

Data Science and Machine Learning with Python

Description

In this course, modern data science and machine learning concepts and models are provided along with the fundamentals of programming and statistics. The aim of the course is to allow the students to gain practicality with practices and examples.

There is no prerequisite for the course.

Delegates will learn:

- Python ve Veri Bilimi Kütüphaneleri
- İstatistik ve Keşifsel Veri Analizi
- Regresyon ve Sınıflandırma Problemleri
- Temel Makine Öğrenimi Algoritmaları
- Gözetimsiz Öğrenme

Outline

Python and Data Science Libraries

- Installations
- Python Basics
- Data Structures
- Conditional Expressions and Cycles

- File Operations, Functions, Errors and Modules
- NumPy
- Pandas: Excel in the Python World
- Visualization with Matplotlib

Statistical and Exploratory Data Analysis

- Basic Statistics Concepts
- Probability Theory
- Statistical Distributions
- Population, Sample and Related Theorems
- Data Cleaning 1: Variable Types
- Data Cleaning 2: Missing Values
- Data Cleaning 3: Extreme Values
- Exploratory Data Analysis 1: Univariate Analysis
- Exploratory Data Analysis 2: Multivariate Analysis
- Feature Engineering 1: Data Modification
- Feature Engineering 2: Data selection and Dimension Reduction

Supervised Learning 1 - Regression and Classification Problems

- What is Regression?
- Basic Linear Regression and OLS
- Linear Regression Assumptions
- Understanding the Relationship Between the Target Variable and Features
- Measuring the Training Performance of the Regression Model
- Estimation by Linear Regression
- Extreme Compatibility and Regularization
- What is Classification?
- Classification by Logistic Regression
- Measuring Training Performance of Classification Models (Error Matrix)
- Unbalanced Class
- Naive Bayes

Supervised Learning 2 - Basic Machine Learning Algorithms

- Classification with KNN
- Regression with KNN
- Decision Trees
- Random Forests

- Classification with Random Forests
- Regression with Random Forests
- Decision Support Machines
- Classification with Decision Support Machines
- Regression with Decision Support Machines
- Gradient Boosting
- Classification with Gradient Boosting
- Regression with Gradient Boosting

Unattended Learning

- What is Unattended Learning?
- Kmeans
- Spectral Clustering
- Mean-shift
- Affinity Propagation
- How to Measure the Performance of Clustering Algorithms?

Prerequisites

There are no prerequisites for this course.