



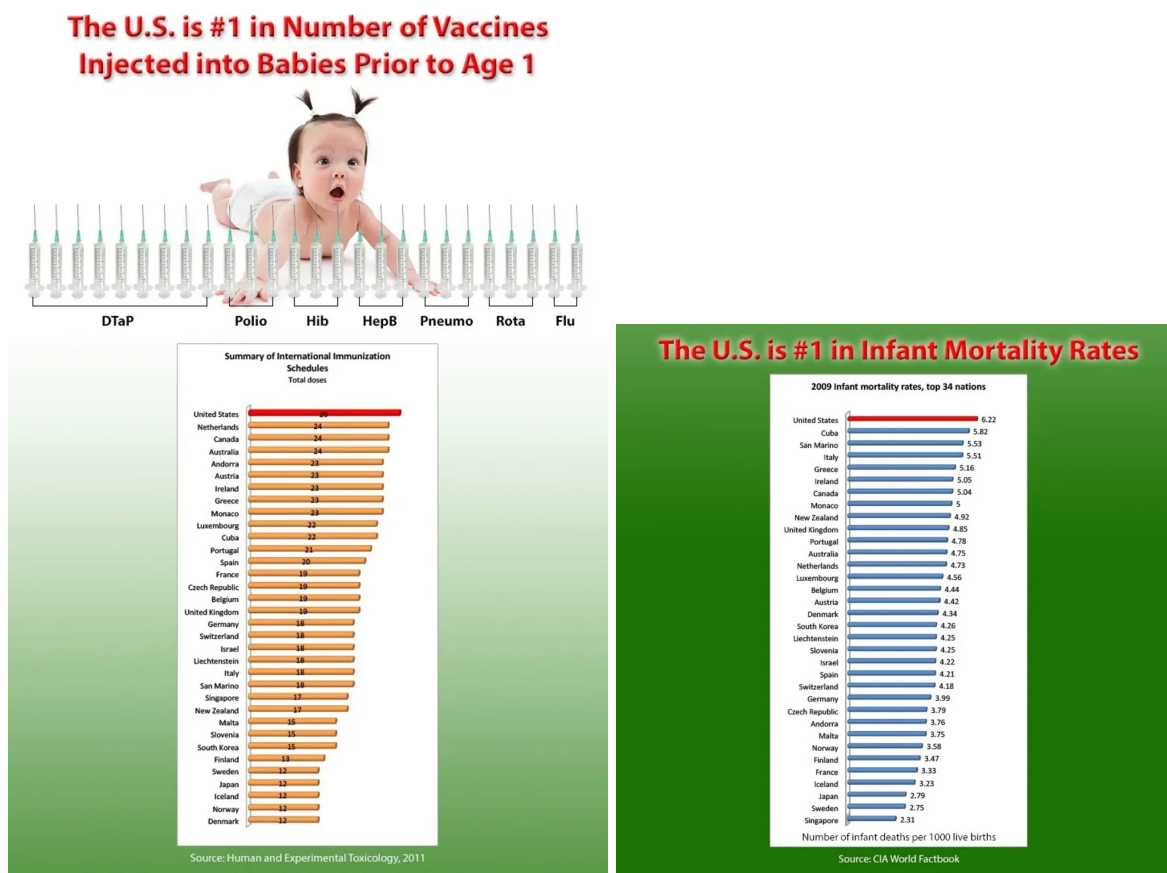
## Identifying Techniques in Misleading Visualizations

We just spent some time understanding the commonly used techniques to create misleading data visualizations. Let's try to identify them in real world examples! Do **not use** SearchEngines/LLMs for this exercise, solve it using common sense and the techniques presented in the lecture.

### Exercise:

#### 1) Infant Mortality and Vaccinations

Identify the techniques used in the following misleading data visualization:



(source: <https://healthimpactnews.com/2013/is-there-any-logic-behind-vaccine-claims/> )

## 2) Lake Mead Water Levels

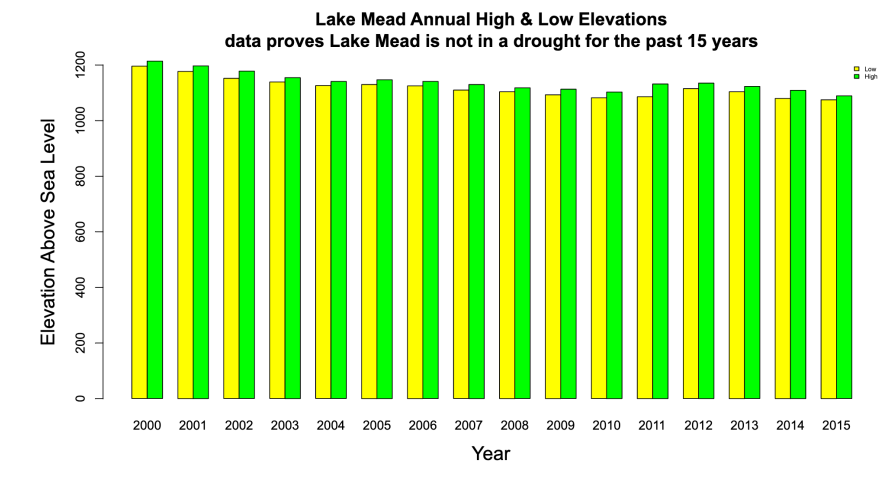
The Lake Mead reservoir (a lake close to Las Vegas, photo on the right by Nikola Majksner on unsplash) is a major water source for multiple states in the USA. The levels of water in Lake Mead therefore can have critical consequences.



