Illustration: an interactive sales dashboard

1.1 Abstract:

We are trying to build a R shiny app for a store business chain like that of Macy's or Nordstorm to understand the sales figures, the profits and what are the key things that are sold by category and segments. Additionally, for a given purchase if the audience wishes to deep dive into order details – be it shipping number or date of order or similar info, it can be readily made available. All this as a table and also to make it easy for the reader – necessary visualizations.

1.2 Structure of the dashboard:

a. Start with declaring all the necessary libraries to ensure the input and output elements function smoothly.
b. Decide on the structure of the layout. Here I plan to create multiple tabs. One to show a table as an output which will be based on number of selections from the user. Then in next 3 tabs different kinds of visualization that will be helpful to the reader to understand the performance of the store chains across United States from all segments and categories.

1.3 User Guide:

1.3.1 Tab 1 – "Data Table":

In this tab, I have two major layouts – one sidebar layout and another is the main panel

The sidebar layout has multiple selectInput functions. The one I have created will follow a customized and a complex series of pipelined structure. Each selection will be an input for the next selection. Once selections are made, the main panel will populate which in turn has two sections:

a. The topbar where a user will be able to see his selections and for the chosen Region/ State who is the point of contact and the executive's contact number.
b. The selection of filters from the sidebar will populate the data table.

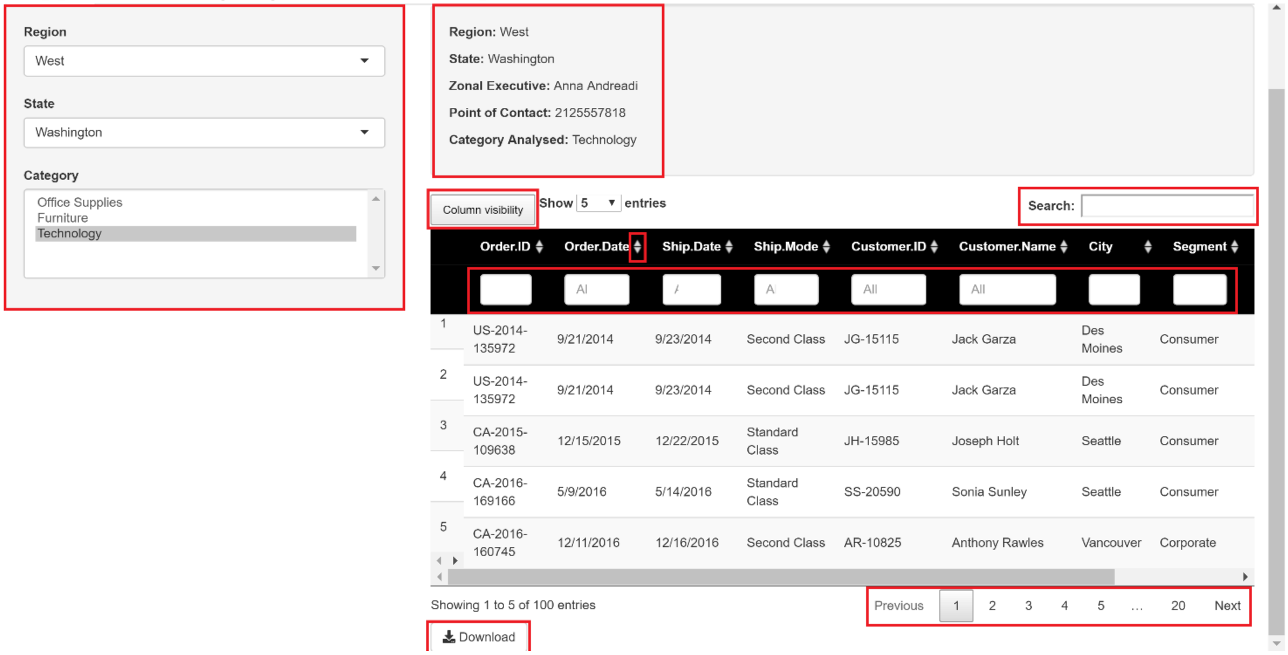
The datatable follows an advanced structure which allows user to do the following things:

1. He can filter each column to look for a particular value. It allows multiple selection
2. There is a search bar too, which allows complex regex searches and highlights the table which matches to the items searched
3. There is a 'column visibility' button available to the user. He can select or de-select any column according to his requirement.
4. The table is pagination enabled. That is, for hundreds of rows, it won't make the user scroll into infinity. He can select the minimum number of rows he wants to see. Default is set to 5 rows. They can
5. On increasing the size of the table rows, the user can scroll without having to remember the column headers, because they are fixed, and the headers will thus be visible throughout.
6. Scrolling from left to right has been enabled to work well with the page width.
7. There is a down handler provided at the bottom of the table to allow download only the filter data.
8. Additionally, we can also have options to but a child row or add an extension or plugins like print the file.
9. Internationalization allows user to see this in their own native language. For an MNC, I

can create a multiple version of the tab for different languages.

