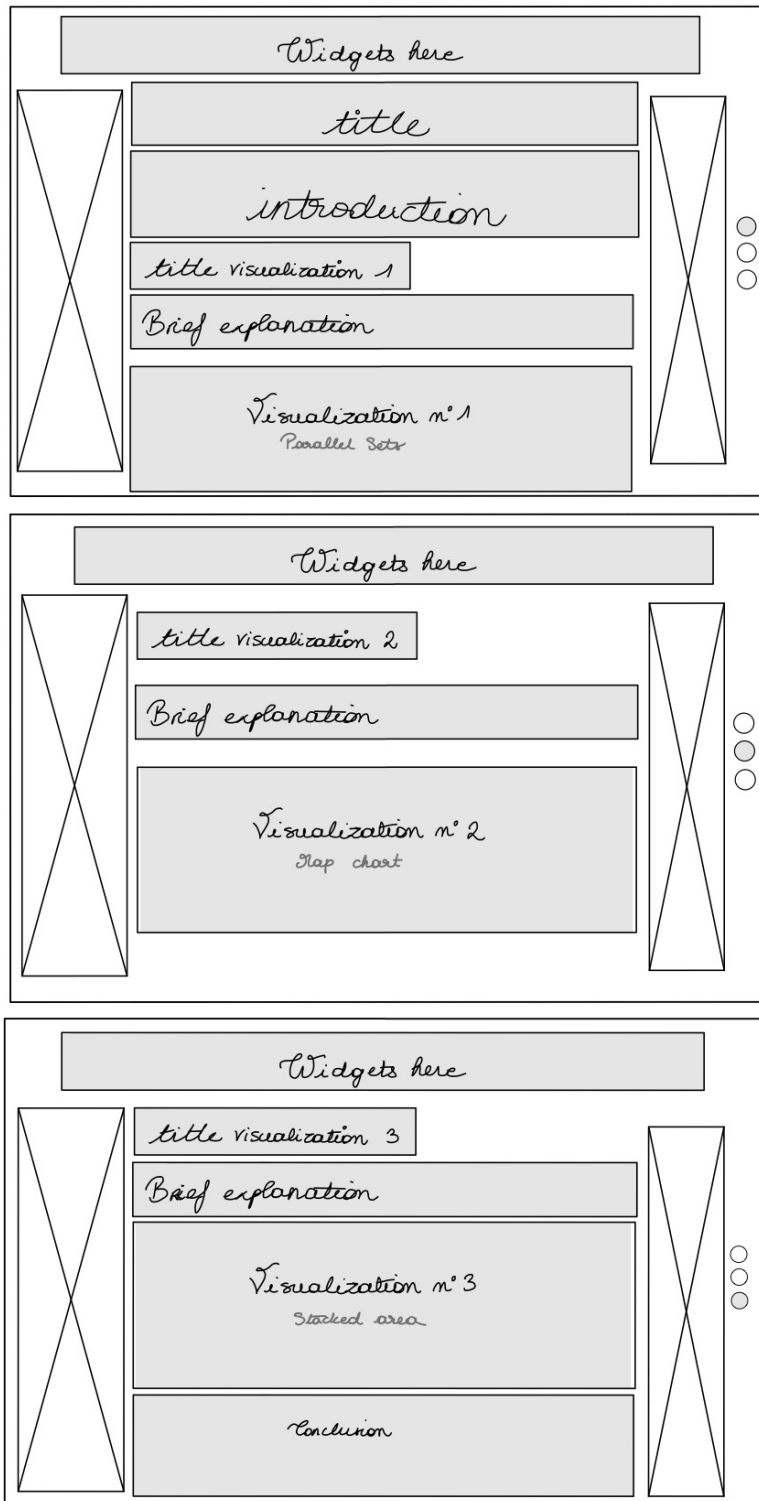# Milestone 2 :

Goal : Identify what influences the apparition of a cardio-vascular disease

Storyboard :

I. What individual factor might influence the occurrence of a cardiovascular disease ?

First Visualization : With this first visualization we aim at showing what features increase your risk of having a CVD (cardiovascular disease). You will be able to select some features that are considered risk factors for the sickness; like lack of exercise, blood pressure,... When selecting a feature, the graph showing the proportions of each factor will highlight it to better visualize the impact it has on the overall risk.

This visualization will help us understand which factor increases the risk of having a CVD, as well as which combinations might be especially risk inducing.

Extra ideas : Fill the "perfusion" gauge while adding new aggravating features, corresponding to the proportion of people with the selected conditions that had CVD. while visual, it might be a challenge to implement.

Tools and helpful lectures
- Lecture 7.2 : Make the scales consistent, make our graphs clear, have all the data displayed. To make sure that our graphs respect the guidelines.
- Lecture 11.1 : For the additional graphs, to use correctly our data tables to show attributes responsible for CVD clear visually

II. Does the place of the world you live in affect your risk of developing a cardio-vascular disease?

Second Visualization : On a planisphere displaying all five continents, we will display by year the proportion of death due to CVD in each continent by range of color. You will have to select a year between 1988 and 2019, and it will display the proportion of heart disease related deaths compared to overall deaths in that year on each continent. Then the reader will be able to click on a continent to zoom in and see the proportion of heart disease related deaths by country to have a more precise overview.

This visualization will help us investigate whether the place people live in influences their risk of dying from a CVD.

Tools and helpful lectures :
- Lecture 6.2 : on color perception, we will have to make sure there are not too many colors and match the importance of the attribute with its noticeability.
- Lecture 7.2 : Make the scales consistent, make our graphs clear, have all the data displayed. To make sure that our graphs respect the guidelines.
- Lecture 11.1 : to correctly use our data tables, and plot them clearly

III. How has the risk of dying from a cardiovascular disease evolved since 1988 ? How is age related to the proportion of deaths by CVDs ?

Third Visualization : In this visualization, you will be able to see the evolution of CVD in function of time : throughout the years (between 1988 and 2019) or depending on people's age. The viewer will select an attribute among BMI, sex, age and continent, the graph will then showcase these information within the overall death rate of CVDs in function of age or

year. This will enable us to see if some features evolve throughout the years and have more influence in contracting a cardiovascular disease. When displaying some attributes by age, we will see how much age influences those attributes and thus your risk of having a CVD. This visualization isolates the time and age factor of having a CVD.

Tools and helpful lectures :

- Lecture 8.1 : On maps to make sure that we use the correct representation for our data and to make our map visually clear and true to the data.
- Lecture 8.2 : To zoom on the continents and understand how to make our map in practice

More general tools and helpful lectures :
Some lectures will be helpful in every visualization and for the rest of the website as well :
- Lecture 0 to 2 : on the basis of web development (html, javascript)
- Lecture 4.2 : on D3.js plots, contains very interesting examples, this library will for sure help us create our visualizations
- Lecture 5 : on methods to interact with the data, this is important as it will help us design effective visualizations by amplifying cognition
- Lecture 7 : Do and don't in visualizations, this lecture is too keep in mind in all our design as we want to design graphically interesting visualizations yet stay true to the data.

Annexe : Sketches of our graphs :

Visualization 1 : What individual factor might influence the occurrence of a cardiovascular disease ?
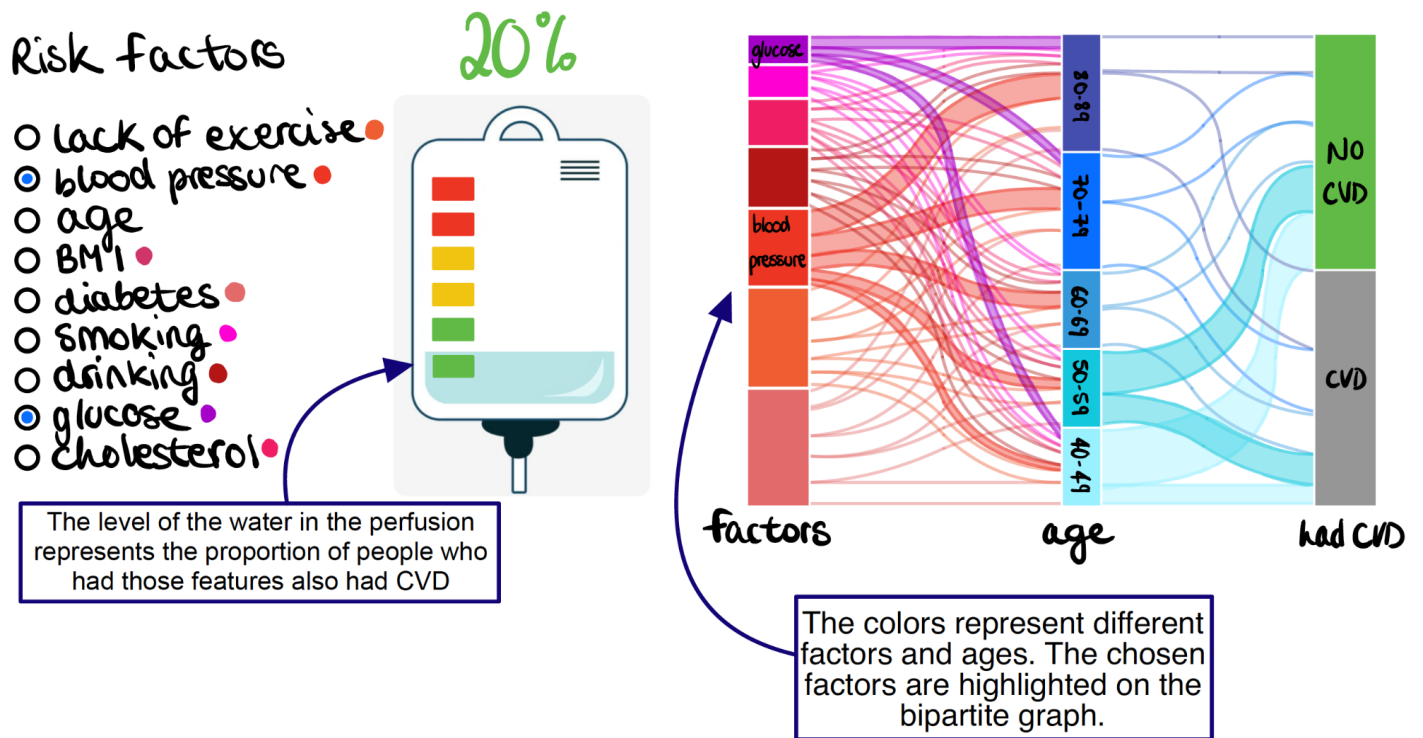
Risk factors

20%

- ○ lack of exercise ●
- ◉ blood pressure ●
- ○ age
- ○ BMI ●
- ○ diabetes ●
- ○ smoking ●
- ○ drinking ●
- ◉ glucose ●
- ○ cholesterol ●

The level of the water in the perfusion represents the proportion of people who had those features also had CVD

factors   age   had CVD

The colors represent different factors and ages. The chosen factors are highlighted on the bipartite graph.

Risk factors

60%

- ◉ lack of exercise
- ◉ blood pressure
- ◉ age
- ○ BMI
- ○ diabetes
- ○ smoking
- ◉ drinking
- ◉ glucose
- ○ cholesterol

Risk factors

85%

- ◉ lack of exercise
- ◉ blood pressure
- ◉ age
- ○ BMI
- ◉ diabetes
- ○ smoking
- ◉ drinking
- ◉ glucose
- ◉ cholesterol
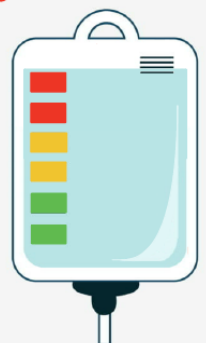
Visualization 2 : Does the place of the world you live in affect your risk of developing a cardio-vascular disease ?

