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| **SESSION** | **March 2023** |
| **PROGRAM** | **MASTER OF BUSINESS ADMINISTRATION (mba)** |
| **SEMESTER** | **III** |
| **course CODE & NAME** | **DADS303 introduction to machine learning** |
| **CREDITS** | **4** |

**Assignment Set – 1**

**1. What do you mean by Machine Learning? Discuss the relevance of Machine Learning in Business.**

**Ans: Machine Learning (ML)** is a subfield of artificial intelligence (AI) that focuses on the development of algorithms andmodels that allow computer systems to learn and make predictions or decisions without explicit programming. In other words, it is the process of training machines to learn from data and improve their performance over time.

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**2. Discuss all the assumptions of linear regression.**

**Ans: Linear regression** is a statistical modelling technique used to model the relationship between a dependent variable and one or more independent variables. To ensure the validity and reliability of linear regression models, several assumptions must be satisfied.

**These assumptions include:** Linearity: The relationship between the independent variables

**3. What is Support Vector Machine? What are the various steps in using Support Vector Machine?**

**Ans: Support Vector Machine (SVM)** is a supervised machine learning algorithm used for classification and regression tasks. It is particularly effective in solving binary classification problems but can also be extended to handle multi-class classification.

The main idea behind SVM is to find an optimal hyperplane that separates the data points of different classes with the largest possible margin. The hyperplane is defined as the decision

**Assignment Set – 2**

1. **Explain the K-Means Clustering algorithm.**

**Ans: The K-means** clustering algorithm is an unsupervised machine learning technique used for clustering or grouping similar data points together. It aims to partition a given dataset into K clusters, where each data point belongs to the cluster with the nearest mean (centroid). K-means is an iterative algorithm that converges to a final solution by minimizing the within-

2. **Briefly explain ‘Splitting Criteria’, ‘Merging Criteria’ and ‘Stopping Criteria’ in Decision Tree.**

**Ans:** In the context of decision trees, the splitting criteria, merging criteria, and stopping criteria play important roles in the construction and pruning of the tree.

**Here's a brief explanation of each:**

**Splitting Criteria:** The splitting criteria determine how the decision tree algorithm selects the best feature and threshold to split the data at each node. The goal is to find the split that

3. **Discuss various validation measures in detail.**

**Ans:** In machine learning, validation measures are used to evaluate the performance and generalization ability of a predictive model. These measures provide insights into how well the model is likely to perform on unseen data.

**Let's discuss various validation measures commonly used in machine learning:**

**Accuracy:** Accuracy is a basic and intuitive measure that represents the proportion of