1

Medical Test Results

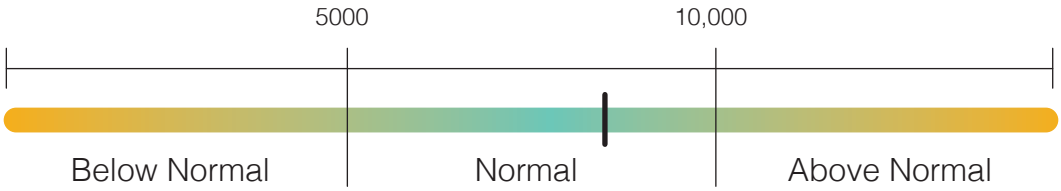
Almost everyone had their blood tested before for different reasons, we always receive the lab test results few days after the appointment. It's usually a heavy-texted document that shows all the test components and the value. In most cases the document does not highlight what is low or below average, and what is high or above average, which makes it difficult to understand the results quickly especially for people without Medical background. Therefore, visualizing the data records will help us understand the components better. Using design elements like colors and shapes to create graphs and diagrams will help identifying what needs more attention or improvement.

Example, one of the most important components of blood tests is WBC, which is White Blood Cell, the range defers from males to females, children to adults. For adults it ranges from 5,000 to 10,000 per mcL of blood. A way to visualize this is to show the range, the normal level of WBC, the below and above normal, and the dangerous area.

This

Test Component	Your result	Standard range
WBC (x10(3)/uL)	7.21	4.00-10.10

is this



In the sketch we can immediately know that WBC is in the normal zone without looking at the number, and it also shows how far it is from the abnormality.

A user interface that converts numbers into visuals will help both patients and doctors understand the test results better, doctors can input the test results numbers, and patients receive the final visualization. The UI can be pushed even further, for example more interactivity that allows the patient to play with numbers and see the relationships between the components and how the human body is connected.

The dataset will be all the test results components ranges, normality and abnormality.

2

Hajj Pilgrimage

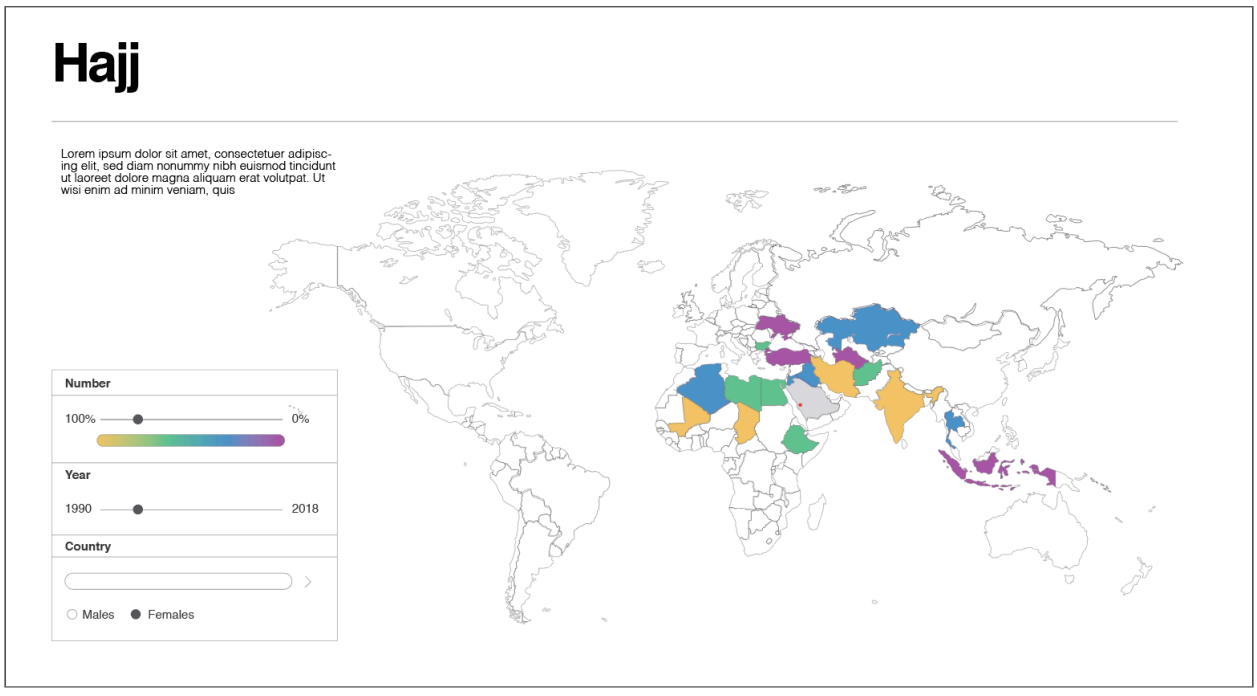
Hajj is an annual islamic pilgrimage, practiced by millions of people in one small city, Mecca. Every year around 2 million people travel from all over the world to Mecca for Hajj. A huge number with different nationalities and ages, make an interesting set of data that can be visualized. Visualization can help answering important questions about Hajj:

How many people came from outside of Saudi Arabia this year, and in the past 10 years?
What are the countries that people usually travel from?
What is the country that most people travel from for Hajj?
What is the number of females vs males?
How did the Saudis travel domestically to get to Mecca?

The list of questions can go on, if these answers can be visualized like a pattern, it will become easier to predict the data for next year. This can be visualized diagrammatically or geospatially.
Diagrammatically: e.g., the increase or decrease of number of people from a certain country, female vs males.
Geospatially: e.g., show where Mecca is located and the distance between the other countries people travel from, the routes that are taken to travel..

Data source: https://hajmap.stats.gov.sa/hajmap/dayseng.asp

Sketch:



3

USA Weapons Sales

“The U.S. has sold more weapons to other nations in the first half of fiscal year 2018 than it did in all of fiscal year 2017” – Defense News.

The United States has a huge arms industry, weapons, military technology are manufactured and sold to other country for mostly war purposes. Just recently Saudi Arabia paid 110 billion dollars to the US for weapons and military equipments. Saudi Arabia is not the only buyer, other countries like Australia import weapons from the US. Australia pays nearly 2-158 million dollars every year for weapons.

A data visualization of the US weapons sales will summarize:
How much the other countries benefit from importing weapons.
What are the countries.
How much the US is making out of weapons manufacturing.

Maybe, include a comparison between the number of sales and wars in that year, e.g., Saudi Arabia’s war with Yemen. And this can be visualized diagrammatically or geospatially.
Diagrammatically: compare wars activities and weapons industry activity.
Geospatially: Show where the weapons are being exported from and imported to.

Data source: https://tradingeconomics.com/united-states/weapons-sales.

Sketch: