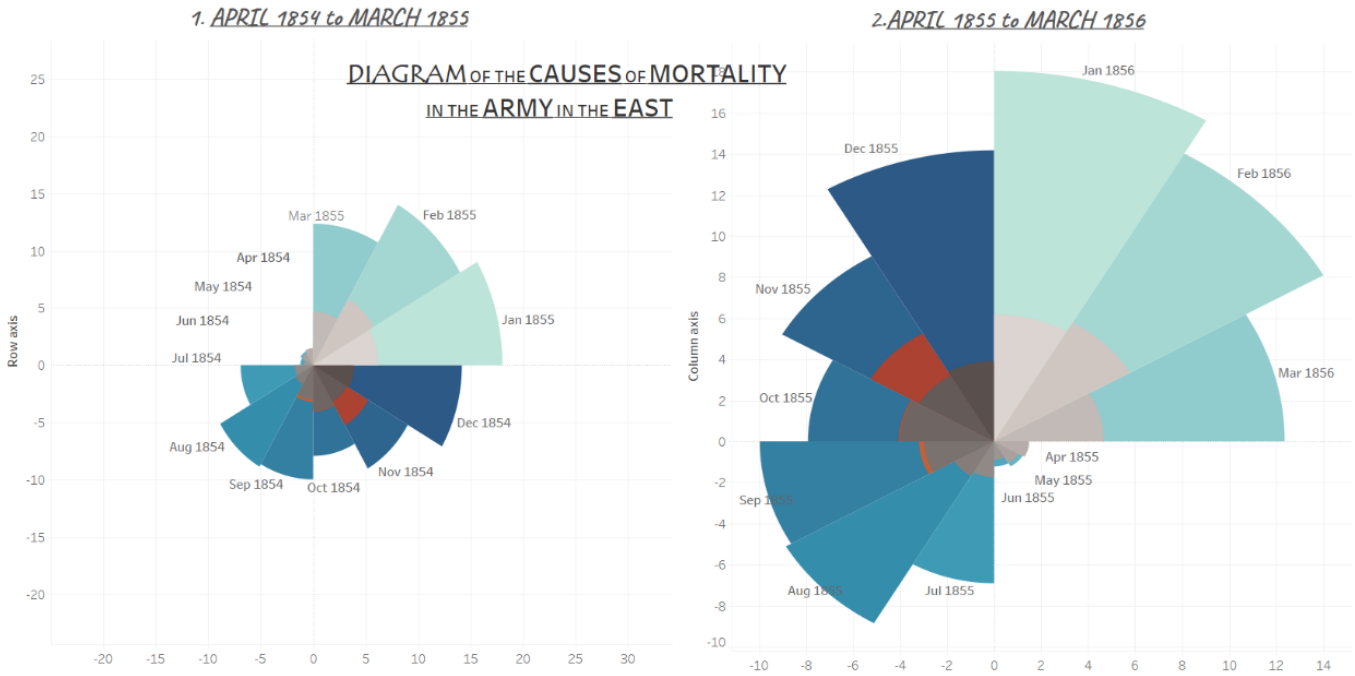
PART A. NIGHTINGALE'S ROSE CHART:



Tools Used: Tableau

Data Transformation: Below are the snaps of Original data and Data which looks after transformation. In order to draw a smooth curve I added a pad with 1 and 102, the range between 1 and 102 is filled using Data densification. In order to plot the desired graph, I have reorganised the given data so as to make it compatible with the tableau platform. I have distributed the provided data into two parts that is April 1854 to March 1855 and April 1855 to March 1856. From the data given, I have considered the Annual rate of mortality along with Month, Years and Size of Army.

Original Data

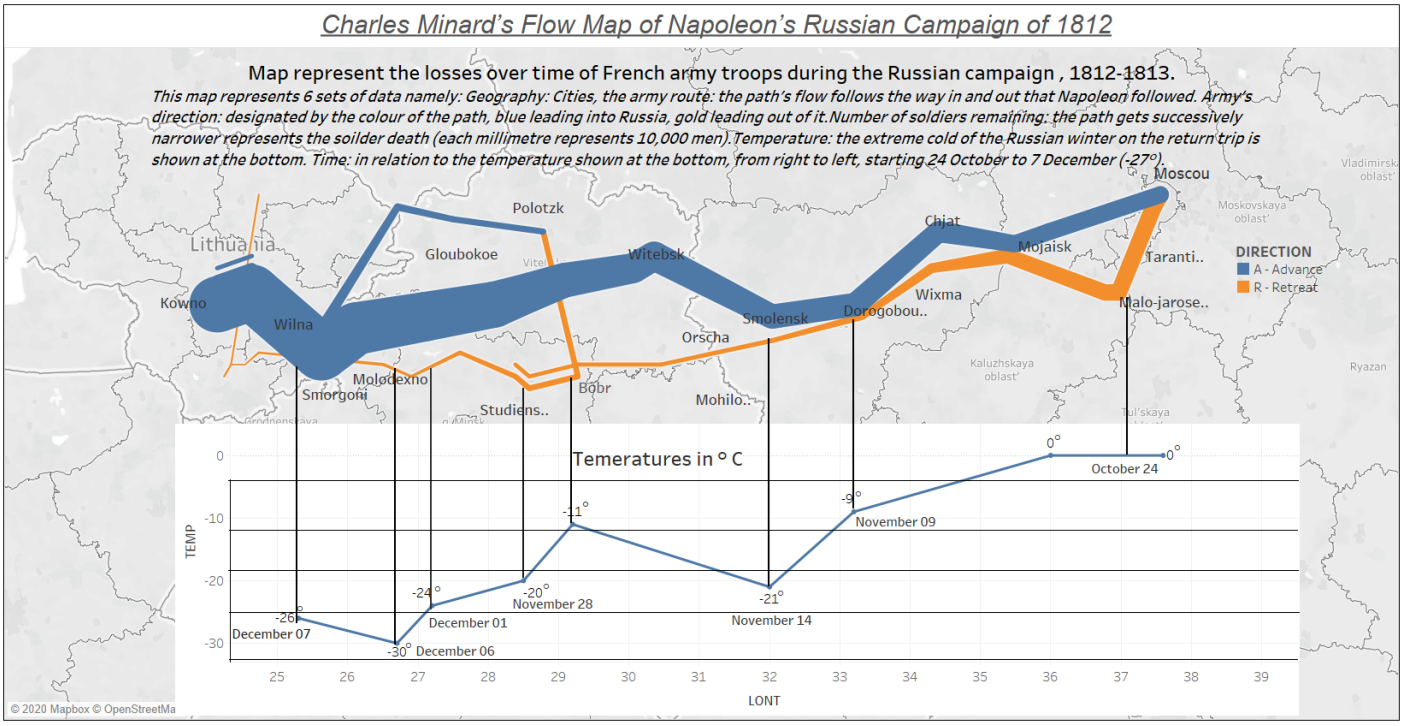
		Deaths			Annual rate of mortality per 1000		
Month	Average size of army	Zymotic diseas	Wounds & injurie	All other cause	Zymotic diseas	Wounds &	All other caus
Apr 1854	8571	1	0	5	1.4	0	7
May 1854	23333	12	0	9	6.2	0	4.6
Jun 1854	28333	11	0	6	4.7	0	2.5
Jul 1854	28722	359	0	23	150	0	9.6

