

INFOGRAPHIC ON THE SMART PHONE REVOLUTION IN USA, *THE NEGATIVES AND THE POSITIVES*

Submitted by,

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Introduction

There had been a rapid rise in number of smartphone users in the United States of America. It is said that, on an average, more than 68% of the population in US in 2017 has a smartphone and it is said to increase multi-fold by the year 2018. As per statistics, Samsung and Apple are the top 2 smartphone providers in US [1]. In this infographic, we deep-dive into the statistics of number of smartphone users by state, statistics on the top smartphone manufacturers, evolution of smartphone over a period of time and also on the positive and negative effects caused by the rise in smartphone users. A General analysis of smartphone revolution is based on – 1) *Number of smartphone users – year wise*, 2) *Evolution of smartphone from year 1993 to 2012*, 3) *Most preferred brand in US*, 4) *State wise percentage of internet users in US*, 5) *Correlation between number of smartphone users, internet users and GDP of US*, 6) *Bar chart to show when people start using smartphone after waking and before going to sleep*, 7) *Smartphones that emit the maximum radiation*.

Background

The information to create all the visualizations used in the infographic are obtained mostly from statista, Wikipedia and Internetworldstats. Information on number of smartphone users and most preferred brand of smartphone in US were extracted from statista, information on internet users state wise and GDP of the country year wise were taken from Internetworldstats and Wikipedia respectively.

Links:

<https://www.statista.com/topics/2711/us-smartphone-market/>

<https://www.statista.com/statistics/273697/market-share-held-by-the-leading-smartphone-manufacturers-oem-in-the-us/>

<https://www.statista.com/chart/12017/smartphone-use-in-the-morning-and-at-night/>

<https://www.statista.com/chart/12797/the-phones-emitting-the-most-radiation/>

http://www.bfs.de/SiteGlobals/Forms/Suche/BfS/DE/SARsuche_Formular.html;jsessionid=0878199FFC041A01257BCFEB86D2440E.2_cid349?nn=6046838&csstring_SARManufacturer=Samsung_1

<https://www.statista.com/statistics/201182/forecast-of-smartphone-users-in-the-us/>

<https://www.internetworldstats.com/stats26.htm>

<https://www.statista.com/statistics/248133/per-capita-us-real-gross-domestic-product-gdp/>

8 graphs have been created in total,

- 1) *Number of smartphone users in US – year wise*
- 2) *Evolution of smartphone – 1993 to 2012*
- 3) *Most preferred brand of smartphone*
- 4) *Number of internet users – State wise*
- 5) *Correlation plot between smartphone users and internet users in New Hampshire*
- 6) *Correlation plot between smartphone users, internet users and GDP of US – Year wise*
- 7) *Timeframe in which smartphones are being used – Before sleeping and after waking up*
- 8) *Smartphone which emits the highest radiation*

Process

Planning: Initially, a rough draft of the infographic was made on paper with the basic outline of all the graphs which are plotted on the infographic. 8 different datasets were carefully chosen in such a way that they make a story with both the negatives and positives of a smartphone to be in sync with the question of smartphones being a boon or bane. Once the initial draft on paper was done, next step was to choose the color that would perfectly fit for each graph and that would also go with the overall color theme of the infographic [10][11]. Initially red color was chosen for graph which depicts the radiation emission of different smartphones in a symbolic way to show the radiation in red, but it didn't go with the blue theme of the infographic and hence, had to choose a blue color palette which perfectly goes with the theme of the infographic. We finally proceed with using dark blue – light blue colour theme for all the graphs that are to be pasted into the infographic so that it would perfectly fit the theme of the infographic and also will not be a distraction for the viewers.

