Course 2: Predicting Customer Buying Behavior (Supervised Machine Learning)

Course Overview:

In this course, students will be introduced to Machine Learning and basic Classification and Regression concepts using the Python programming language and various open source visualization tools. Students will predict the probability of customer retention and predict the sales capacity of various chain stores in a given location throughout one year. Students will also use learn to deploy their predictive models in a basic, predefined Machine Learning pipeline for making predictions using real-time data.

Course Outline

This course will cover the following topics:

* Machine Learning Concepts
  + ETL
  + Preprocessing
  + EDA
  + Feature Selection/Engineering
  + Data Splitting and Cross Validation
  + Model Selection, Training and Assessement
  + Prediction and Resamping
  + Deployment and Maintenance
  + Bias Variance Tradeoff
* Classification
  + Discriminant Functions
  + Input/Discrete Output Variables
  + Lazy Leaners vs. Eager Learners
  + Classification Algorithms
    - Logistic Regression
    - Decision Tree
    - K-Nearest Neighbor
    - Naïve Bayes
    - Random Forrest
    - Support Vector Machine
  + Evaluation of a Classifier
    - Cross-Validation
    - ROC Curve (Receiver Operating Characteristics)
    - Wilson Verification Formula / Confidence Intervals
* Regression
  + Simple Linear Regression
  + Polynomial Regression
  + Support Vector Regression
  + Decision Tree Regression
  + Random Forest Regression
  + Regression Evaluation
* Ensemble Methods
  + Boosting
  + Bagging
* Data Visualization Concepts and tools
  + Pandas
  + Matplotlib/Seaborn
  + Plotly
  + Ggplot2

Learning Outcomes

The Intelligence Factory (TIF) Supervised Machine Learning course is comprehensive course in understanding the key concepts and application in supervised learning such as classification and regression. In addition, learners will apply these skills to relevant industry business situations.

Resources and Materials

Python Machine Learning - Sebastian Raschka

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