

Lab Assignment – IA8 – Spatial and Temporal Datasets

(Update: Improvement/Correction of Both visualizations)

Note on Software used for following Visualizations: (Tableau)

Tableau is a visual analytics platform transforming the way we use data to solve problems—empowering people and organizations to make the most of their data.

It includes:

- Easy to access from different sources.
- No need for any technical or programming knowledge, and Quick response for making a dashboard.
- In terms of connecting and sharing, it has various inbuilt advanced features such as: Collaboration and distribution, highly securable, Multiple data sources connection, Easy importation and exportation of the massive size of data.

For easy accessibility and analysis, the data file can be downloaded locally on mobile or desktop, multilingual representation of data, real-time exploration of any dataset, etc.

Q1) Choose a standard Spatial dataset and generate the visualization of selected spatial data:

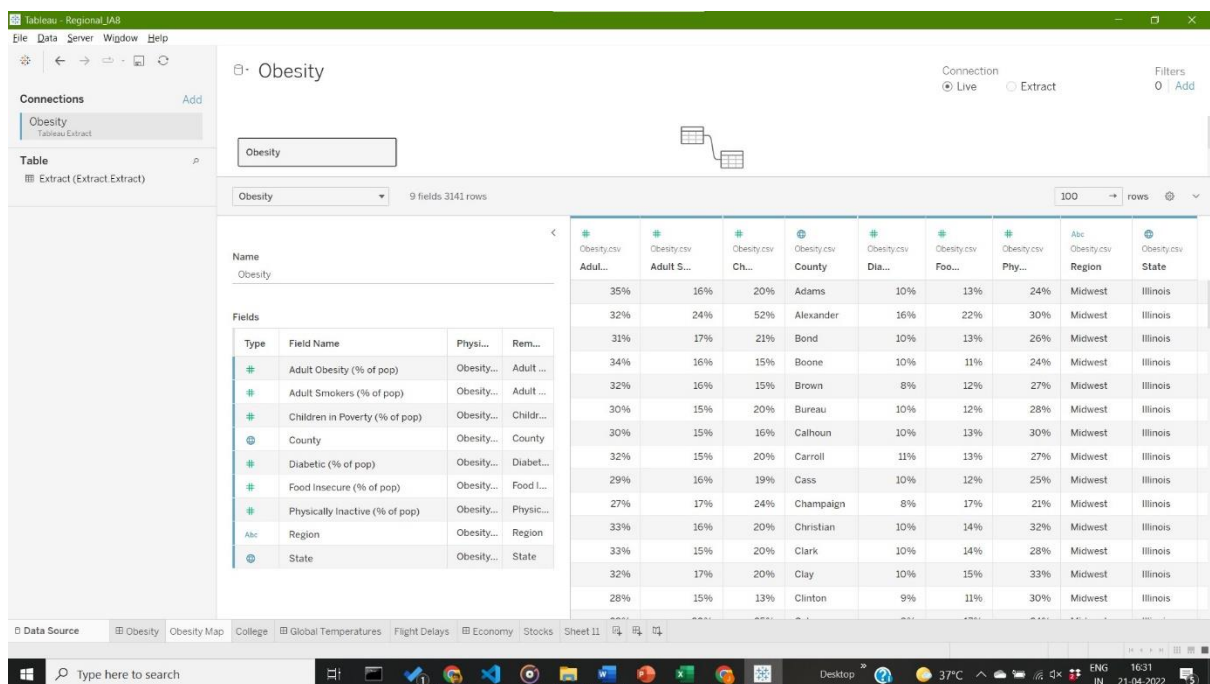
Answer: Some Key points to note before visualization process:

1. Dataset Used:

The dataset used is the inbuilt dataset **Regional (Obesity)** available in Tableau. The dataset depicts the obesity rates in all the states of the United States of America via Mapping based Visualizations.

