Artificial Intelligence and Machine Learning Fundamentals

Activity 5: Predicting Population

You are working at the government office of Metropolis, trying to forecast the need for elementary school capacity. Your task is to figure out a 2025 and 2030 prediction for the number of children starting elementary school. The past data is as follows:

2001	147026
2002	144272
2003	140020
2004	143801
2005	146233
2006	144539
2007	141273
2008	135389
2009	142500
2010	139452
2011	139722
2012	135300
2013	137289
2014	136511
2015	132884
2016	125683
2017	127255
2018	124275

Plot these tendencies on a two-dimensional chart. To do this, you must:
1. Use linear regression. Features are the years ranging from 2001 to 2018. For simplicity, we can indicate 2001 as year 1, and 2018 as year 18.

2. Use np.polyfit to determine the coefficients of the regression line.
3. Plot the results using matplotlib.pyplot to determine future tendencies.