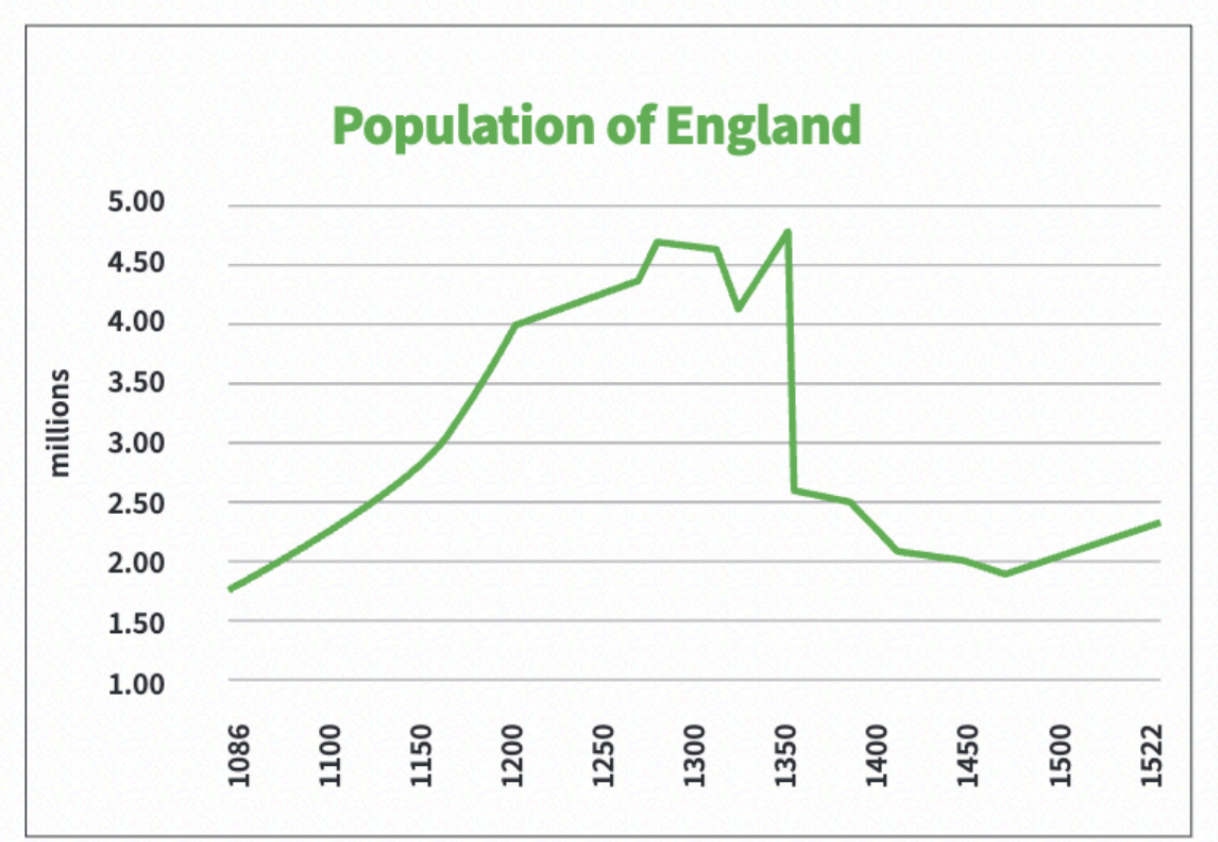
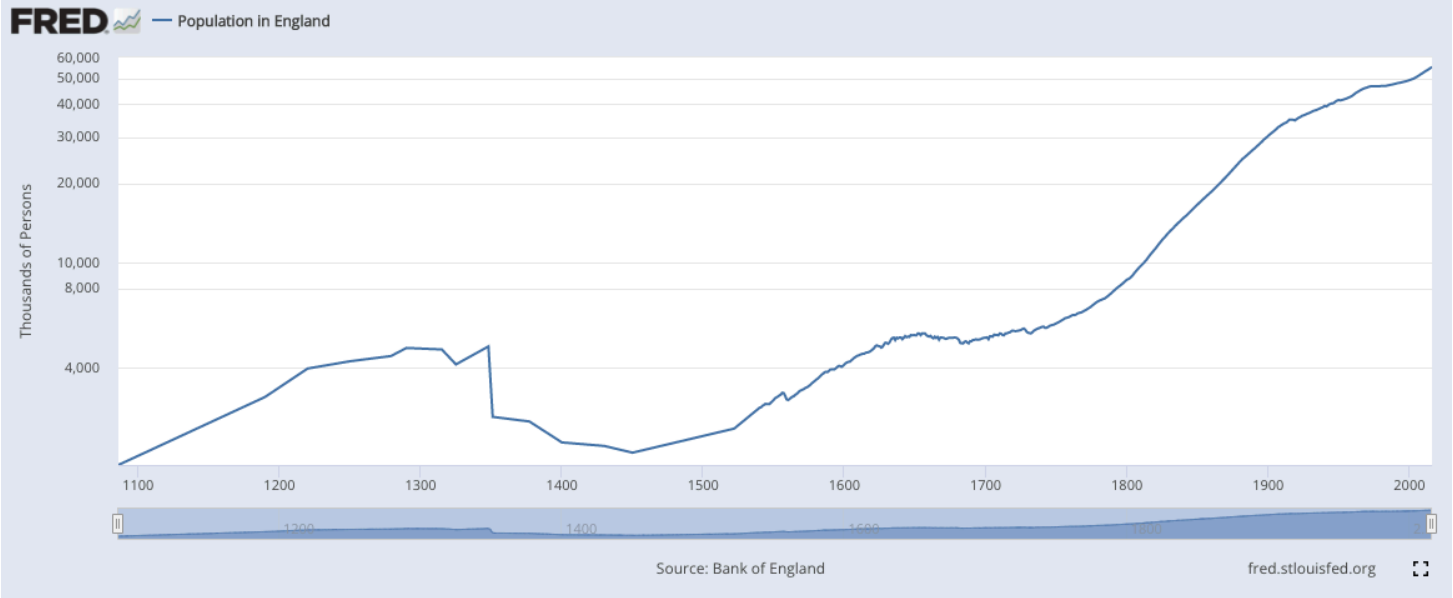
1. The visual I picked is shown below.



