MACHINE LEARNING SCENARIO BASED PROBLEMS

1.A power company wants to predict the electricity demand in different regions based on past usage, temperature, and time of year. What type of machine learning approach would be suitable? Outline the steps to build the model.

Ans: Regression problem

Steps: Data collection, preprocessing, train and test split

Model training, evaluation, deployment.

2.An e-commerce platform wants to identify and filter out fake product reviews based on user behavior, review patterns, and sentiment analysis. What type of machine learning approach would be suitable? Outline the steps to build the model.

Ans: Clustering problem

Steps: Data collection, preprocessing, clustering algorithms, evaluate the clusters, interpret the clusters, deploy.

3.A city traffic department wants to estimate traffic congestion levels based on GPS data, road construction reports, and weather conditions. What type of machine learning approach would be suitable? Outline the steps to build the model.

Ans: Regression problem

Steps: Data collection, preprocessing, train and test split

Model training, evaluation, deployment.

4.A bank wants to determine whether a loan applicant should be approved or rejected based on income, credit history, and previous loan repayment behavior. What type of machine learning approach would be suitable? Outline the steps to build the model.

Ans: Classification problem

Steps: Data collection, preprocessing, train and test split

Model training, evaluation, deployment.

5.A factory wants to automatically detect defective products using images from a quality control camera. What type of machine learning approach would be suitable? Outline the steps to build the model.

Ans: Deep Learning-CNN

Steps: Data collection, preprocessing, train and test split

Model training, evaluation, deployment, continuous monitoring.

6.An agricultural company wants to predict the best crops to grow based on soil composition, rainfall, and past harvest

data. What type of machine learning approach would be suitable? Outline the steps to build the model.

Ans: Regression problem

Steps: Data collection, preprocessing, train and test split

Model training, evaluation, prediction, deployment.

7.A business wants to analyse customer responses to different types of advertisements and promotions to determine the most effective marketing strategy. What type of machine learning approach would be suitable? Outline the steps to build the model.

Ans: Clustering problem

Steps: Data collection, preprocessing, clustering algorithms, evaluate the clusters, interpret the clusters, deploy.

8.A software company wants to build a system that can analyze source code and predict whether a particular piece of code is likely to contain a bug. What type of machine learning approach would be suitable? Outline the steps to build the model.

Ans: Regression problem

Steps: Data collection, preprocessing, train and test split

Model training, evaluation, prediction, deployment.

9.A fitness app wants to recommend personalized workout plans for users based on their exercise history, fitness level, and preferences. What type of machine learning approach would be suitable? Outline the steps to build the model.

Ans: Content based filtering

Steps: Data collection, preprocessing, train and test split

Model training, evaluation, prediction, deployment.

10.A social media platform wants to detect fake accounts by analyzing user activity, posting patterns, and interactions with other users. Give steps to Achieve.

Ans: **If Labeled Data Exists:**

Supervised Classification (e.g., Random Forest, Neural Networks)

Steps: Data collection, preprocessing, train and test split

Model training, evaluation, prediction, deployment.