America

United - States

Statistics :
More info
about the
selected
country.

death caused by CVD (per 100000 habitants)

under 1000
between 1000 and 5000
between 5000 and 15 000
greater than 15 000

Zoom in

Select a year :
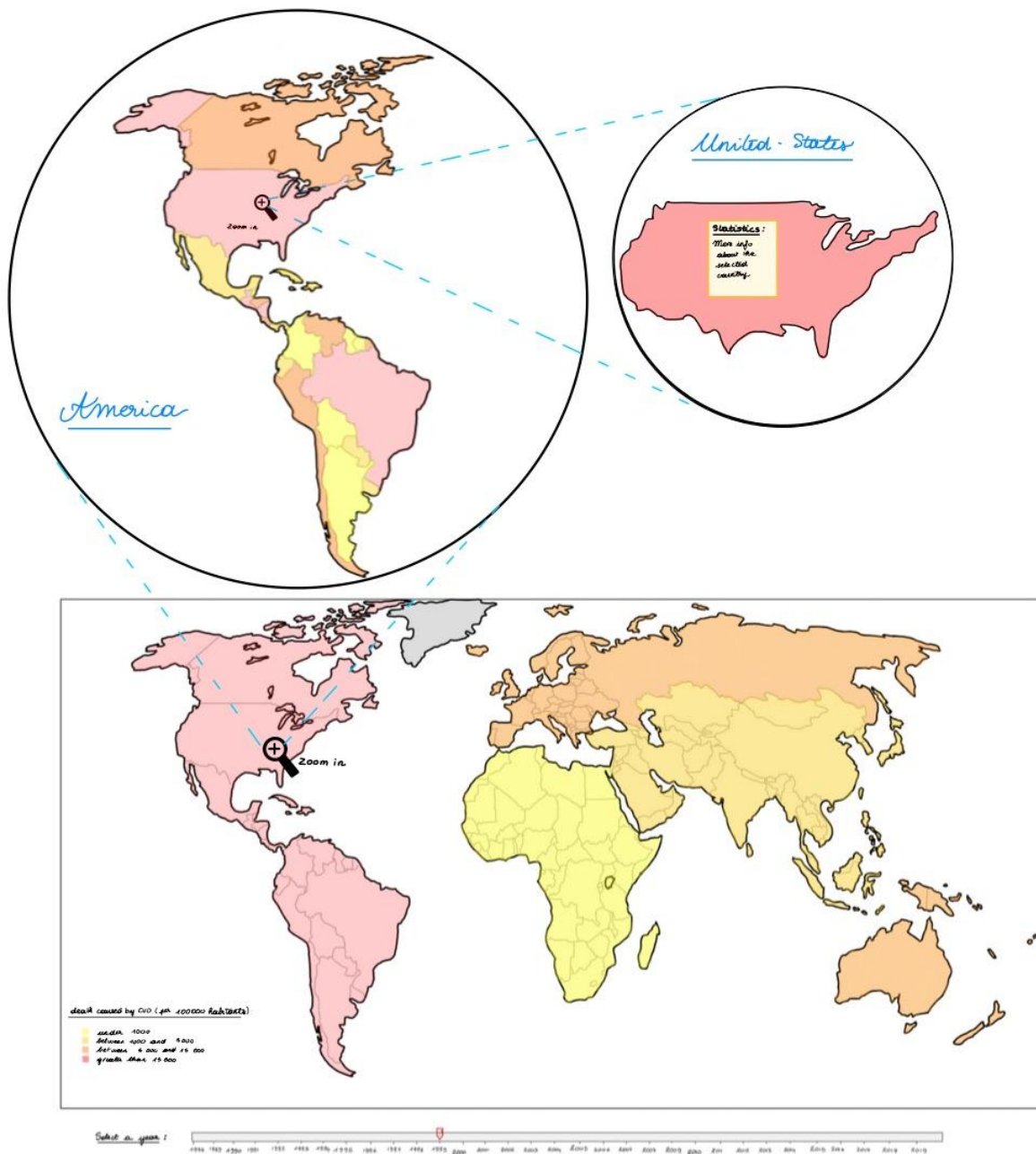
Visualization 3 : How has the risk of dying from a cardiovascular disease evolved since 1988 ? How is age related to the proportion of deaths by CVDs ?