Course: Introduction to Machine Learning

Course Code: noc20-cs73

Session: 2020-21

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 0:   Probability Theory, Linear Algebra, Convex Optimization - (Recap)
Week 1:   Introduction: Statistical Decision Theory - Regression, Classification, Bias Variance
Week 2:   Linear Regression, Multivariate Regression, Subset Selection, Shrinkage Methods, Principal Component Regression, Partial Least squares
Week 3:   Linear Classification, Logistic Regression, Linear Discriminant Analysis
Week 4:   Perceptron, Support Vector Machines
Week 5:   Neural Networks - Introduction, Early Models, Perceptron Learning, Backpropagation, Initialization, Training & Validation, Parameter Estimation - MLE, MAP, Bayesian Estimation
Week 6:   Decision Trees, Regression Trees, Stopping Criterion & Pruning loss functions, Categorical Attributes, Multiway Splits, Missing Values, Decision Trees Instability Evaluation Measures
Week 7:   Bootstrapping & Cross Validation, Class Evaluation Measures, ROC curve, MDL, Ensemble Methods - Bagging, Committee Machines and Stacking, Boosting
Week 8:   Gradient Boosting, Random Forests, Multi-class Classification, Naive Bayes, Bayesian Networks
Week 9:   Undirected Graphical Models, HMM, Variable Elimination, Belief Propagation
Week 10: Partitional Clustering, Hierarchical Clustering, Birch Algorithm, CURE Algorithm, Density-based Clustering
Week 11: Gaussian Mixture Models, Expectation Maximization
Week 12: Learning Theory, Introduction to Reinforcement Learning, Optional videos (RL framework, TD learning, Solution Methods, Applications)

Enrolled Students

1	Amisha Aggarwal		13	Mansi Pareek
2	Anshuman Yadav		14	mohammed arshad
3	Archit Bajpai		15	Mukul Palol
4	VIJAY CHOUDHARY		16	Naman Joshi
5	Devaksh Narwara		17	Naman Kumar Jain
6	Pradeep Dhupar		18	Puneet Tanwar
7	Dinesh Jajoo		19	Riya Agarwal
8	Harsh Sharma		20	Sagar Alwani
9	Kartik Khandelwal		21	Saksham Kalavtia
10	Kartik sharma		22	Pankaj Sharma
11	Yash Khandelwal		23	Shivam choubisa
12	khushi khandelwal		24	Shruti Dubey

25	Shubham Soni		28	Tanmay Bhargava
26	Mohit singhal		29	Vishal prajapat
27	Sabhyata Agarwal			