Execution: In order to make the infographic, we use Canva [12], from where a template with blue theme is chosen. After choosing the theme, we prepare the charts on tableau and then import them onto Canva. The charts are placed in a particular order. The initial phase of the infographic gives the basic statistics on the evolution of smartphones. Graphs to show the rise in number of smartphone users, evolution of smartphone from year 1993 to 2012 and most preferred brand of smartphones are showcased in the initial section. The next section covers the positive impacts that the smartphone evolution has created. This section consists of graphs which depicts the state wise growth in internet usage population and its correlation with the rise in number of smartphone users. There is also another graph which depicts the correlation between the rise in smartphone users, the rise in internet users and

the GDP of US. Then we move onto the negative impacts of the smartphone evolution. This section shows the negative impacts such as the harmful effects of blue light emitted by the smartphones and how people are addicted to the smartphones by showing how many users use their smartphones immediately after waking up and also before going to the bed. This section also has a graph which gives information of all the highest radiation emitting smartphones. Finally, to make the infographic appealing to the views, graphics were added. Graphics such as 2 women taking selfies to depict the smartphone addiction, WIFI symbol to show the radiation, warning signs were added to make it appealing to the viewers.

Before getting the final output with the above-mentioned description, multiple drafts were made and were peer-reviewed to get inputs on the positives and negatives of the infographic.

- 1) Draft 1 was rejected as it was too graphical and distracting to the readers
- 2) Draft 2 was rejected as the color of the graphs and the template theme did not match
- 3) Draft 3 was made in visme and was made with inappropriate background.

After learning from the mistakes made in all the previous versions, the final version was made with proper graphs, proper color code which matches with the theme, proper annotations and proper graphics.

Specification

This infographic is built around the theme of Smartphones and its positive and negative effect on the society. A couple of negatives and positives are provided in the infographics which leads the viewers to decide by themselves if smartphone revolution is boon or bane!

- At the beginning, we show the basic statistics of the smartphone usage in USA by showing the year wise rise in usage of smartphones through area graph and we also show the evolution of smartphones from 1992 to 2012 and also the most preferred brand of smartphone in US.
- Then we move on to show the positive impact of the smartphone rise by correlating it with the rise in internet users and also the rise in GDP of the country.
- The next section consists of the information on the negative impacts of the smartphone revolution. Negative effects include – Blue lights and radiation emitted from smartphones affects the users.

Justification

This infographic was created with motive to showcase the evolution of smartphone in US and its impacts. The visualizations concentrate on the basic statistics and both the positive and negative impacts without much deviation from the topic. 5-layer style was chosen for the infographic and each layer divides the infographic in section and each section has a story of its own.

- The entire infographic was designed with 2 colors as base. 2 variants of blue colors used are: Aqua and Presidential Blue. They are stacked on each other to form the 5 layers
- The title ‘The Smartphone Revolution – Boon or Bane?’ is aptly given for the infographic which gives a crisp summary of what the infographic is about and is easy for the readers to tell if it’s the one they are looking for. In the 1st section, along with the title of the infographic, images of phones from few years back and current smartphones are added to symbolically represent the evolution of phones.
- In the 2nd section, the 1st graph represents the year wise rise in number of smartphone users. For this, area graph is used since it is similar to line graph and hence is the best option to represent year wise data. 2nd graph in this section is a stepwise graph which shows the growth of phones from IBM Simon in 1993 to Galaxy s3 in 2012. Step wise graph is the perfect choice to represent growth year wise. 3rd and the final graph in this section is a pie chart to show which is the preferred brand. This section explicitly concentrates on the positives of the rise of smartphones. All the graph colors used are blue to light blue to go with the blue theme of the infographic to make the infographic smooth and appealing to the readers.
- 3rd section contains the state wise number of internet users in US for the year 2017. Map graph is the perfect choice for this one as it is visually easy to understand since the data contains state wise information. From the map, it can be inferred that the state New Hampshire has the highest % of internet users. In order to show why the number of internet users is shown in the infographic, we use a line graph to show the correlation between the smartphone users and number of internet users in the state of New Hampshire. An arrow mark from the state is marked towards the graph to show that the line graph is specific to New Hampshire. This section also focuses on the positives. All the graphs in this section also follow blue theme.
- 4th section is divided into two columns and contains 2 graphs, 1st one being the area graph to show the correlation of number of smartphone users, number of internet users and the GDP of the country which shows the positive effect. The 2nd column with the 2nd graph contains the information on how soon the users use their phones after they wake up and how they use it before sleeping. The smartphones produce blue light which affects human beings which is why this graph

was put in the infographic. Once again blue color has been used to not only to blend with the theme of the entire infographic but also to symbolically represent the blue light emitted by the smartphones.