Fields

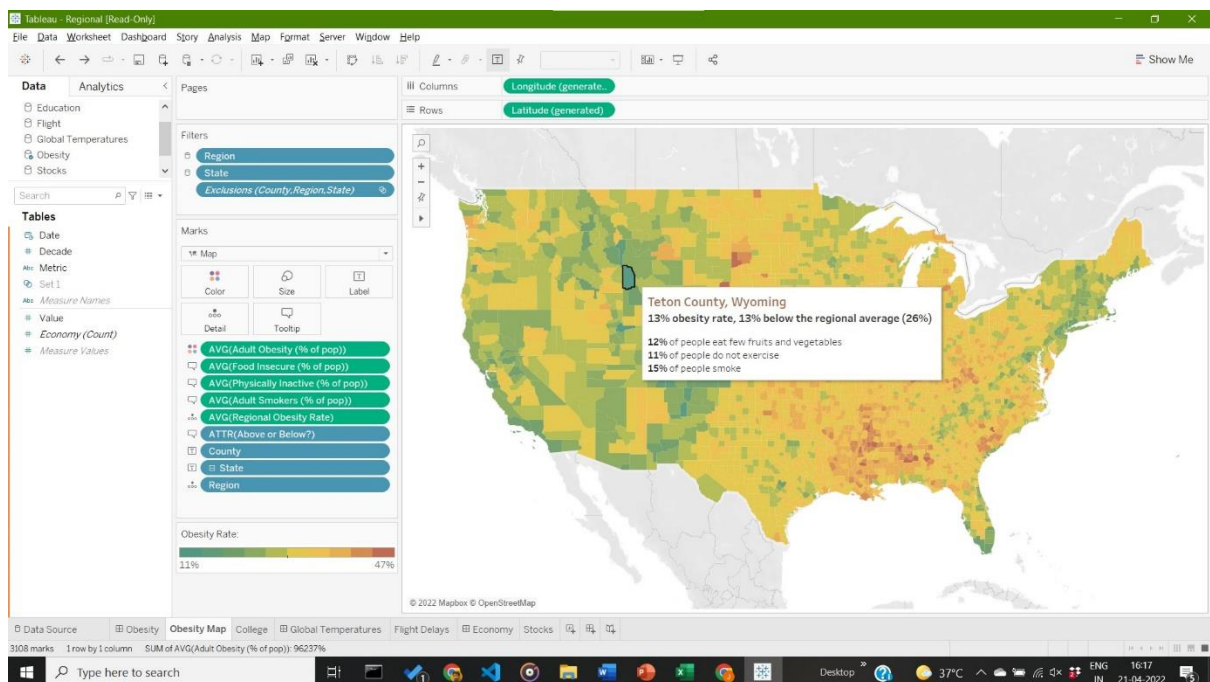
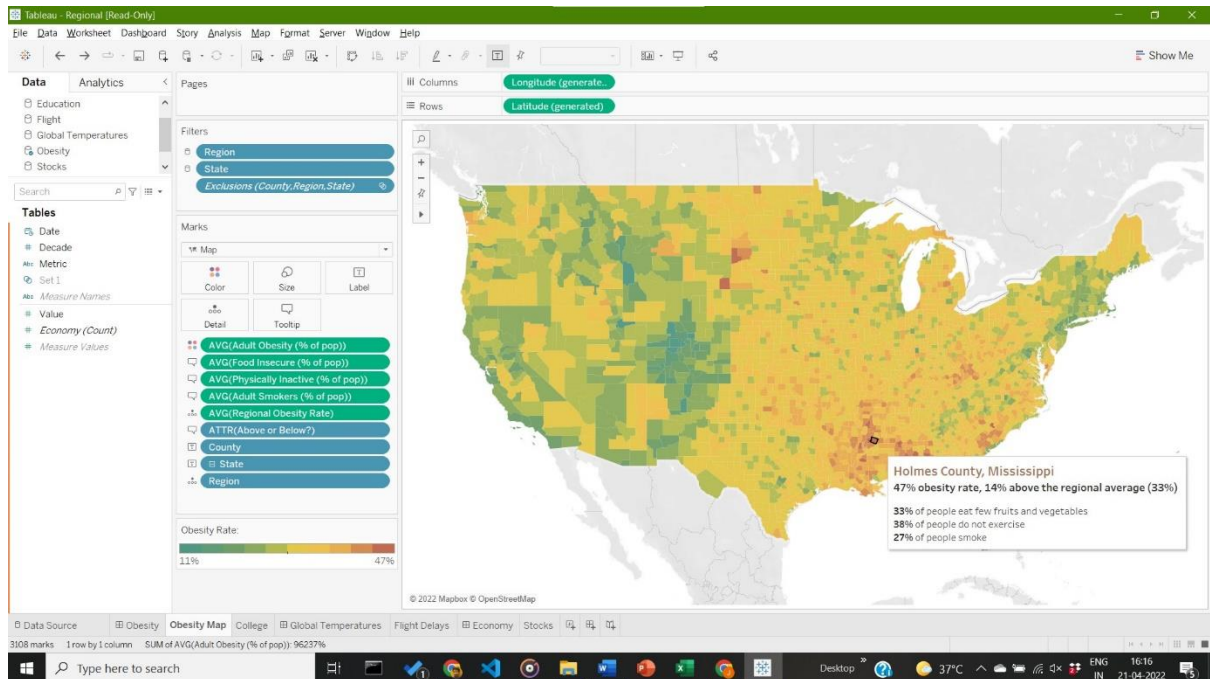
Type	Field Name	Physi...	Rem...
#	Adult Obesity (% of pop)	Obesity...	Adult ...
#	Adult Smokers (% of pop)	Obesity...	Adult ...
#	Children in Poverty (% of pop)	Obesity...	Childr...
🌐	County	Obesity...	County
#	Diabetic (% of pop)	Obesity...	Diabet...
#	Food Insecure (% of pop)	Obesity...	Food I...
#	Physically Inactive (% of pop)	Obesity...	Physic...
Abc	Region	Obesity...	Region
🌐	State	Obesity...	State