10. To show that CSS and javascript can easily go along with the input function as discussed earlier, I have used the same to beautify the table with headers following a different style.
11. Also, a user can re-arrange the columns in the sequence that fits best to their understanding of the dashboard.

Snippet below highlights most of the points discussed above.



Region: West
State: Washington
Category: Office Supplies, Furniture, Technology (Technology selected)

Region: West
State: Washington
Zonal Executive: Anna Andreadi
Point of Contact: 2125557818
Category Analysed: Technology

Column visibility | Show 5 entries | Search:

	Order.ID	Order.Date	Ship.Date	Ship.Mode	Customer.ID	Customer.Name	City	Segment
1	US-2014-135972	9/21/2014	9/23/2014	Second Class	JG-15115	Jack Garza	Des Moines	Consumer
2	US-2014-135972	9/21/2014	9/23/2014	Second Class	JG-15115	Jack Garza	Des Moines	Consumer
3	CA-2015-109638	12/15/2015	12/22/2015	Standard Class	JH-15985	Joseph Holt	Seattle	Consumer
4	CA-2016-169166	5/9/2016	5/14/2016	Standard Class	SS-20590	Sonia Sunley	Seattle	Consumer
5	CA-2016-160745	12/11/2016	12/16/2016	Second Class	AR-10825	Anthony Rawles	Vancouver	Corporate

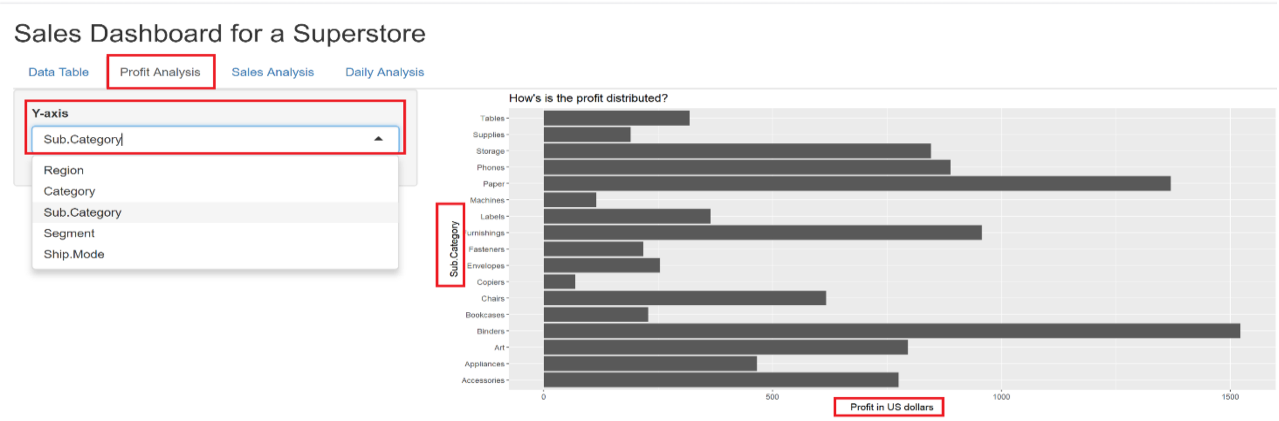
Showing 1 to 5 of 100 entries

1.3.2 Tab 2 – "Profit Analysis":

In this tab, I have two major layouts – one sidebar layout and another is the main panel.

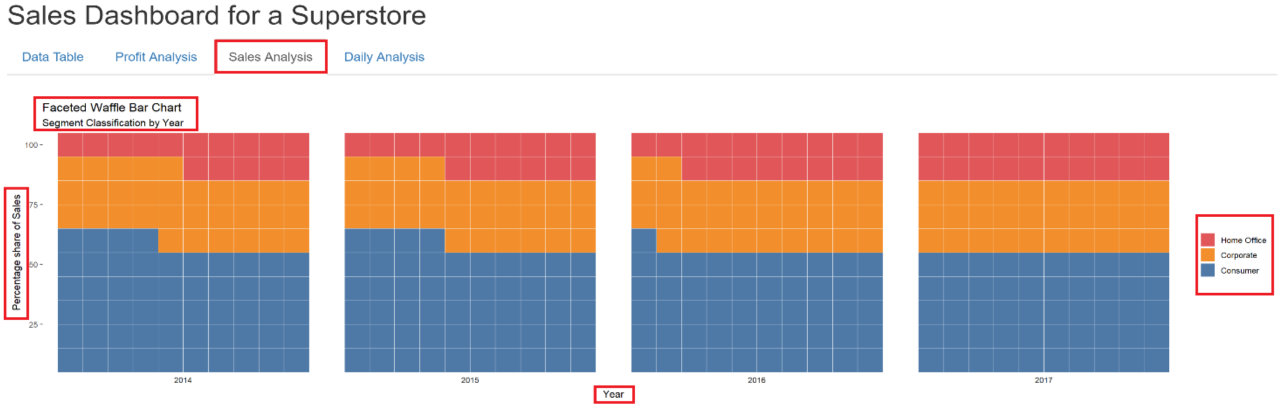
The sidebar layout allows the user to dynamically pick the y-axis for which he wants to see the distribution of profit. For example, the segment lead will like to see how each segment is performing whereas a zonal head would like to know how each state is doing. For the logisctics department, they can use the same tab to analyse how each shipping mode is contributing to revenue and so on.

