AIML:21AM406 LessonPlan2 22 23

Contents

Department	Artificial Intelligence and Machine Learning
Degree & Semester:	B.Tech & S4
Course code & Title:	21AM406 & APPLIED MACHINE LEARNING
Unit Title:	INTRODUCTION
CO / Lesson No (GO):	1/2

Prerequisite(s)

Basics of Machine Learning models

Topic

Regression basics

General Objective (GO)

At the end of the class, Students will be understand the Regression concepts .

Specific Objectives (SOs)

The students will be able to 1.Understand the Linear Regression Model Representation. (U/C)

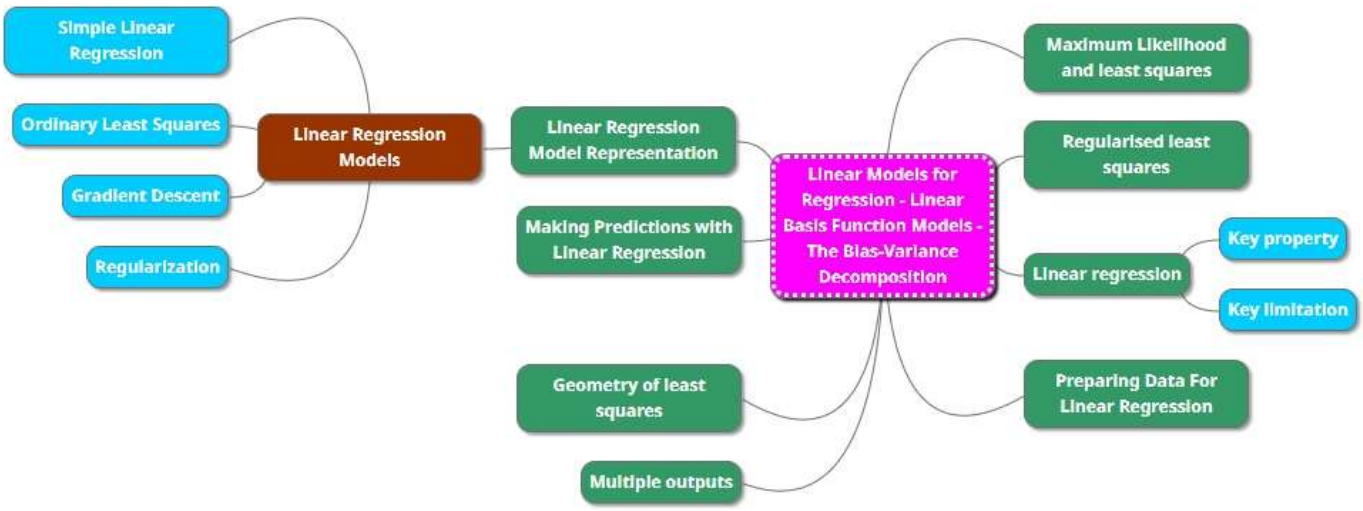
2.Apply Simple Linear Regression(Ap/C)

3.Outline the relationship between attributes using Covariance and Correlation (An/C)

Mapping Table

SO	PO	PO/PSO Competency	PO/PSO Indicator
SO1	1,2	1.1,2.1	1.1.1, 1.1.2,2.1.2,2.1.3
SO2	1,3	1.2, 3.1	1.2.1, 3.1.1
SO3	1,3,4	1.2, 3.1,4.1	1.2.1, 3.1.1, 4.1.1

Mind map and Summary



Summary

- Machine learning, more specifically the field of predictive modeling is primarily concerned with minimizing the error of a model or making the most accurate predictions possible, at the expense of explainability. In applied machine learning we will borrow, reuse and steal algorithms from many different fields, including statistics and use them towards these ends.
- As such, linear regression was developed in the field of statistics and is studied as a model for understanding the relationship between input and output numerical variables, but has been borrowed by machine learning. It is both a statistical algorithm and a machine learning algorithm.
- Linear regression is a linear model, e.g. a model that assumes a linear relationship between the input variables (x) and the single output variable (y). More specifically, that y can be calculated from a linear combination of the input variables (x).
- When there is a single input variable (x), the method is referred to as simple linear regression. When there are multiple input variables, literature from statistics often refers to the method as multiple linear regression.
- Different techniques can be used to prepare or train the linear regression equation from data, the most common of which is called Ordinary Least Squares. It is common to therefore refer to a model prepared this way as Ordinary Least Squares Linear Regression or just Least Squares Regression.
- Making Predictions with Linear Regression
- Preparing Data For Linear Regression
- Linear Regression models
- Simple Linear Regression

References (Books/Videos/Journals/Web references)

1. Ethem Alpaydin, —Introduction to Machine Learning 3e (Adaptive Computation and Machine Learning Series)ll, Third Edition, MIT Press, 2014
2. https://www.geeksforgeeks.org/machine-learning/
