ML 4/M - Python labs - Linear Regression

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Aims

- Do a least squares regression on the Olympic 100~m data in Python

Tasks

- Download the data ('data100m.csv') from https://raw.githubusercontent.com/sdrogers/fcmlcode/master/labs/linear_regression/data100m.csv
- Plot Olympic year against winning time (I recommend using `matplotlib` to plot in Python)
- Using the expressions derived in the lecture compute w_0 and w_1
- Create a new plot that includes the data and the function defined by w_0 and w_1
- The methods derived in the lecture gives us a linear function. Derive the expressions for the values of w_0, w_1, and w_2 that minimise the squared loss for the function:

$$t_n = w_0 + w_1 x_n + w_2 x_n^2$$

- Compute the values of these three coefficients for the Olympic data and plot the data (as before) and the new curve.