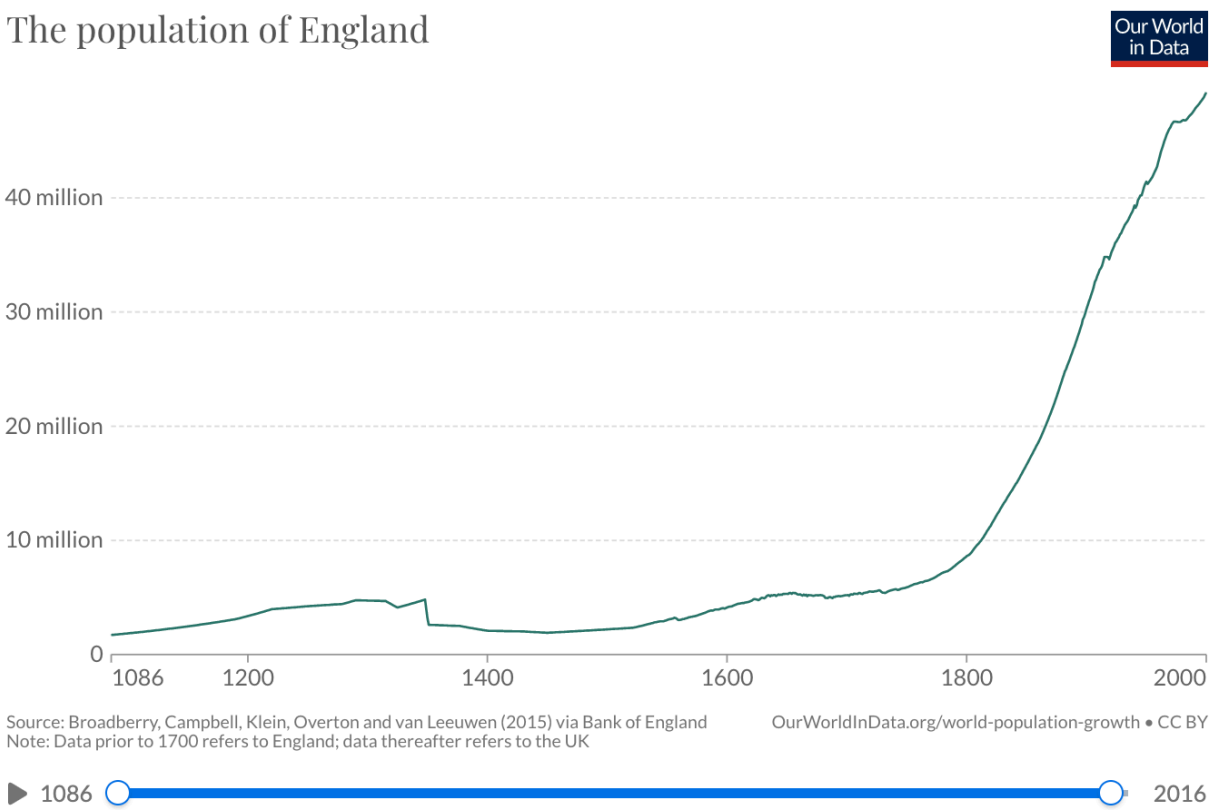
The plot depicts the population of England during the Middle Age. However, the author distorts the data by incorrectly scaling the axises. We can see that the population in 1350 almost decreased inelastically (vertically), which is not realistic and could cause misunderstandings. By looking at this plot solely, the readers might assume that the population decreased sharply in the year of 1350. This graph, is a misleading (distorted plot) which misrepresents data, resulting in a misuse of data visualizations, and deriving a conclusion that is unrealistic. A way to fix this plot for better visualization and logics would be to scale the x-axis by extending the range of the dates. Moreover, same thing could be done to y-axis by enlarging the y-axis (For example, from 1000 to 2000 instead) so that the sharp turns no longer seem "sudden". Moreover, we can possibly change the units from millions to thousands since 1.5 or 2.5 are less visually aesthetic than 150 thousands and 250 thousands. The author might be trying to emphasize the effect of black death during the dark age as describe in the Domesday Book, but the graph might be a bit exaggerated.

2. I would use scale_y_continuous and scale_x_continuous to reset the scale of the axises until I reach a graph which demonstrates simplicity and could be used to present logical evidence to support the author's argument. For example, I would extend the x-axis scale from 1000 to 2000, which will mediates the strong effect of black death on the population of England and Wales. Moreover, I could employ a log function by manipulating the data (taking the log the population records). I would also set the unit measures of the population to thousands, and instead of making sure that the population is equally weighted, I would show that the population represents a logistic growth. I would also get rid of the grid lines and present a blank background (theme blank), and try to use as less of the background as I could (could also be done via scaling).

3.



This plot is released by FRED and shows the logistic growth of the population of England from 1100-2000, by using the data collected by the Bank of England, which is what I mentioned in answer #2. The graph is clear and presents a objective data visualization which shows the growth of the population over time. Moreover, the plot is simple and easy to understand to the readers.



The plot is created by Our World in Data which illustrates the population growth from 1086 to 2000. The data fits my explanation in answer #2, and also includes a scroll bar (but this is not what we can expect to see in a publication). The graph is clear and could be used to demonstrate the population change throughout the dark age. We can see that in this graph, the effect of the black death is minimized.

Reference

Our World In Data. (n.d.). The population of England. Our World in Data. Retrieved October 27, 2022, from https://ourworldindata.org/grapher/population-of-england-millennium?time=1086..2000

FRED. (2018, November 2). Population in England. FRED. Retrieved October 27, 2022, from https://fred.stlouisfed.org/graph/?g=lQCr&utm_source=Twitter&utm_medium=SM&utm_term=other&utm_content=data&utm_campaign=7513