

# Data Visualization project

## 1 Introduction

After the first milestone, we had lot of ideas. Now has come the time to sort them out and take the most interesting and most coherent one. We initially imagined to introduce another data set about revenues. But our goal is to provide a playful and new vision about 911 calls so we imagined focusing on temperature and specific events instead of looking at revenues.

## 2 Visualization ideas and sketches

### 2.1 Global website

We imagine our website to contain 4 pages. As a first development we imagine to go from one page to the other using links. Then we will manage to enable to switch pages by going down or up (using the scroll of the mouse for example). An overview of the V0 of the visuals of the complete website could be found [here](#).

### 2.2 Front page

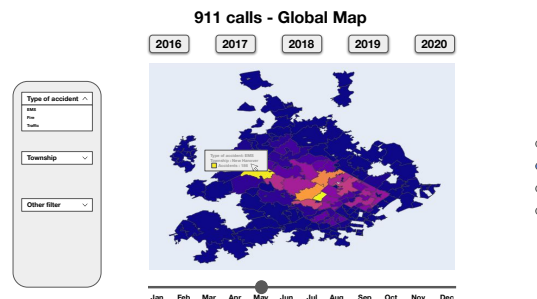


**Figure 1:** Front page of our website

On the first page, the user will have the title along with a little introductory text about what the project is about, where our data come from, etc... The current date will be displayed along with a counter of the number of accidents that happened during that day in Montgomery County, PA over the years, like in Figure 1. An idea would be to put in the background a video with firefighters or police.

### 2.3 Global map

As a first graph, we want to have a global vision of what is going on. To achieve that, we want to have an interactive map of the region of Montgomery County, PA. The user can filter the map with several choices : the year (upper buttons on Fig.2) and specific the month during the year (slider at the bottom Fig.2). The user could also filter by the type of accident or township (panel on the left on Fig.2). Finally, when the user hover over different regions of the county, some useful information will display, like the type and number of accidents along with the township.



**Figure 2:** Graph that displays the number of emergency calls in Montgomery County, PA. over the period of a chosen event.

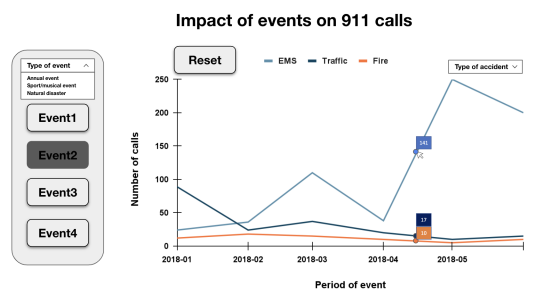
To achieve this graph, we will need the lecture 4 of the course with the D3.js plots, the lecture 5 for interactive elements along with the lecture 8 for the map.

## 2.4 Calls per event

As a second graph, we want to visualize if some events increase or decrease the number of 911 calls. We will select some periods of time and conduct some researches of important events that happened in Montgomery County, PA. We will then classify those events in different categories (musical events, natural disasters, ...).

The user could choose an event of interest to understand what type of emergencies are needed at this time (left panel on the Fig.3). When an event is chosen, the graph would display on the abscissa the period of the event like in the Fig.3.

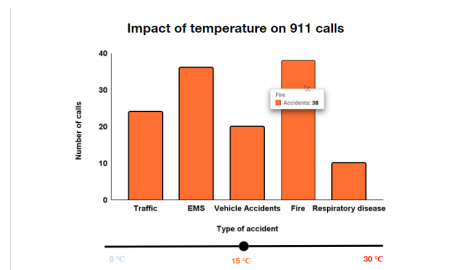
The user could interact with the graph in multiple ways: when the mouse hover over the lines, the numbers of calls would be displayed. The user could also choose the type of accident (upper right filter on the Fig. 3). Finally, a button to reset the graph to re-initialize the filters would be possible. To achieve this graph, we will need the lecture 4 about D3.js plots and lecture 5 about interactive tools.



**Figure 3:** Graph that displays the number of emergency calls in Montgomery County, PA. over the period of a chosen event.

## 2.5 Calls per temperature

Our goal with this part is to depict the fact that temperature can have an impact on the number and the nature of the different calls to 911. The initial version of the design for this page can be found on the Fig.4.



**Figure 4:** Impact of temperature on 911 calls

MVP : As a first step, we imagine to have a fixed temperature and just show the data for this temperature. The tool-tip for the hover of a bar is already needed at this point because it enables a better readability.

Better version 1: create an input for the temperature, for example a text input. And the plot adapts. Better version 2: put in place the slider to have direct changes in the graph (like the color) based on slider's value.

To manage to do that, we will use the elements learnt in lecture 4 with the plots and D3, the elements of the lecture 5 about interactions and the elements of lecture 11 about tabular data and bar charts.