SMOKING KILLS

1. Background

In contemporary times, cigarette or tobacco smoking has become a very serious concern. The health hazards related to it are catastrophic but yet there is no proper solution of the problem. This study has been carried out and an effort has been made to raise the alarming effects of smoking through visualizing the data related to it. Now let us go through the brief discretion of the data that has been used in creating the infographic, titled as, Smoking Kills.
The data has been collected from various sources as follows:

- **Smoking, Our World in Data:** (Source: https://ourworldindata.org/smoking#smoking-and-cancer):

Following are the visualizations created using the data sources:
   i.   Share of men and women smokers - The data has been downloaded in CSV format in which the share of men and women smokers for all the countries are listed. Out which the data for India has been used.
   ii.   Share of cancer deaths attributed to smoking - The data is downloaded in CSV format in which the share of cancer deaths due to smoking for all the countries are listed. Out of which the data of China and India has been used to compare through the area chart.
   iii. Deaths Due to Smoking - For this visualization, the data is downloaded in CSV format. The data is divided into three age group categories, 15-49, 50-69 and 70+, for all the countries and again the data for China and India has been compared using the butterfly chart.

- **Statista:**

   i.   Cigarette sales share worldwide in 2017, by region (Source: https://www.statista.com/statistics/325377/global-cigarette-sales-share-by-region/): The data from this source is downloaded in XLS format and Global cigarette sales share by region(world) is visualization is created.
   ii.   Global cigarette consumption from 1880 to 2017 (in billion cigarettes) (Source: https://www.statista.com/statistics/279577/global-consumption-of-cigarettes-since-1880/): The bar graph for the average consumption of the cigarettes have been created through this data. Years selected for this study are 2000, 2009, 2014, 2016 and 2017. The years from 2001 to 2008 are not given in the data.
   iii. Revenue of the cigarettes market worldwide by country in 2018 (in million U.S. dollars) (Source: https://www.statista.com/forecasts/758691/revenue-of-the-cigarettes-market-worldwide-by-country): This data is downloaded in xls format to create a world map which depicts the revenue generated by the countries from the sales of cigarettes.

2. Process:

Step-1: Identifying the Topic:

The very first step in creating an infographic is to identify and select a topic or an issue which is needed to portray on the canvas. The topic chosen for this infographic is cigarette smoking which holds a lot of weight when it comes to educating a group of people who smoke.

Step-2: **Data Gathering**

Once the area/topic for the infographic was chosen then came the step of data gathering. First, it motives to design this infographic was sorted and the data was collected accordingly. In the first section (Background), all the data sources are discussed in detail.

Step-3: Data Cleaning and Transformation

Once the data was collected was needed to be cleaned, as in identifying the missing data, renaming the columns as per the requirement of the infographic and filtering the data which is needed to be visualized.

Step-4: Loading of the Data in Visualization Tools

After cleaning the data as mention in step 3, it is then loaded into the visualization tools where the graphs and charts were created.

Step-5: Choosing Appropriate Visuals

To explain the story, which is expected to be narrated through the infographic, it is very important to choose an appropriate visual which will represent the data. Various tools to create the desired visitations, are used, which are explained in brief in the following sections.

Step-6: Importing the Visualizations in the Infographic:

The final step was to import the visualizations created in step 5 to create the infographic. The visualizations are imported in a manner that the story will be easily understood by the reader by just looking at the visualizations.

3. Specification:

Through this infographic, the adverse effect of cigarette/tobacco smoking is depicted with the help of the data gathered from the sources explained in section 1. Firstly it has been tried to show the global average consumption of the cigarettes in the recent time period(2000 - 2018). This global consumption of the cigarettes is then can be linked to the global share of the cigarettes sales across the various regions of the world. To show this, a bar chart is created in which it comes to notice that the sales of cigarettes in the Asia Pacific in the year 2017 is way more than the rest of the regions. Its share is 64% of the total sales throughout the world. Wherein, as per the data, the sales of cigarettes in Australia is zero. This data and its visualization clearly depict that the area which needed to be investigated is Asia continent.

After analyzing these two data it was clear that the demography on which this infographic should be focused on is Asia Pacific. For this study, China and India have been chosen as the previous visualizations clearly show that China contributes way more than any other country in the world with regard to the sales of the cigarettes. India has been chosen because of its increasing youth population (below 25 years of age), which constitutes around 50% of the overall population of the country.

Next, this infographic tries to show the effect of cigarette smoking on the people of the above-mentioned demographies. Data from Smoking, Our World in Data, for period 2011 to 2017 is used to create the visualization which depicts the deaths due to smoking for the people of different age group. It is mainly focused on the age group of 15-49 which represents the youth and it is compared with the age group of 50-69. The butterfly graph created clearly shows that for both, China and India, The number of deaths in the age group of 15-49 is way more than

that of the age group of 50-69. This is surely alarming and adequate steps needed to be taken in keeping the youth away from smoking. Focusing on the deaths in these two countries, this infographic also shows the analysis of cancer deaths due to cigarette smoking. The analysis regarding the deaths holds is crucial as it gives us a clear picture of how the habit of smoking is affecting the lives of people.

