Assignment -2: Visualisation and Storytelling

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MBAI, 2024-2025

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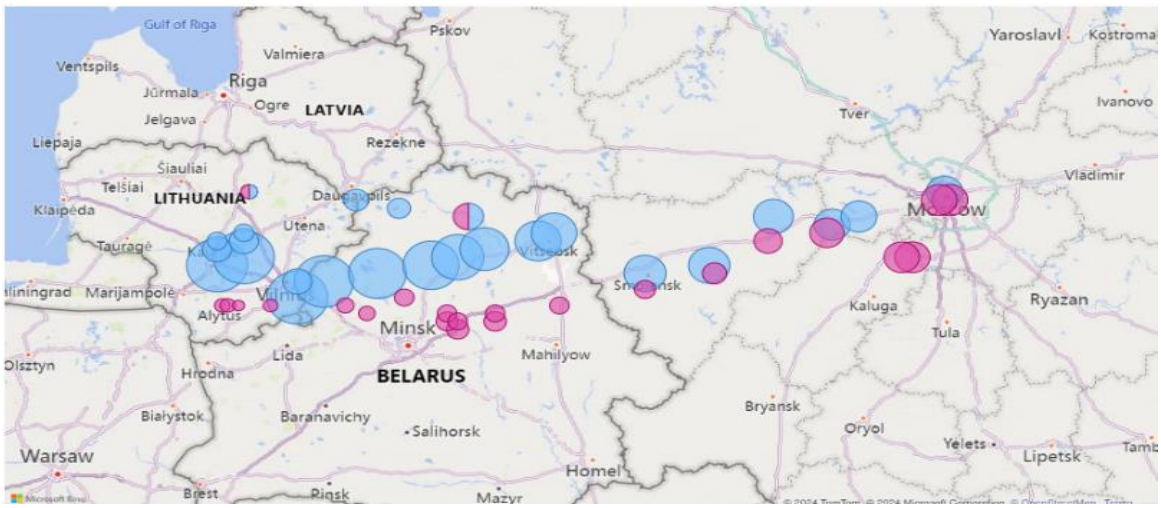
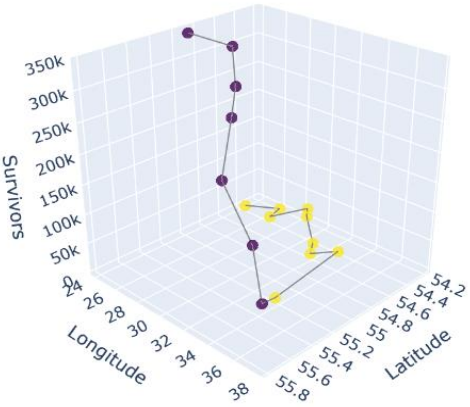
The story of Mirand

In 1812, Napoleon controlled most of Europe, except the United Kingdom. He attacked the UK multiple times but he failed to invade the same. This time he had a bigger thought in his mind. He planned to weaken the UK economically by imposing a trade embargo. However, the king of Russia, Alexander, refused to agree with this. When Napolean knew Russia's disagreement, he was very angry and planned to attack Russia with a huge force of over 350,000 in June 1812. The French had a huge advantage over the Russians, but the Russians had a great strategy. Russian army employed a strategy of retreating steadily while burning crops and villages along the way to deny Napoleon's army the ability to live off the land.

By October, Napoleon's army had reached Moscow, but severe food shortages had resulted in heavy losses. They found the city largely abandoned and burning, leaving the military in a difficult situation on the verge of winter. As the winter in Russia was very harsh, Napoleon's army planned to retreat. However, the freezing temperatures, disease, starvation, and ongoing skirmishes further decreased Napoleon's forces. From an initial 400,000 soldiers, only about 100,000 survived the advance. By the time the army made it back to France in December, fewer than 10,000 remained.