- 5th and the final section contains the bar graph which comes the radiations emitted by various smartphones and which is arranged in descending order to show the top 15 highest radiation emitting devices out there. The graph shows that there are 2 apple phones in the top 16 and since apple is preferred by 41% of people in US (inferred from graph in section 2), we symbolically state that majority of the smartphone users are prone to get affected by the blue lights emitted by smartphones. Blue has been the preferred color for all the graphs in this section too.

Technologies

3 different resources were used to create this infographic, namely, Tableau – used to create the graphs, Canva and Visme to get the initial template and to insert graphics to make the infographic more appealing. Apart from these, Excel and RStudio are the preferred tools to clean the dataset to bring it to required format for visualization.

Reflection

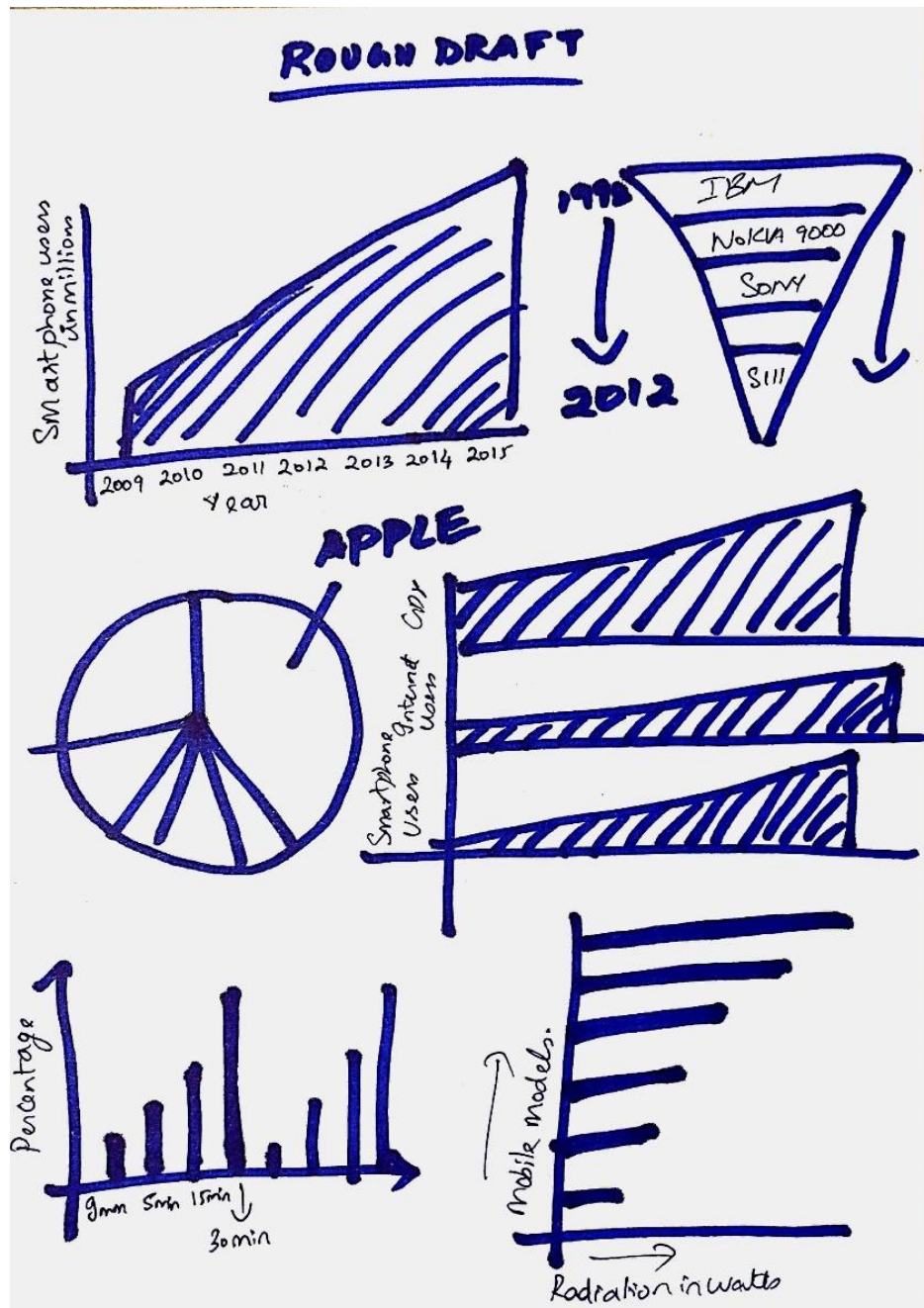
It was very engaging and interesting to make this infographic on Revolution of Smartphone in USA. Since the topic is quite common, it was easy to find the datasets and also easy to visualize them using tableau. Also, Canva, which was used to bring all the visualizations together to make the final infographic, has a very user-friendly user interface and hence it wasn't hard to get the final output. Even though the infographic was easily made, choosing the right color balance and creating a story were the only difficulties which hindered the making of the infographic. Also, to convey story by using a smaller number of graphs due to space constraints, was difficult and took a lot of time. Attained self-satisfaction after seeing the final output after putting in so much efforts.

References

- [1] <https://www.statista.com/topics/2711/us-smartphone-market/>
- [2] <https://www.statista.com/topics/2711/us-smartphone-market/>
- [3] <https://www.statista.com/statistics/273697/market-share-held-by-the-leading-smartphone-manufacturers-oem-in-the-us/>
- [4] <https://www.statista.com/chart/12017/smartphone-use-in-the-morning-and-at-night/>
- [5] <https://www.statista.com/chart/12797/the-phones-emitting-the-most-radiation/>
- [6] http://www.bfs.de/SiteGlobals/Forms/Suche/BfS/DE/SARsuche_Formular.html;jsessionid=0878199FFC041A01257BCFEB86D2440E.2_cid349?nn=6046838&csstring_SARManufacturer=Samsung_1
- [7] <https://www.statista.com/statistics/201182/forecast-of-smartphone-users-in-the-us/>
- [8] <https://www.internetworldstats.com/stats26.htm>
- [9] <https://www.statista.com/statistics/248133/per-capita-us-real-gross-domestic-product-gdp/>
- [10] <https://www.lifehack.org/484519/how-to-choose-the-best-colors-for-your-data-charts>
- [11] <https://blog.graphiq.com/finding-the-right-color-palettes-for-data-visualizations-fcd4e707a283>
- [12] <https://www.canva.com/>
- [13] <https://www.color-blindness.com/coblis-color-blindness-simulator/>

Appendix

Wire Frame-

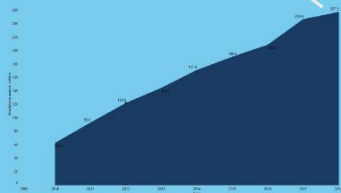


Final Infographic

THE SMARTPHONE REVOLUTION IN USA BOON OR BANE?

[STATISTICS ON SMARTPHONE USAGE AND SMARTPHONE BRAND IN USA]

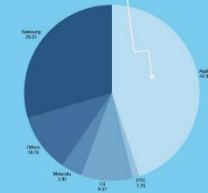
ALARMING RISE IN NUMBER OF SMARTPHONE USERS IN US. THE COUNT CURRENTLY STANDS AT 257.3 MILLION FOR 2018