In terms of functions, I used the sidebar layout to declare the possible value of Y-axis and then combined it with a fixed x-value. I then assigned this output function in the main panel to make it come next to each selection panel.



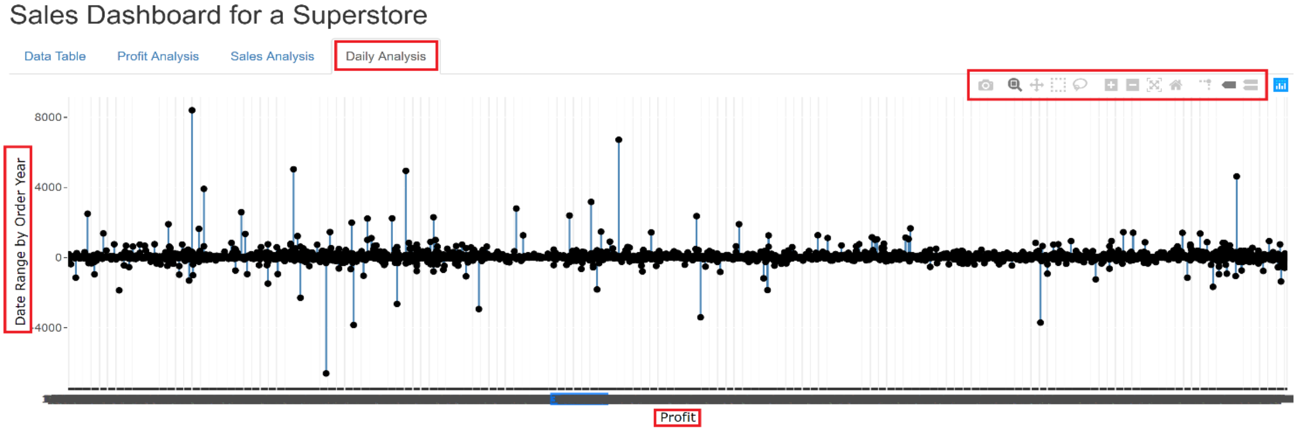
1.3.3 Tab 3 – "Sales Analysis":

This is an ambitious part where I tried to do a visualization which would be unique. I was trying to see the % of share by sales for each category and segment. We can draw a bar chart or a line chart depicting it, but I tried to plot a 'waffle chart'. It has its own specialty. It is easy to read and comes as a unique way to put the results. Each block represents one percent. See the visualization below. One doesn't have to do anything but just admire the graph and it is self-explanatory.



1.3.4 Tab 4 – "Daily Analysis":

This tab is an interactive plot that allows user to zoom in, zoom out or highlight a particular area of the plot which they wish to analyze. All this is possible because of the interactive UI available via RenderPlotly function. It works exactly like a ggplot but it uses an external API to add extra features.



Appendix

Useful learning resources:

There were lot of useful resources I found which really helped me grasp the in depth understanding of R Shiny and its applications with numerous input and output functions available to programmers to play around. I have listed few of them which helped me with the project.

1. https://shiny.rstudio.com/tutorial/
2. https://mastering-shiny.org/
3. https://rstudio.github.io/DT/
4. https://rstudio.com/resources/webinars/dynamic-dashboards-with-shiny/
5. https://github.com/daattali/advanced-shiny
6. https://github.com/grabear/awesome-rshiny/blob/master/README.md
7. https://shiny.rstudio.com/images/shiny-cheatsheet.pdf
8. https://github.com/hadley/mastering-shiny

The above links taught me a lot. Not all of them were used and implemented in the project I created because some of them didn’t align with the dataset I chose but if you wish to master R shiny skills, the above listed websites and GitHub profiles are more than enough. I learnt it in 2 days and was able to build a dashboard from scratch and I am sure, anyone else can do the same.