Assignment 02

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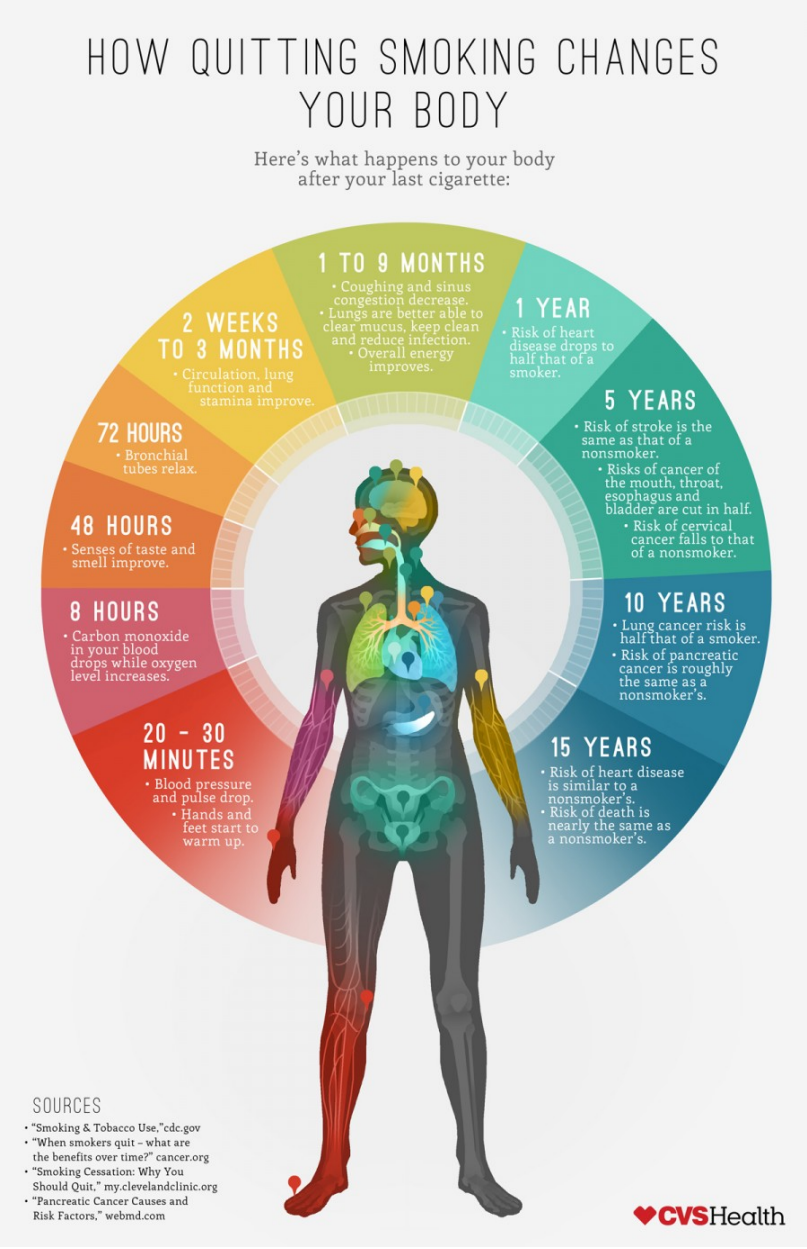
Visualization Critique 01



Source : Huffington Post

Assignment 02

Infographics are the *Rolls Royce* of visualizations. I remember my mother telling me as a child on how a picture is worth a thousand words, and that perfectly summarizes what an infographic succeeds to achieve. An infographic is a visualization technique that uses art and creativity. The result is a visually appealing melange of color, caricature and information presented to the user in a delightful way. Infographics are a relatively new technique and can have a lot of impact if used correctly under the right circumstances. Below I have discussed some of the advantages and disadvantages of infographics to help the reader make a better decision whether an infographic is the right fit for them.

Pros :

- Infographics are aesthetically simulating. For this reason they are popular because they tend to get linked/tweeted/embedded/shared more often. If you are looking for something that can easily be shared on social media, infographics are your best bet. This makes infographics the best contender for marketing campaigns and public announcements.
- They offer all the information through colorful pictures and icons. They make a better impression on the user. One does not have to read dreary paragraphs of text. Users register the information more readily when presented in the form of an infographic.

Cons :

- An infographic is a static image. There is no concept of one size fits all in infographics. Each infographic is hand crafted to suit the particular data. If the underlying data is dynamic or variable, infographics will not be able to do an impressive job.
- There are a lot of infographics out there that are misleading or downright incorrect. The reader should confirm the credibility of the infographic and check with the sources before taking anything infographics say at face value.
- Infographics are expensive to make. Design companies charge anywhere between $3,000-$12,000 for an infographic. Also infographics take a long time to make. This makes infographics difficult to use at scale.

