**Linear Regression**

Linear regression is a machine learning algorithm based on supervised learning. What the Linear Regression algorithm does It performs a regression task. Regression models a target prediction value based on independent variable. It is mostly used for finding the relationship between variables and forecasting. 0This machine learning algorithm has been used in the medical field as medical researchers often use linear regression to understand the relationship between drug dosage and blood pressure of patients.

For example researchers might administer various dosages of a certain drug to patients and observe how there blood pressure responds. They may fit a simple linear regression model using dosage as the predictor variable and blood pressure as the response variable. The regression model would take the following form:

**blood pressure = β0 + β1(dosage)**

the coefficient **β0** represents the expected blood pressure when dosage is zero.

The coefficient **β1** represents the average change in blood pressure when the dosage is increased by one unit.

If **β1** is negative it would means that an increase in dosage is associated with a decrease in blood pressure.

If **β1** is close to zero it means that an increase in dosage is associated with no change in the blood pressure.

If **β1** is positive it would mean that an increase in dosage is associated with an increase in blood pressure.

Depending on the value of **β1** the researches may decide the change the dosage that is given to the patient.