

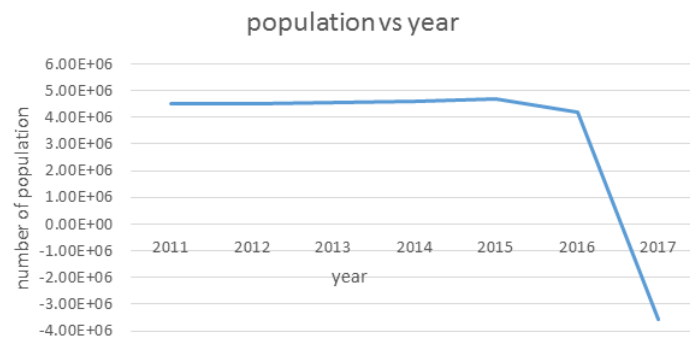
In this assignment, the purpose is to use Lagrange interpolation to estimate the population of BC on the first of January for the years 2011 to 2020. The provided data, population of British Columbia at July 1 for the years 2006 to 2015, was below:

Year (x =)	2006(-3.5)	2007(-2.5)	2008(-1.5)	2009(-0.5)	2010(0.5)
population	4,241,691	4,290,988	4,349,412	4,410,679	4,465,924
Year (x =)	2011(1.5)	2012(2.5)	2013(3.5)	2014(4.5)	2015(5.5)
population	4,499,100	4,542,600	4,582,600	4,638,400	4,683,100

The general Lagrange interpolation method, gotten from *Numerical analysis tenth edition*, written by RICHARD L. BURDEN, DOUGLAS J. FAIRES, ANNETTE M. BURDEN, (2014), section 3.1, were used to iterate values by using two-dimension for loop and find the approximated points. The estimated population on the first of January for the years 2011 to 2020 is listed below.

The question is asking about January but the data provided July only. How can we convert July and January? If we set year 2010 as $x = 0$ in the x-axis, and 2011 as $x = 1$, then July 2010 should be $x = 7/12$, and January 2010 should be $x = 1/12$. However, $7/12 - 1/12 = 6/12 = 0.5$, which means the difference between January and July in the same year is half year. So, setting January 2010 as $x = 0$, then July 2010 should be $x = 0.5$.

Year(x =)	2011(1)	2012(2)	2013(3)	2014(4)	2015(5)
Population	4483100	4518900	4565200	4601100	4698000
Year(x =)	2016(6)	2017(7)	2018(8)	2019(9)	2020(10)
Population	4205200	-3561200	-48314000	-223490000	-768700000



Apparently, the approximated population from years 2016 to 2020 is **definitely not accurate** because firstly, the number of population **must be positive number**, and secondly, the years 2017 to 2020 are **out of range** from known years 2006 to 2015.

The approximated population from year 2012 to 2015 is **accurate** because they are within population from preview years' data.