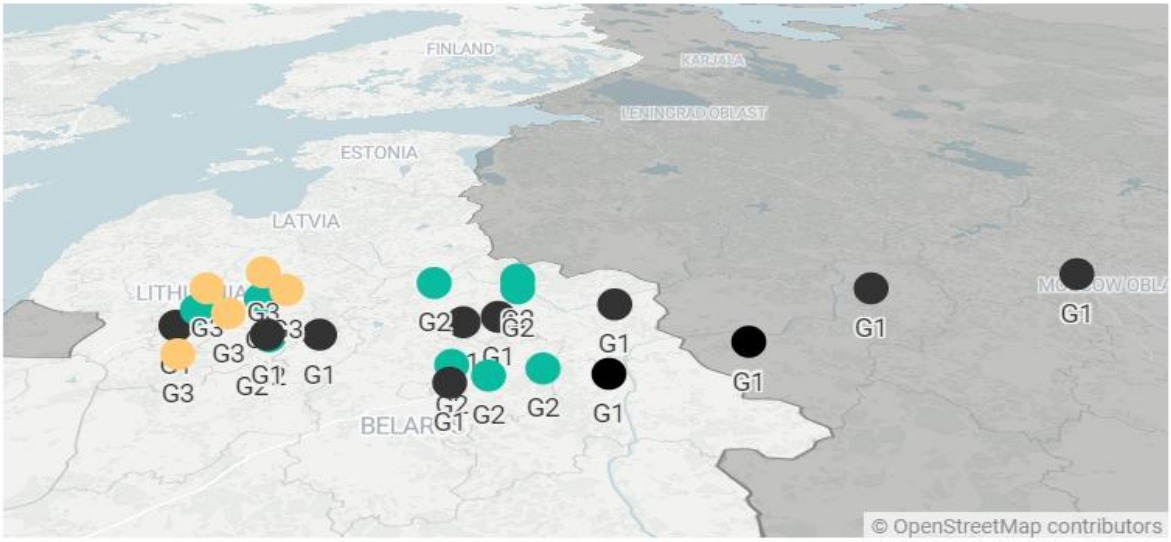
In visual terms, if we plot the army's movement towards Moscow, we'd see the size of the force represented by shrinking blue bubbles, starting from 350,000, steadily reducing as they advanced and reached Moscow, and further collapsing during the brutal retreat represented by shrinking pink bubbles —until only 10,000 soldiers remaining at the end. This represents a staggering 97% loss of life.

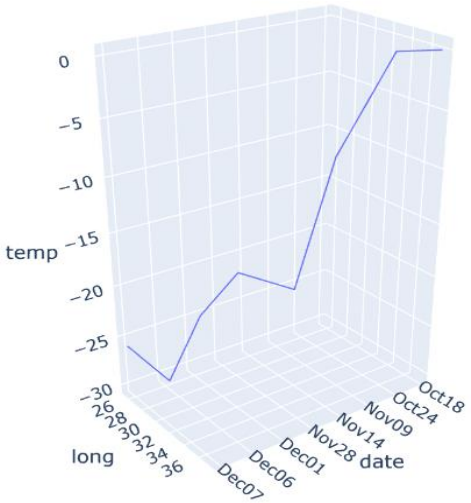




The Napolean army crossed different locations during their journey. If we observed this in 3D view, we can understand the number of survivors and their exact locations during their journey. The black point showing advance of soldiers while yellow points are at the time of retreat.

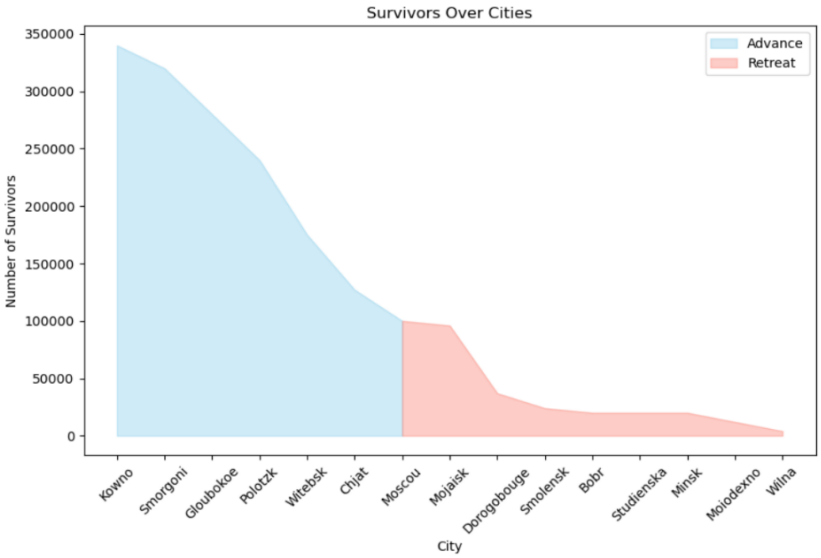
Also, Napoleon's troops divided into three subgroups to invade Russia. We can trace their movements, in the picture below. We can see the movements of the different groups based on available data.





After reaching Moscow, when they faced severe challenges, they started retreating in October and travelled a long distance longitudinally from 37 degrees to 25 degrees. It took them two months to travel back, from October to December, and the temperature dropped from 0 degrees to -30 degrees over time, as shown in the diagram. This harsh temperature along with the scarcity of food left 90,000 army dead.

Below diagram depicts how the number of army dropped over time as they crossed various cities on the way of their journey in the direction of advance and retreat.



At the conclusion, this plan was deemed extremely detrimental, causing significant human casualties rather than serving as a sound military strategy.

Original work

Charles Joseph Minard was a French civil engineer who was renowned for this work. In his original design, he described 6 types of data in a 2-dimensional space. These include the size of Napoleon's army, the distance covered, temperature, geographic coordinates (latitude and longitude), the direction of movement, and locations associated with specific dates. Notably, the size gradually decreases over time, depicting the suffering and sacrifices of the soldiers, highlighting the human cost of the campaign. His ability to tell stories with data remains relevant, especially in today's data-driven world, where clarity and accessibility are critical for making informed decisions.