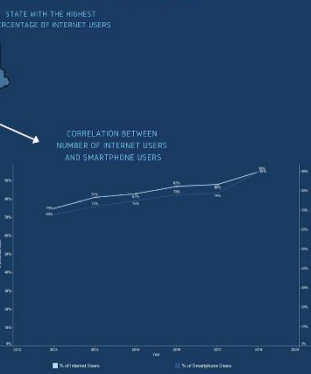
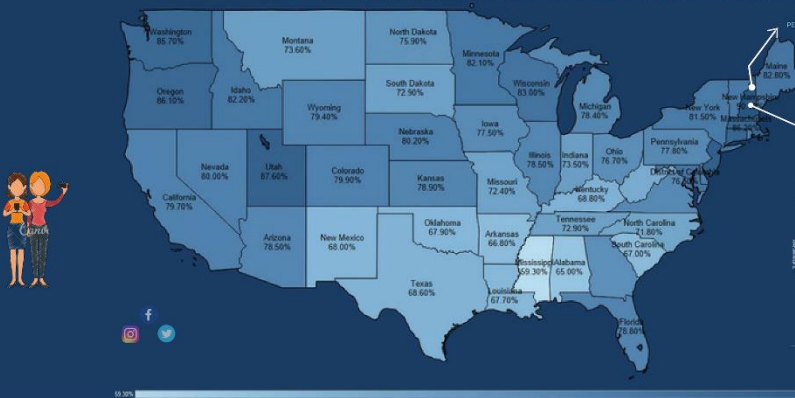
EVOLUTION OF SMARTPHONE



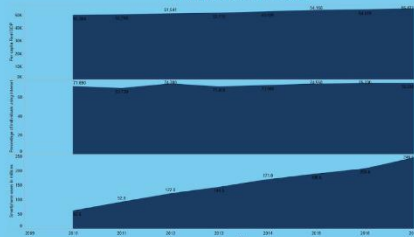
44.91% OF THE AMERICANS PREFER APPLE OVER OTHER BRANDS



RISE IN NUMBER OF INTERNET USERS IS DIRECTLY PROPORTIONAL TO NUMBER OF SMARTPHONE USERS!



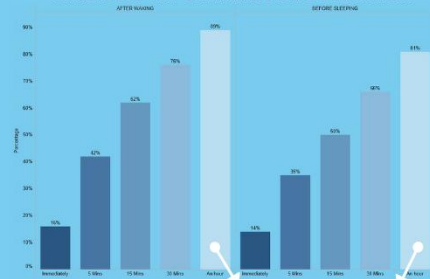
CORRELATION BETWEEN NUMBER OF SMARTPHONE USERS, INTERNET USERS AND GDP



WHEN NUMBER OF INTERNET USERS INCREASE ↑

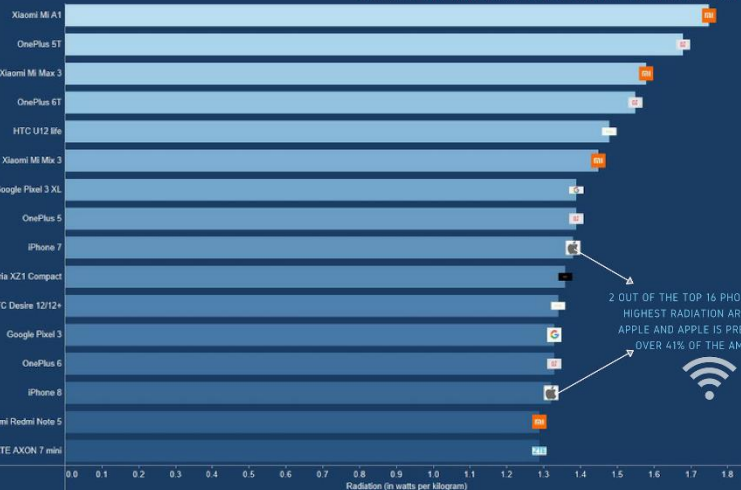
THE GDP INCREASES ↑

NEGATIVES AND SIDE EFFECTS AMERICA'S FAVORITE BEDSIDE COMPANION?



