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Innovating Engineering!

Week 1: Advanced Challenge

Agenda: Coding Basic Algorithms from scratch in python
Last Date for submission: Sunday, 12th April, 2020

Topics Covered: Syntax, Conditional statements, Loops etc in Python 3

Problem Statement

Develop a Google Colab notebook with well documented code for the following topics. Each topic must be shown in a separate section using “text” cells in the colab.

1. Training following Classification Algorithms
    a. Linear Classifiers: Logistic Regression, Naive Bayes Classifier
    b. Nearest Neighbor
    c. Support Vector Machines
    d. Decision Trees
    e. Boosted Trees
    f. Random Forest
    g. Neural Networks

2. KMeans Clustering Algorithm
3. Linear Regression

** Don’t use Sklearn to load models, you can refer to open source codes but try coding them by yourselves (and not copy pasting) after understanding them

Dataset:

1. Use Iris dataset : http://archive.ics.uci.edu/ml/machine-learning-databases/iris/
1. Use NSL KDD dataset: https://github.com/defcom17/NSL_KDD
2. General dataset link: http://archive.ics.uci.edu/ml/datasets.php

*** It would be great if you perform training on multiple datasets.*
*** Create separate Colab files for each training Dataset. Make a separate section at top for data downloading and reading into Colab part.*
*** Prefer using the “wget” command from within colab for testers to easily download your dataset.*

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Resource Reference

1. Types of classification algorithms in Machine Learning
2. https://github.com/shubham99bisht/Machine_Learning_Tutorials
3. Linear Regression on Boston Housing Dataset