Transformed Data

Month	Year	Army Size	Death Cause	Annual	Padding
Apr	1854	8571	All other causes	7	102
May	1854	23333	All other causes	4.6	102
Jun	1854	28333	All other causes	2.5	102
Jul	1854	28722	All other causes	9.6	102
Aug	1854	30246	All other causes	11.9	102
Sep	1854	30290	All other causes	27.7	102

Description: During Crimean War, Florence Nightingale introduced spectacular graphs where she compared the deaths count due to poor sanity with the death count due to attack during battle. The corresponding areas are drawn in a polar coordinate system, split up into same sectors. Through the filled areas of these sectors, distinction can be easily observed between categories and groups. The above picture shows two different coxcomb plots of data given; the second plot (1855-1856) is being rotated and enlarged as per the requirement. The area of blue, grey and brown wedge are each estimated from the centre. The blue, grey and brown area represents the death from Zymotic disease, other causes and Wounds & injuries respectively. **I have used the polygons to plot the circular graphs**.

PART B. MINARD'S MAP



Tools used: Tableau

Data Transformed:

I have used the given dataset where I have added the serial number starting with 101 to 148, so as to connect different cities precisely while plotting. There were some missing data due to which one city was not getting connected so I imputed a row to precisely connect the cities at serial number 133 and 115. At the end of the page the snapshot of data is presented.

Description:

The above prominent Minard's visualization map represents different types of information in two dimensions pertaining to latitude and longitude, distance travelled, directions, survivors and temperature. The graph depicts the Napoleon's troops departing the Polish-Russian border. **The widths shown in blue and gold colours represent the size of the force, 1mm to 10,000 men. The geographical attributes and various cities are marked and named with returning temperature at the bottom of the graph**. Also once the data was visualized there were some connections missing between the cities. So to get rid of this data was imputed and adjusted at two places to get the desired result. Also I have added a filter on the direction column so as to see the Advance and Retreat path separately. The column having values A and R has been replaced with A-Advance and R-Retreat.

Also while moving the pointer over the advance and retreat paths in the graph; we will be able to see the various attributes with their values like: City, survivors, positions etc. **While plotting the route map, I have used the line chart in tableau**.

Below is the data transformed for minard look like:

Actual Data

LONC	LATC	CITY	LONT	TEMP	DAYS	MON	DAY	LONP	LATP	SURV	DIR	DIV
24	55	Kowno	37.6	0	6	Oct	18	24	54.9	340000	A	1
25.3	54.7	Wilna	36	0	6	Oct	24	24.5	55	340000	A	1
26.4	54.4	Smorgoni	33.2	-9	16	Nov	9	25.5	54.5	340000	A	1
26.8	54.3	Molodexno	32	-21	5	Nov	14	26	54.7	320000	A	1
27.7	55.2	Gloubokoe	29.2	-11	10			27	54.8	300000	A	1
27.6	53.9	Minsk	28.5	-20	4	Nov	28	28	54.9	280000	A	1

Transformed Data

Serial Num	LONC	LATC	CITY	LONT	TEMP	DAYS	MON	DAY	LONP	LATP	SURV	DIR	DIV
101	24	55	Kowno	37.6	0	6	Oct	18	24	54.9	340000	A - Advance	1
102	25.3	54.7	Wilna	36	0	6	Oct	24	24.5	55	340000	A - Advance	1
103	26.4	54.4	Smorgoni	33.2	-9	16	Nov	9	25.5	54.5	340000	A - Advance	1
104	26.8	54.3	Molodexno	32	-21	5	Nov	14	26	54.7	320000	A - Advance	1
105	27.7	55.2	Gloubokoe	29.2	-11	10			27	54.8	300000	A - Advance	1
106	27.6	53.9	Minsk	28.5	-20	4	Nov	28	28	54.9	280000	A - Advance	1