4. Justification:

Techniques:

When it comes to infographic, presenting the story with appropriate visualizations is very important. For instance the first visualization which represents the global share of sales for cigarettes by region is represented by using a donut chart. The reason behind doing so is that the data was limited to the regions out of which the significant amount share is taken by Asia Pacific(64%), wherein the others, which includes North America, Latin America and Australia, constitutes only 8% of the share. So, rather showing the regions which contributed very less compared to rest, the donut chart is segmented to show only top 5 regions.
The world map is used to represent the revenue share from the sales of cigarettes of the top countries in the world is created in Tableau. The data alone with the revenue column also consists of longitude and latitude, which motivated this map. The map clearly depicts the country name and its revenue.
The global consumption of cigarettes, from 2000 to 2017, has been shown through a bar graph. It can be clearly interpreted by the graph the exponential fall in cigarette consumption in the recent year and it is really significant, show the bar graph is used to simplify the interpretation.
The use of butterfly graph is used to compare the deaths(age wise) over the years due to smoking in China and India. This graph makes it really easy to understand the two different variables for two different countries.
The last one is the area chart which shows the cancer deaths in India and China. As there is a great difference in the number of deaths between both the countries, the area chart do the justification in which the area covered under China is way to bigger that the area covered under India which makes is fairly clear.

Layout:

For this particular infographic, the layout has been created using an online tool, Visme. The reason behind choosing Visme was, first of all, it was the recommended software to create the infographic and then secondly it provided many tools which helped in enhancing the quality of the graphs/charts created using other visualization softwares, which are explained in brief in next section (Technologies). As this infographic is created for an academic purpose and it intended to depict the visualization techniques taught in the course, a blank template without any ready-made visuals is selected at first. The next thing was to import all the visualizations created using Tableau and Datawrapper. To do so, first, all the graphs and charts were imported from these softwares to the local computer in .png format and then loaded one by one in the blank template in Visme as per the desired story. Visme provided a wide range of tools like adjusting the images at the correct positions, adjusting the dimensions of the images which will make them look more clearer to the viewer, it also provided a range to text fonts which are used in the description of the visualizations. It has various style of headers which were used in creating the heading of the infographic and also in showing some facts which needed to be more catchy to the eyes of the viewers. Finally, the layout has been set to fit the A3 size of the paper which is the requirement of this infographic. The layout dimension is 1122 x 1639 (A3 paper size as per Google).

<u>**Style:**</u>

The font selected for the title i.e. Smoking Kills is Liquidism. The reason to select this font is basically the nature of the topic in which the deaths, the most severe consequence of the smoking, is visualized. The red color is chosen to signify the danger warning.
Smoke in the background of the infographic can be observed. This is chosen as it completely corresponds to the topic which is selected. The opacity and the brightness of the background has been lowered so that it won't sabotage the effects of the visualizations.
There is an icon chart which has been used to represent the stats of the share of men and women smokers in India. 20 male and 2 female icons have been selected to depict the share of smokers i.e. 20.4% and 1.9%, respectively.
The fact(9.5%) about the deaths in India because of the tobacco consumption has given a background icon of heart as the most prevalent disease in India due to tobacco consumption is Cardio Vascular disease(CVD).
The lung icon at the background of the area chart has been used as lung cancer is the most common cancer which happens due to smoking.

<u>**Colour:**</u>

Although the main purpose of the infographic is to tell a story in a very vibrant manner so that it looks appealing to the viewer, this particular infographic is created with the purpose of creating the visualization which will be easy to identify the color blind viewers. An effort has been made to make this infographic friendly to the people who are suffering from Deuteranopia, which is a form of red-green blindness. To give a uniform look to the infographic, the color which is selected is brown and the shade **#A6611A** has been used which is cooler blind friendly. For showing the Deaths due to Smoking graph the range of color.

5. Technologies:

Technologies used to create this infographic are as follows:

- **Tableau:**

  iv.   The bar graph for global cigarette consumption.
  v.   The world map indicating the Revenue of the cigarettes market worldwide.
  vi.   The butterfly graph which compares the death due to smoking (for different age groups) for China and India.

- **DataWrapper**(https://app.datawrapper.de/chart/8Bp0Q/visualize#refine-the-chart):

  i.   Global share of sales of cigarettes by region.

- **Visme:**

  i.   Share of deaths by cancer due to smoking for China and India.
  ii.   Icon chart for gender analysis of cigarette smoking in India.

- **Online image editor** has been used to edit the images in the sense of making the background transparent so the graphs and charts in the infographic should not overlap.

6. Reflection:

The most important thing for an infographic to narrate the story you want is the data. To find the data which will help in creating the visualizations for the story you desired to tell is a really tedious task. This was the first challenge which creating this infographic encountered. Now when you use different tools to create your visualizations the style and color might not be same for all the tools. So, to adjust the color shades and maintaining the uniformity of the infographic was another challenge. Assembling all the visualization was another tedious task but as the topic and story was decided, it wasn't that difficult to arrange the graphics in an appropriate manner. Overall, through tis infographic, lot of techniques and tools were got acquainted and a new aspect of data visualization is discovered.

7. References:

(1) https://ourworldindata.org/smoking#smoking-and-cancer
(2) https://www.statista.com/statistics/325377/global-cigarette-sales-share-by-region/ https://www.statista.com/statistics/279577/global-consumption-of-cigarettes-since-1880/
(3) https://www.statista.com/forecasts/758691/revenue-of-the-cigarettes-market-worldwide-by-country
(4) http://apps.who.int/gho/data/node.home
(5) https://www.tiionline.org/facts-sheets/revenue/