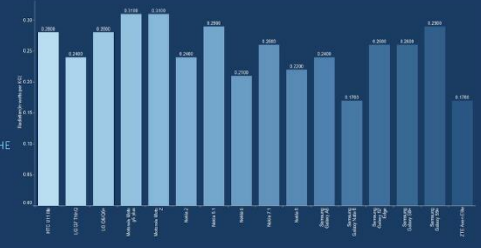
81% OF THE SMARTPHONE OWNERS CHECK THEIR PHONE AT LEAST 1 HOUR BEFORE THEY SLEEP AND 89% CHECK THEIR PHONES WITHIN ONE HOUR AFTER THEY WAKE UP! BLUE LIGHT EMITTED BY THE PHONE SUPPRESSES THE SECRETION OF MELATONIN WHICH REGULATES SLEEP!

HARMFUL RADIATIONS FROM SMARTPHONE!



RADIATIONS EMITTED BY SMARTPHONES CAN CAUSE CANCER AND REDUCE MALE SPERM QUALITY!

MODELS THAT EMIT THE LEAST RADIATION



2 OUT OF THE TOP 16 PHONES WITH THE HIGHEST RADIATION ARE MADE BY APPLE AND APPLE IS PREFERRED BY OVER 41% OF THE AMERICANS

Data sources: www.statista.com, <https://www.internetworldstats.com/stats26.htm>

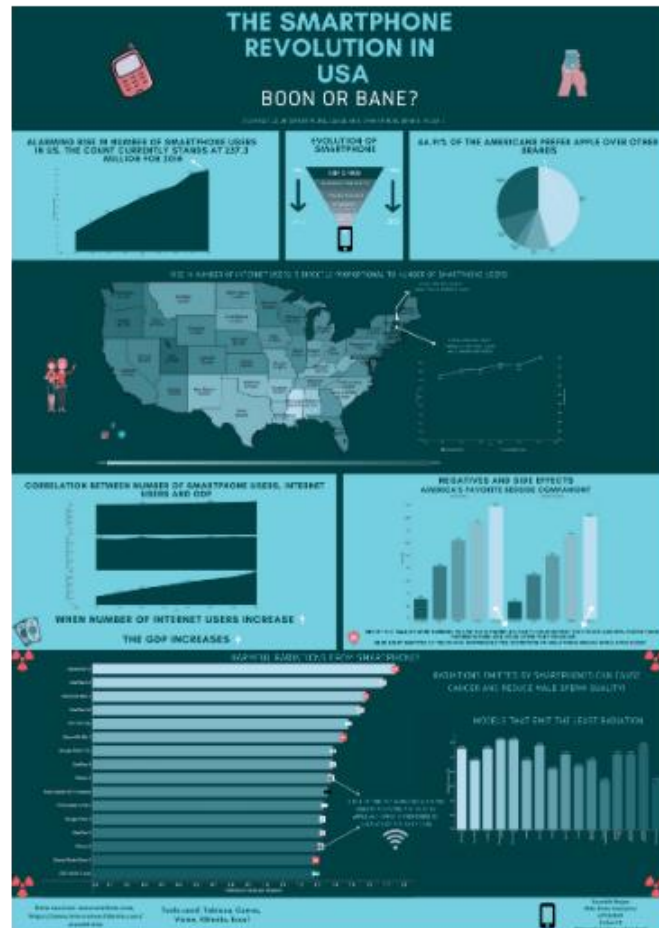
Tools used: Tableau, Canva, Visme, RStudio, Excel



