

### Census Plot

The purpose of this exercise is to write the **R** script `census.m` that uses the data from the table below to plot the actual population and draws a graph of the population of the USA from 1790 to 1950 using the logistic curve

$$P(t) = \frac{197273000}{1 + e^{-0.03134(t-1913.25)}}$$

Actual census data from 1790 to 1950 are summarized in the table below:

Year	Population
1790	3929000
1800	5308000
1810	7240000
1820	9638000
1830	12866000
1840	17069000
1850	23192000
1860	31443000
1870	38558000
1880	50156000
1890	62948000
1900	75995000
1910	91972000
1920	105711000
1930	122775000
1940	131669000
1950	150697000

- Plot these data as red circles.
- Plot graph of  $P(t)$  as a blue curve on the same coordinate axes as the data. Ensure that  $P(t)$  is smooth by plotting enough points.
- Label the horizontal axis as “Year” and the vertical axis as “Population.”
- Entitle the graph “United States Population from 1790 until 1950.”
- Put a legend in the upper left-hand corner with the red circles labeled as “Actual Population” and with the blue curve as “Logistic Model”.

Your plot should look like this:

