SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

COURSE NAME : MACHINE LEARNING

III YEAR /V SEMESTER

Unit 2 - SUPERVISED LEARNING

Topic 1:Linear models for regression

1. Linear Regression

- Used for predictive analysis.
- Predictive analysis defines prediction of something.
- Linear regression makes predictions for continuous numbers such as salary, age, etc.
- It shows the linear relationship between the dependent and independent variables, and shows how the dependent variable(y) changes according to the independent variable (x).
- It tries to best fit a line between the dependent and independent variables, and this best fit line is known as the regression line.

1. Linear Regression

- The dependent variable may be called an outcome variable, criterion variable, endogenous variable, or regressand.

- The independent variables can be called exogenous variables, predictor variables, or regressors.

1. Linear Regression

- Linear regression is used in many different fields, including finance, economics, and psychology, to understand and predict the behaviour of a particular variable.
- For example, in finance, linear regression might be used to understand the relationship between a company's stock price and its earnings, or to predict the future value of a currency based on its past performance.

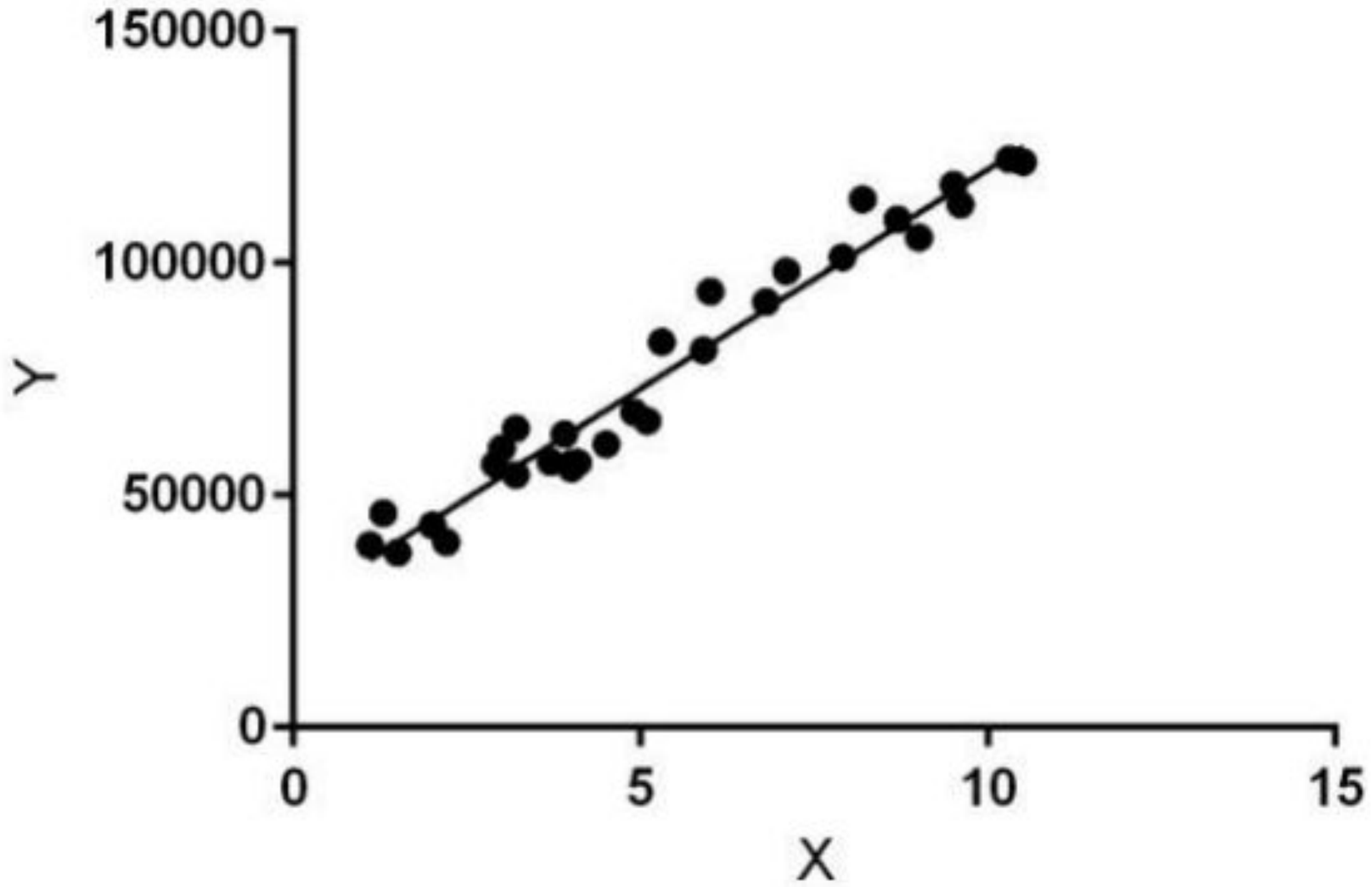
1. Linear Regression

- In regression set of records are present with X and Y values and this values are used to learn a function, so that if you want to predict Y from an unknown X this learn function can be used.
- In regression we have to find value of Y, So, a function is required which predicts Y given XY is continuous in case of regression.

1. Linear Regression

- Here Y is called as criterion variable and X is called as predictor variable.
- There are many types of functions or modules which can be used for regression.
- Linear function is the simplest type of function. Here, X may be a single feature or multiple features representing the problem.

1. Linear Regression



1. Linear Regression

- Linear regression performs the task to predict a dependent variable value (y) based on a given independent variable (x)).
- Hence, the name is Linear Regression. In the figure above, X (input) is the work experience and Y (output) is the salary of a person.
- The regression line is the best fit line for our model.

1. Linear Regression

Hypothesis function for Linear Regression :

$$y = \theta_1 + \theta_2.x$$

Thank you