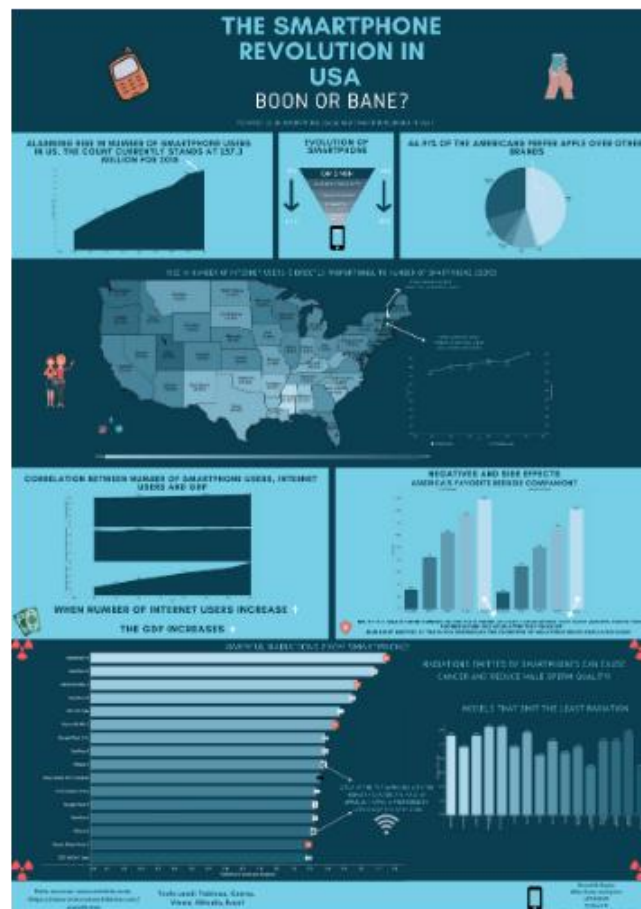
Kaushik Rajan
MSc Data Analytics
x7145849
Cohort B
National College of Ireland

