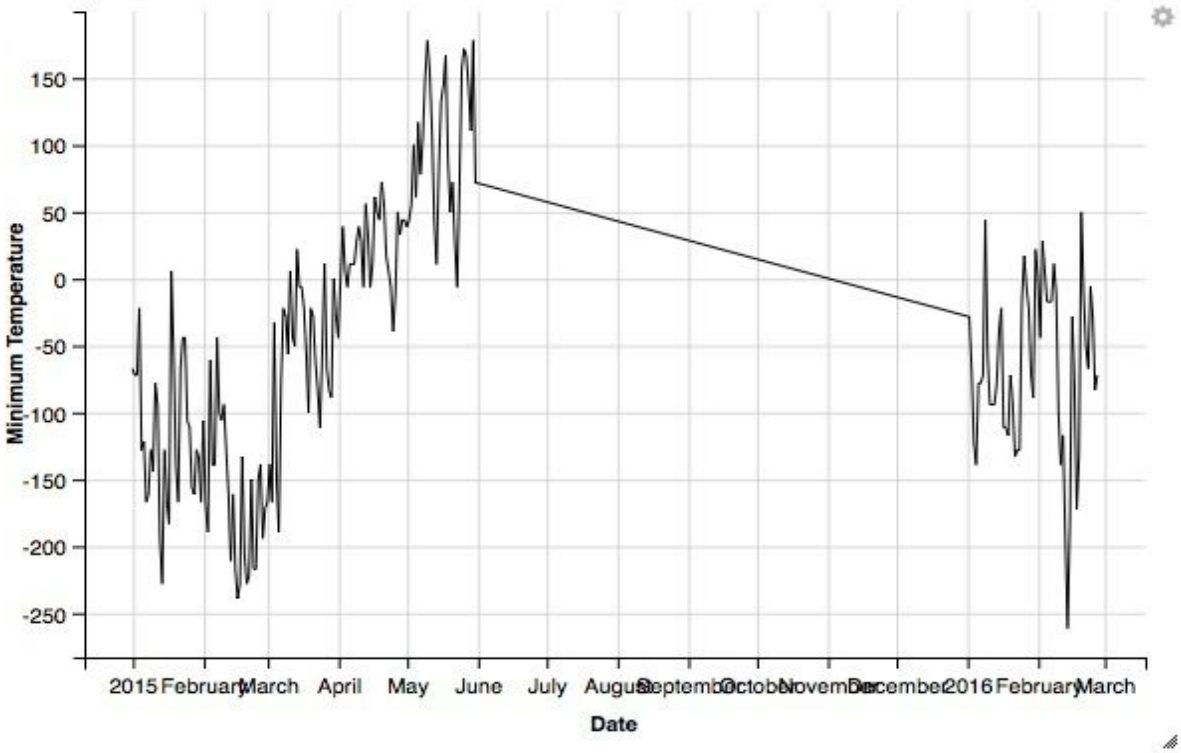


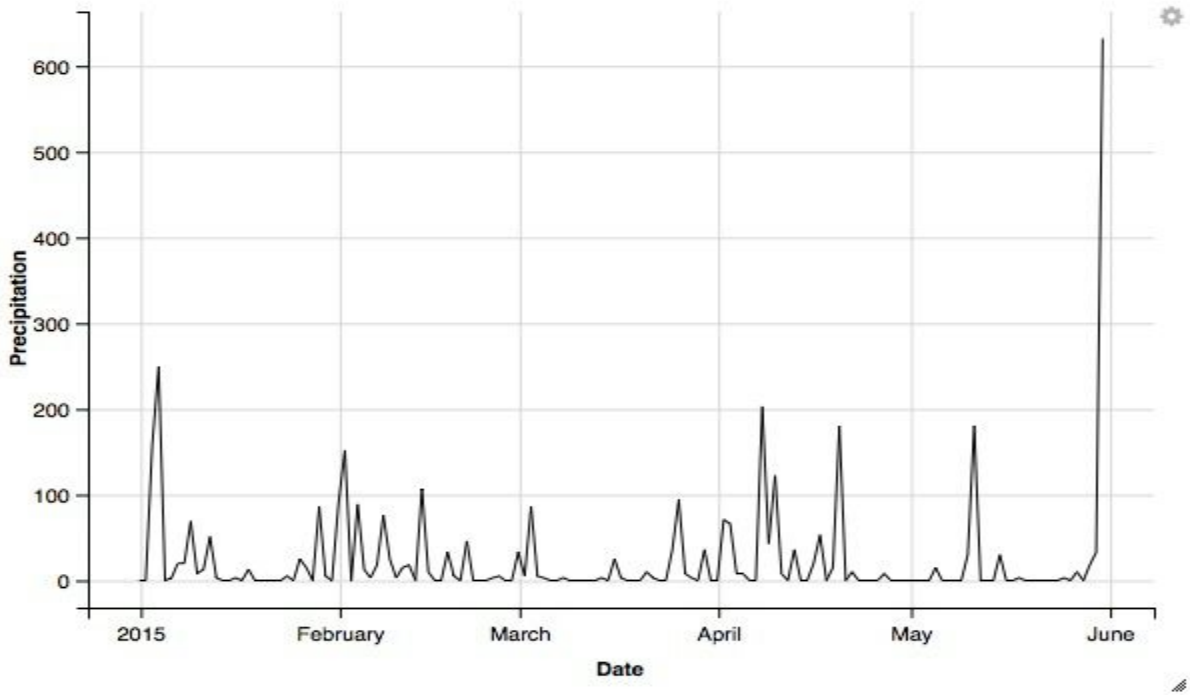
Also, to show the interactive behaviour of Shiny which could not be explored in the above experiment Buffalo's weather data has been analysed. The data is collected from National Oceanic and Atmospheric Administration - National Centers for Environmental Information data repository. Data requested is for a period of one year two months i.e. from 01/01/2015 to 02/29/2016 collected from four stations in Buffalo which are North Tonawanda, Erie Canal, Buffalo Niagara Area and Niagara Falls.

To display the plots interactively I have placed date range input widget to select the time period, radio button widget to select the station location and a drop down widget to select the type of information needed i.e. minimum temperature, maximum temperature, precipitation, snowfall and average wind speed.



Plots are rendered showing weather conditions on a time line. These plots can be used to predict future weather as it follows the same pattern.


150
100
50
0
-50
-100
-150
-200
-250
Minimum Temperature
2015
February
March
April
May
June
July
August
September
October
November
December
2016
February
March
Date


600
500
400
300
200
100
0
Precipitation
2015
February
March
April
May
June
Date