Visualization Critique 02

Predicting Post-Operative Visual Acuity for LASIK Surgeries

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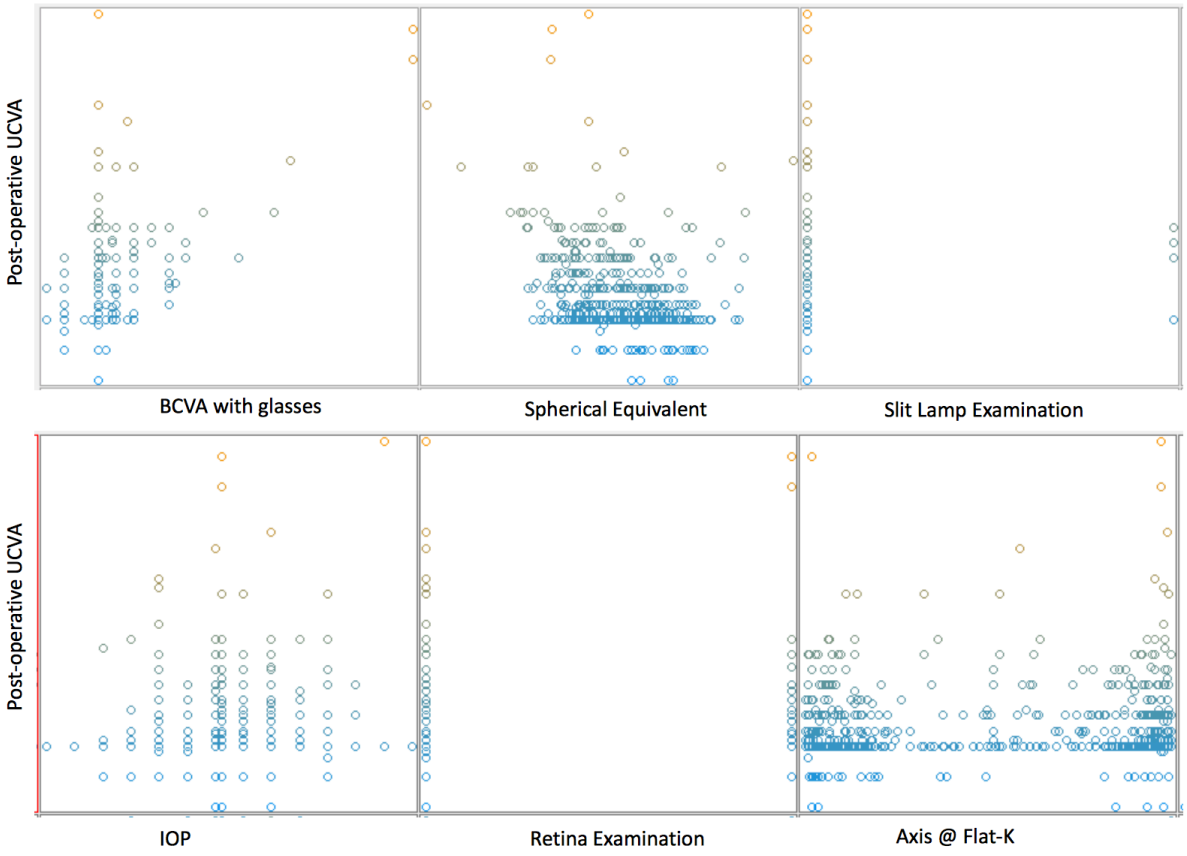
LASIK (Laser-Assisted in Situ Keratomileusis) surgeries have been quite popular for treatment of myopia (nearsightedness), hyperopia (farsighted- ness) and astigmatism over the past two decades. In the past decade, over 10 million LASIK procedures had been performed in the United States alone with an average cost of approximately $2000 USD per surgery. This paper tries to use machine learning to predict the post operative UCVA (Uncorrected Visual Acuity) of the patient after the surgery, given his preoperative examination results and demographic information as input.

The above visualization shows the feature selection process for the machine learning algorithm to predict UCVA values. The different boxes are examinations con-



ducted on the patient post-surgery after 1 day, 1 week and 1 month. These post-surgery examination values are considered as features used to train the system. The authors of the paper prove that one particular technique known as GDBT (Multiple Additive Regression Trees (MART) gradient boosting algorithm) gave the best results to predict the patient's post-surgery UCVA. But this visualization offers little to no help in understanding the values.

Firstly, these scatter plots don't offer scales for the reader to understand what is going on in the plots. The axes have been left bare with no tick marks or number values or units. This is a poor demonstration of scatter plots.

Secondly, due to the absence of a proper legend, the reader has no clue what the color gradient is trying to depict. The scatter plots show different colors ranging from from blue to green to orange. But the plot gives us no information as to what this means.

My recommendation to the authors would be to add these missing pieces so that the reader gets more clarity on the author's intentions and substance. It would also be helpful to reconsider the 3x2 grid style of laying out the plots. Unless the plots have some kind of grouping or hierarchy, it can be a little misleading to place them in such a way.