

**(B.TECH) Semester-VII AY 2023-24**

**DL Lab Assignment No. 01**

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| **Date: 06-10-2023** | **Faculty: Prof. Anita Gunjal** |

**Problem Statement:** Implementation of Machine learning algorithm.

**Objectives:**

1. To understand and implement the functionalities of Machine learning algorithm

**Theory:** (describe the following and enlist the different techniques associated with it)

* Explain Supervised and unsupervised learning and reinforcement learning

**Supervised Learning:**

* Uses labeled data (input-output pairs) to train a model for making predictions or classifications.
* Examples: Image recognition, spam email detection.
* Key algorithms: Linear Regression, Decision Trees, Neural Networks.

**Unsupervised Learning:**

* Works with unlabeled data to find patterns, groupings, or reduce dimensionality.
* Examples: Customer segmentation, data compression.
* Key algorithms: K-Means Clustering, Principal Component Analysis (PCA).

**Reinforcement Learning:**

* Involves an agent interacting with an environment to learn optimal decision-making through trial and error.
* Examples: Game playing (e.g., chess), autonomous robotics.
* Key algorithms: Q-Learning, Deep Q Networks (DQN).

**Operations to be performed**

Build a model using any machine learning algorithm

Step 1: Importing the dataset

Step 2: Data clean up

Step 3: Splitting the test and train sets

Step 4: Fitting the linear regression model to the training set

Step 5: Predicting test results

Step 6: Visualizing the test results.

**Program code: (paste your program code)**

**Output:** **(paste output screen & graphs plotted)**

**FAQs:**

1. What is a Supervised learning?
2. Difference between Supervised and unsupervised learning.
3. List out any two algorithm of Supervised and unsupervised learning.
4. Give one example of reinforcement learning.

**Conclusion:**

Machine learning algorithm was studied and the implementation was performed using Colab laboratory.

 