Name: Omkar Chavan

Roll No: 210280

ME698A

HW2

In this assignment, analysis is done to study the effect of quench bath temperature during heat treatment on the Rockwell hardness of a specific type of spring. The data used for this study comprises a CSV file containing three key columns: Test, Temperature, and Hardness. The Test column has serial numbers, the Temperature column lists various quench bath temperatures, and the Hardness column has corresponding Rockwell hardness values.

Procedure:

1. The data was loaded using the 'pandas' library, and the first few rows were inspected to understand the data's structure and content.
2. Two variables, X and y were created, which store the independent variable (Temperature) and the dependent variable (Hardness), respectively.
3. Then a linear regression model was created using 'LinearRegression' from 'sklearn' library for linear modelling and was fit to X and y data.
4. Then fitted model was used to predict Hardness values based on Temperature (stored in X). Then, the coefficient of determination (R squared) was calculated using 'r2_score' function.
5. Finally a linear hypothesis plot was created using matplotlib library.