ANDHRAPRADESH STATE SKILL DEVELOPMENT CORPORATION

FDP on Machine Learning

Workshop Objectives

- To Introduce Machine Learning.
- Able to understand and explain the data both statistically and visually.
- Can clean and preprocess the data which can be used as input to ML Algorithms.
- Can analyze and solve a supervised learning problem
- Have a basic understanding of Unsupervised Learning algorithms.
- Will get an exposure on different online services available as an alternative to Jupyter Notebooks with GPUs

Target Audience

- Faculty who are interested to move towards ML.
- Faculty who have some basic knowledge on ML.

Preferred No of Attendees :**30**
No of Days : **6**
Python prerequisites : **3 Days**
Machine Learning : **3 Days**

Approach 1 - 6 Days

Prerequisites:
Familiarity with any programming language and basic maths.
In the first three days :
- We will train them on both python and jupyter notebooks
In the last three days:
- We will train them on ML with python

Syllabus:

Day	Topics
1	ML Introduction , Supervised Learning, Unsupervised Learning, Reinforcement Learning
	Jupyter Notebook Intro, Colab, Azure Notebooks, Kaggle
	Basic Python, Markdown language , datasets, types of data
2	Intro to Numpy
	Intro to Pandas , Statistics, Outliers

3	Intro to Matplotlib and Seaborn	
	Data Cleaning	
	Data Preprocessing, Scikit Learn	
4	Supervised Learning: Linear Regression ,Losso ,Ridge Regression, Stochastic Gradient Descent	
	Naive Bayes , KNN	
5	Hyper parameter Optimization	
	Ensemble Learning: Boosting and Bagging Algorithms	
6	Unsupervised Learning : Clustering, KMeans, Gaussian Mixture Model	
	RFM Analysis	

Approach 2 - 3Days

Prerequisites:
Hands on experience on Python with jupyter notebooks

Syllabus:

Day	Topics
1	ML Introduction , Supervised Learning, Unsupervised Learning, Reinforcement Learning
	Jupyter Notebook Intro, Colab, Azure Notebooks, Kaggle
	Basic Python, Markdown language , datasets, types of data,Distance measurements
	Intro to Numpy
	Intro to Pandas , Statistics
	Data Cleaning: , Imputation,Outlier detection and removal
	Intro to Matplotlib and Seaborn
	Data Preprocessing with Scikit Learn
2	Supervised Learning: Linear Regression ,Losso,Ridge Regression, Stochastic Gradient Descent
	Logistic Regression, Naive Bayes , KNN
	Ensemble Learning
3	Unsupervised Learning : Clustering, KMeans, Gaussian Mixture Model
	RFM Analysis

Projects:

SNo	Sector	Topic	Example
1	Social Media/ Comm	Text classification	Spam or Ham
2	Sales	Regression	Housing Price
3	General/ Medicine	Image classification	Handwritten digit recognition
4	IoT	Sensor data Classification	Human Activity recognition
5	Medicine	Disease Classification	Diabetes
6	Banking / Finance	Anomaly Detection	Credit card Fraud Detection
7	Sales	Clustering	WholeSale Customer Data
8	Marketing	RFM Analysis	Online Marketing Data

Requirements:
Projector & Mic
100 Mbps Internet Connection
System configuration :
4GB RAM
OS : Windows 8 , Windows 10, Linux
Software Required:
Anaconda Python 3.7 Version