2. Visualization:

Visualization based on Obesity Rates, and the comparison with the average obesity rate of the given Dataset for the states of USA. Differentiation of tool tip seen with variation in colour. Also specifies percentage of people who do not eat fruits, who exercise less and who smoke.

a. Visualization using Maps for Given Spatial Data



Inference:

The state county with the lowest obesity rate is Teton County in Wyoming, with a rate of 13%. The state county with the highest obesity rate is Holmes County, Mississippi, with a rate of 47%.

Q2) Choose a standard temporal dataset and generate appropriate visualization for it:

Answer: Some Key points to note before visualization process:

1. Dataset Used:

The dataset used is the inbuilt dataset **Regional (Stocks)** available in Tableau. The dataset depicts the Stock annual returns from the years 2010-2014 in all the states of the United States of America via Mapping based Visualizations.

Fields

Type	Field Name	Physical Table	Remote Field Name
#	Close	Extract	Close
Abc	Company	Extract	Company
📅	Date	Extract	Date
#	High	Extract	High
#	Low	Extract	Low
#	Open	Extract	Open
#	Volume	Extract	Volume

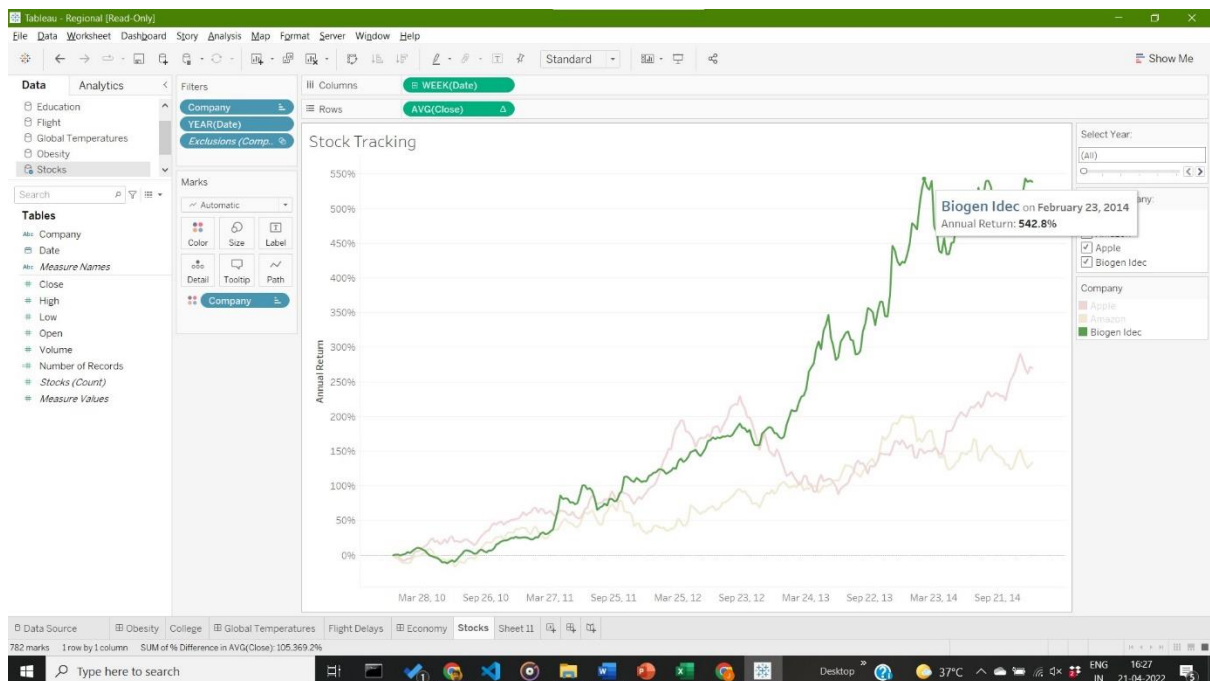
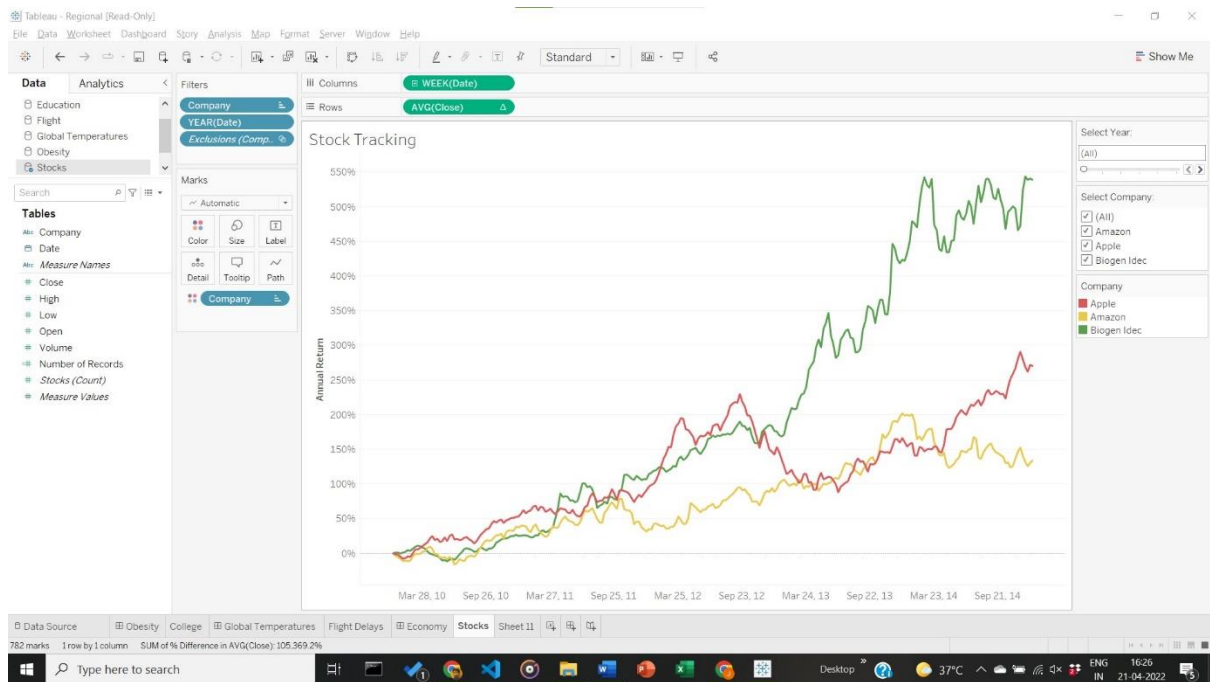
The screenshot shows the Tableau Desktop interface with the 'Regional (Stocks)' dataset loaded. The 'Connections' pane on the left shows 'Stocks' as a Tableau Extract. The 'Table' pane shows the 'Stocks' table with 7 fields and 3771 rows. The 'Fields' pane on the right lists the fields: Close, Company, Date, High, Low, Open, and Volume. The main view displays a data table with columns for these fields, showing stock data for various companies like Amazon, Apple, and Biogen Idec from 2010 to 2014.