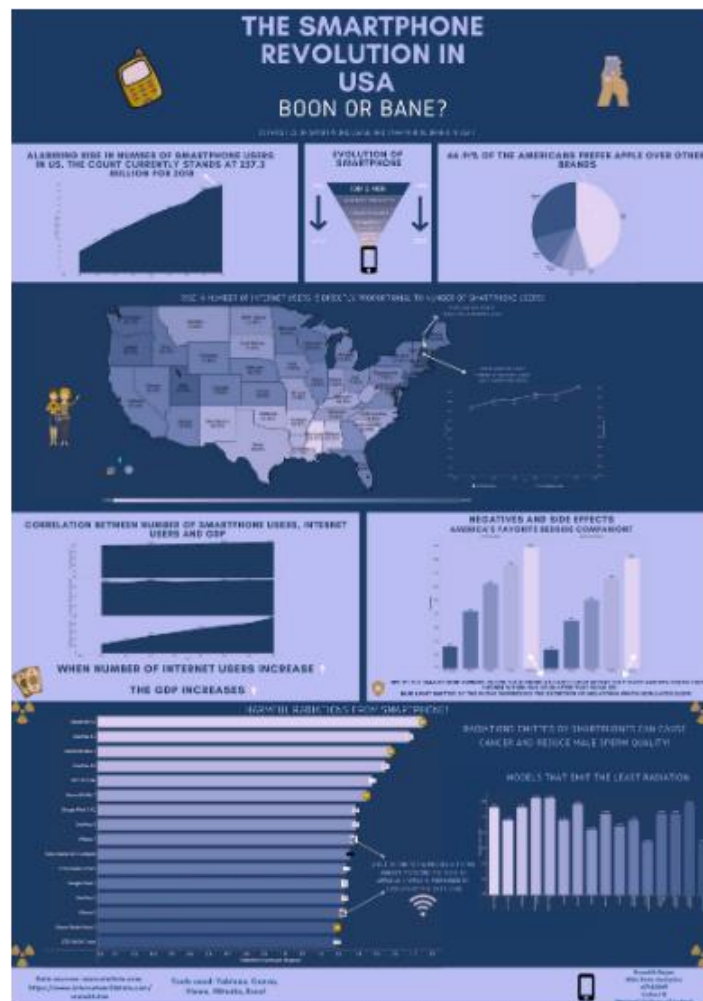
Color Blindness Test

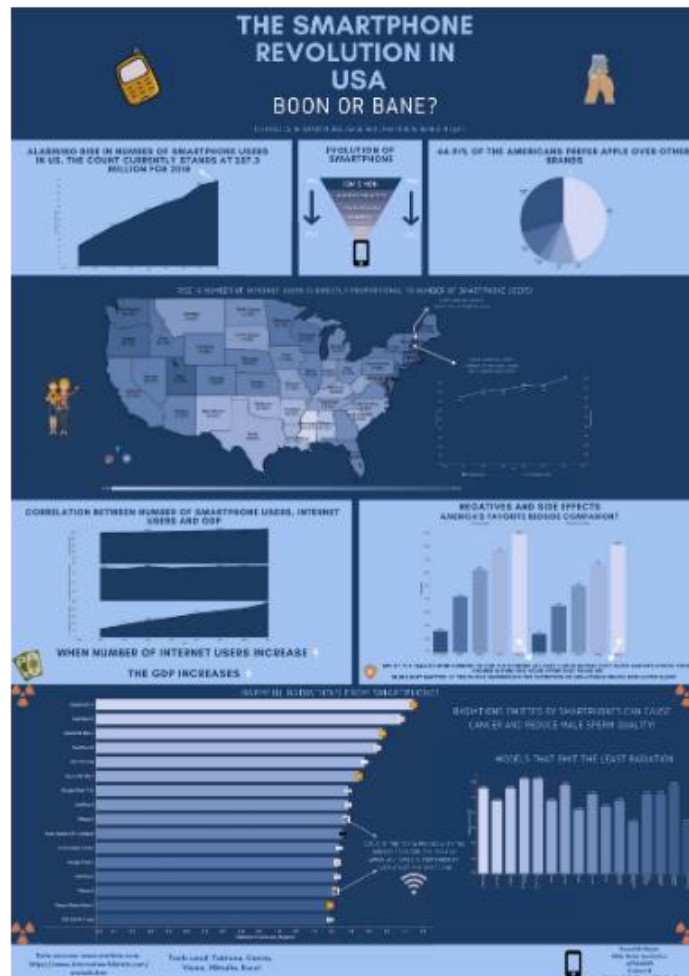
1) Blue – Blind

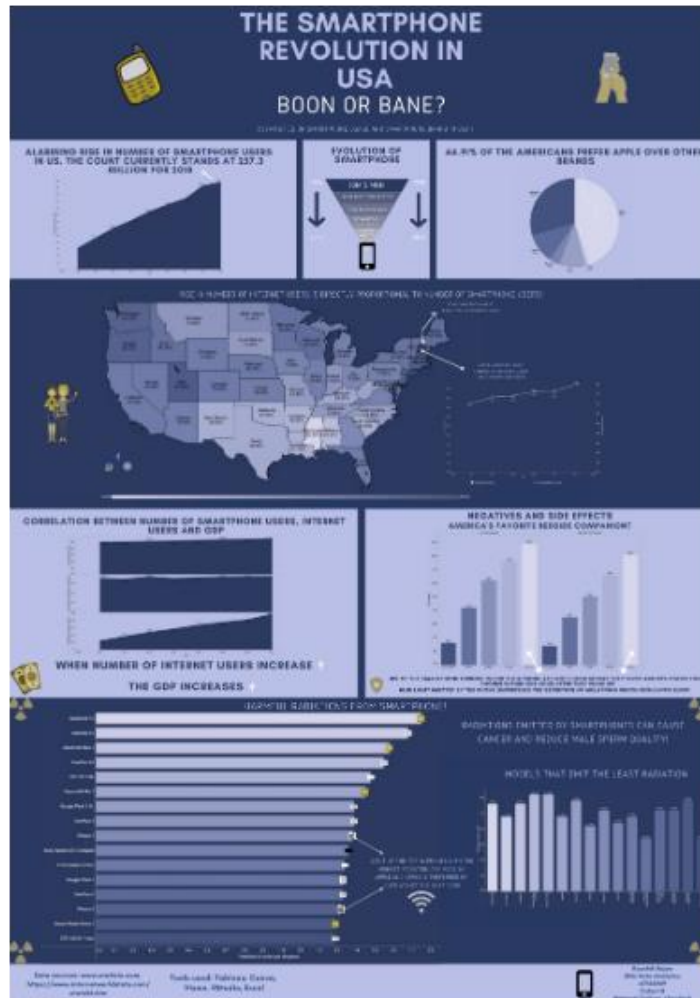


2) Blue – Weak









6) Red – Weak