All of the following visualizations are based on the same dataset of historical levels of water in Lake Mead and all of them are misleading, even though they contradict each other (Chart A and B argue for constant water levels, Chart C and D for decreasing water levels and Chart E for increasing water levels). (source: <https://www.vislies.org/2017/gallery/>)

- Identify the techniques used in each of the following misleading data visualization.
- So, what is the truth???

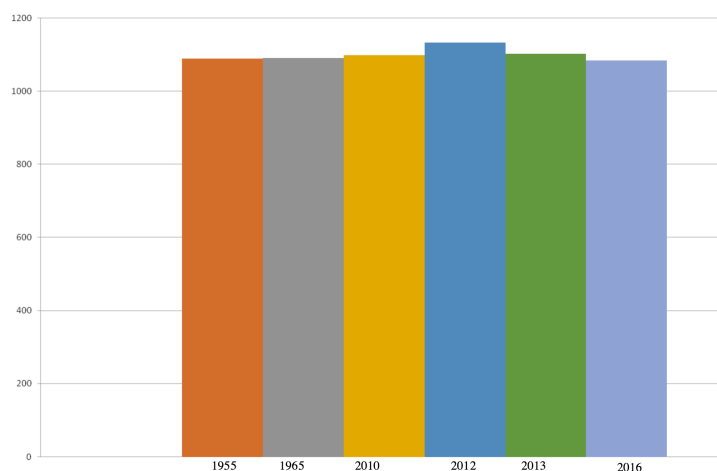
### Chart A:



### Chart B:

## The "Drought" Myth

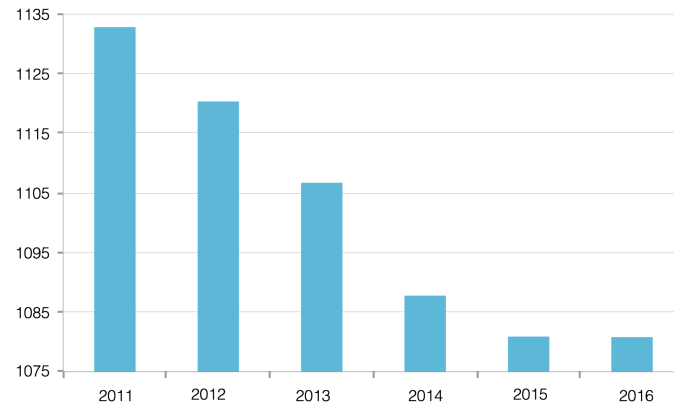
The liberal media would have you believe that water levels of Lake Mead are suffering irreparable damage from the so-called "Drought" that has stricken the south west. However, history has shown that Lake Mead has seen lower levels and recovered. Even lower levels were reached in the 50's and the world has pressed on. Recent history has even seen a peak of levels from which the lake will recover.



**Chart C:**



Within the last 5 years, our water supply at Lake Mead has plummeted.

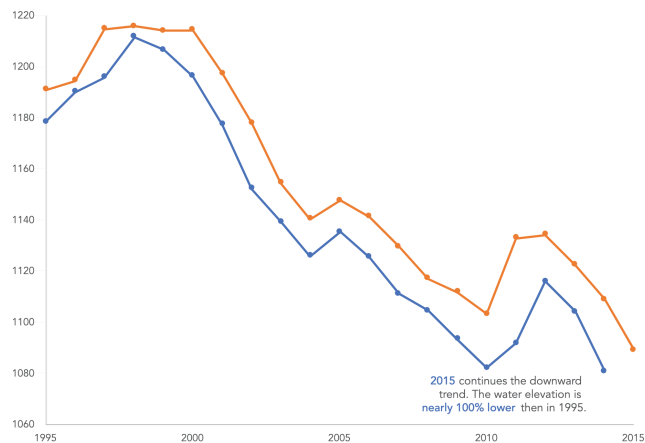


**Chart D:**

### Arizona is Running Out of Water

Arizona has been in a drought for the last 22 years and things just keep getting worse. The elevations levels of Lake Meade are indicated with points of the lowest and highest elevation for each year.

— Low Elevation — High Elevation

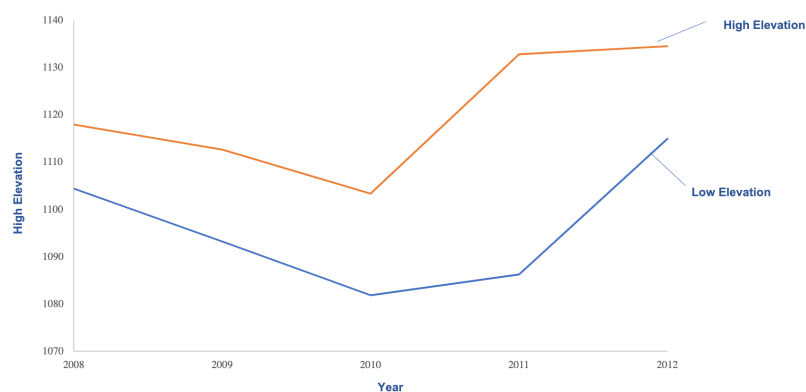


Source: Hoover Dam Control Room

**Chart E:**

### Lake Mead Annual High and Low Elevations

Even though the high and low elevation show that the water level reduced in the initial years from 2008 to 2010, we can clearly see there is an increasing trend from after 2010 in Lake Mead. It indicates that the effect of drought situation in the southwest states will be reduced as the water level in Lake Mead shows an upward trend in the recent years.



Data source: Hoover Dam Control Room