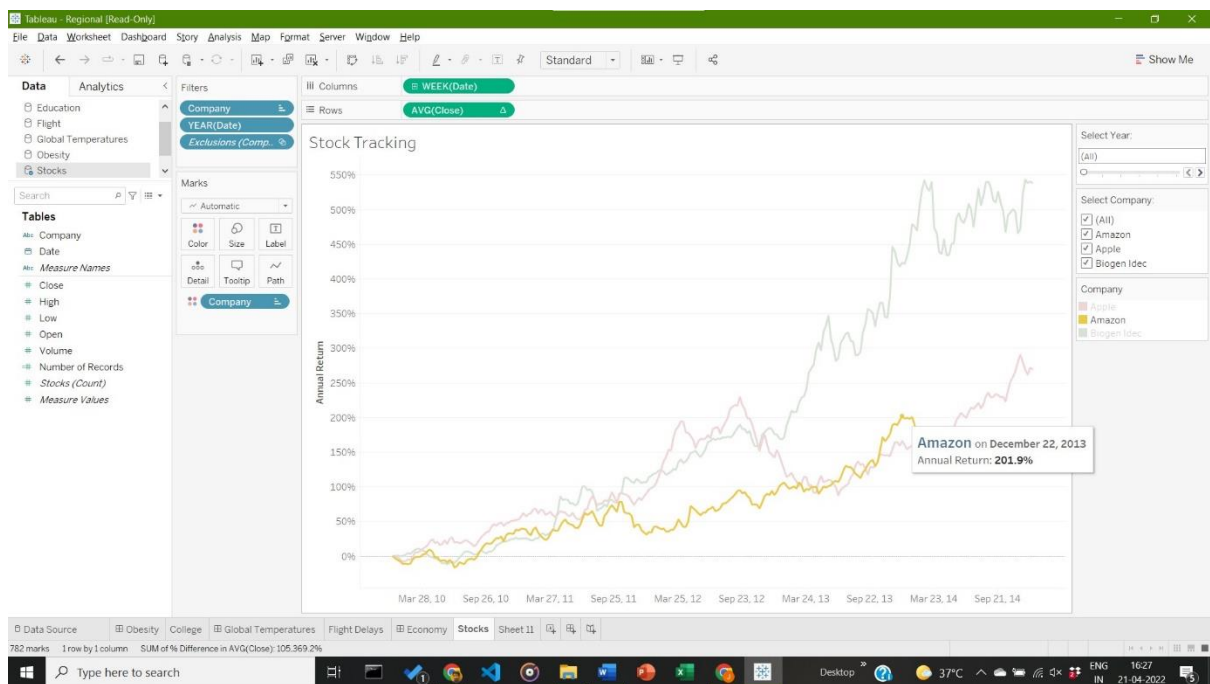
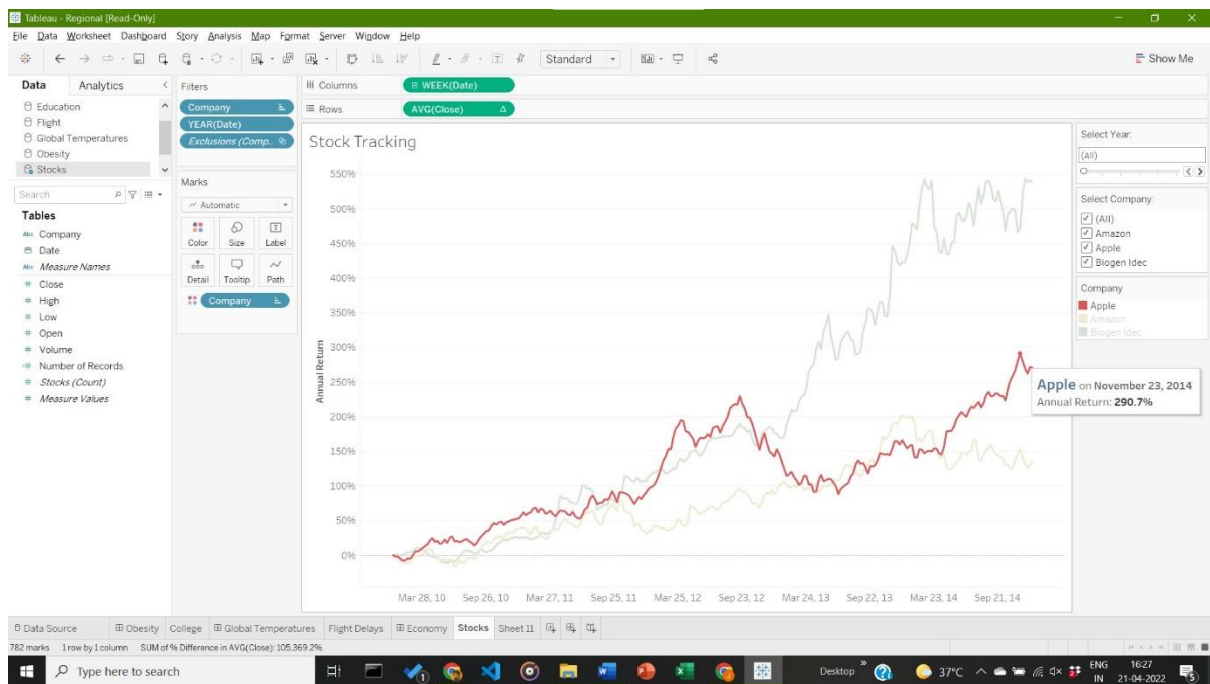
Close	Company	Date	High	Low	Open	Volume
133.900	Amazon	1/4/2010	136.610	133.140	136.250	7600.543
30.570	Apple	1/4/2010	30.640	30.340	30.490	123.432.050
53.640	Biogen Idec	1/4/2010	53.970	53.600	53.970	2.469.662
134.690	Amazon	1/5/2010	135.480	131.810	133.430	8.856.456
30.630	Apple	1/5/2010	30.800	30.460	30.660	150.476.004
53.380	Biogen Idec	1/5/2010	55.000	53.000	54.720	4.899.370
132.250	Amazon	1/6/2010	134.730	131.650	134.600	7.180.977
30.140	Apple	1/6/2010	30.750	30.110	30.630	138.039.594
53.430	Biogen Idec	1/6/2010	53.700	52.800	53.100	5.555.723
130.000	Amazon	1/7/2010	132.320	128.800	132.010	11.030.124
30.080	Apple	1/7/2010	30.290	29.860	30.250	119.282.324
52.990	Biogen Idec	1/7/2010	53.500	52.460	53.230	3.659.834
133.520	Amazon	1/8/2010	133.680	129.030	130.560	9.833.829
30.280	Apple	1/8/2010	30.290	29.870	30.040	111.969.081
54.080	Biogen Idec	1/8/2010	54.330	52.810	53.000	2.996.438
130.310	Amazon	1/11/20...	132.800	129.210	132.620	8.786.668
30.020	Apple	1/11/20...	30.430	29.780	30.400	115.557.365

2. Visualization:

Visualization based on Time (given in Weeks of Dates present in dataset), Average closing value, with different companies denoted with different colours (here; Apple: red, Amazon: Yellow, Biogen Idec: Green)

b. Visualization using Tree Maps for Given Temporal Dataset:





Inference:

Between the years 2010 – 2014, Biogen idec had the highest Annual Returns, with a peak annual return of 542.8% on the 23rd of February, 2014. Amazon had the lowest Annual Returns of the three companies, with a peak annual return of 201.9% on the 22nd of December, 2014.