Dashboarding exercises

1. Census data about the gender participation in total population is analyzed. Data are recorded per year, in four disjoint and complete groups counting separately males and females, underage and adults (i.e., male >18, female >18, male <18, female <18). See Table 1. *Data can be downloaded as csv file under "Dashboaring training datasets" - population-data.csv*

Table 1: Census data about gender participation in total population

year	male >18	female >18	male <18	female <18
2011	20000	22000	22701	22756
2012	24000	25000	27241	27308
2013	23000	25000	26106	26170
2014	26000	28000	29512	29583
2015	24000	26000	27241	27308
2016	25000	27000	28376	28446
2017	27000	29000	30647	30721
2018	31000	28950	33388	34011
Increase % (2018-2011)	55%	32%	47%	49%

Given this data, the analyst needs to decide the appropriate visualization charts to analyze these data. To help the analyst, please answer the following questions and create the given charts.

a) Propose the appropriate chart to best represent the differences, follow the trends, and identify the changes among these groups.
Justify your answer.

b) Given the values of male and female underage citizens in the table (i.e., **male <18**, **female <18**), propose at which value the y-axis should start to clearly detect the differences between these groups.
Justify your answer.

c) Using the dataset in the given CSV file, create proposed charts using Microsoft Excel.

d) Now, the analyst wants to analyze and compare among these four groups the increase of the population (in %) from 2011 until 2018 (see last row in Table 1). Which of the following charts would you recommend for such analysis?

   a. Pie chart
   b. Bar chart
   c. Line chart

   Justify your answer.

   Using the dataset in given the CSV file, create proposed charts using Microsoft Excel.

2. The police is analyzing long term violence rate in the neighborhood of Sants taking into consideration the number of attacks occurred from 1950 until 2017 (see Table 2). *Data can be downloaded as csv file under "Dashboaring training datasets" - number-attacks.csv*

   The analysis needs to cover the complete period of 67 years and detect the trends (increase/decrease of the violence rate), as well as help the police to correlate the trends to the context (i.e., other events) in these years.

   a. Propose the chart type for such analysis.
      Justify your answer.

   b. Propose the bounds at y-axis (start and end value) to more accurately analyze the trends.
      Justify your answer.

   c. Using the dataset in the given CSV file, create proposed charts using Microsoft Excel.

Table 2: Number of violent attacks per year (Sants)

year	#attacks
1950	2131
1951	2131
1952	2234
1953	2131
1954	2135
1955	2311
1956	2131
1957	2342
1958	2131
1959	2131
1960	2222
1961	2232
1962	2131
1963	2124
1964	2211
1965	2131
1966	2131
1967	2342
1968	2141
1969	2131
1970	2131
1971	2131
1972	2241
1973	2131
1974	2131
1975	2131
1976	2143
1977	2312
1978	2131
1979	2131
1980	2143
1981	2312
1982	2314
1983	2346

year	#attacks
1984	2343
1985	2131
1986	2131
1987	2143
1988	2312
1989	2314
1990	2559
1991	2343
1992	2314
1993	2559
1994	2343
1995	2345
1996	2522
1997	2244
1998	2624
1999	2432
2000	2432
2001	2677
2002	2453
2003	2554
2004	2345
2005	2345
2006	2436
2007	2542
2008	2593
2009	2603
2010	2343
2011	2345
2012	2366
2013	2624
2014	2353
2015	2344
2016	2345
2017	2653