4. Into Machine Learning

Worksheet

A. Choose the correct option:

1. What is the primary goal of machine learning?
   (a) Automation of tasks
   (b) Learning from data and making predictions
   (c) Creating intelligent machines
   (d) Data visualization
2. What distinguishes deep learning from traditional machine learning?
   (a) Use of statistical methods
   (b) Emphasis on feature engineering
   (c) Neural networks with multiple layers
   (d) Dependency on labelled data
3. In supervised learning, what does the algorithm learn from?
   (a) Unlabelled data
   (b) Historical data with known outcomes
   (c) Patterns in unstructured data
   (d) Random data points
4. Which field extensively benefits from deep learning for image and speech recognition?
   (a) Healthcare
   (b) Finance
   (c) Marketing
   (d) Natural Language Processing (NLP)
5. What is a common application of machine learning in e-commerce?
   (a) Weather forecasting
   (b) Fraud detection
   (c) Sentiment analysis
   (d) Crop yield prediction
6. What is the basic building block of a neural network?
   (a) Decision tree
   (b) Perceptron
   (c) Support Vector Machine (SVM)
   (d) K-means clustering
7. What is the process of splitting a dataset into training and testing sets called?
   (a) Cross-validation
   (b) Feature engineering
   (c) Data pre-processing
   (d) Model evaluation
8. What is the purpose of activation functions in neural networks?
   (a) Define learning rate
   (b) Introduce non-linearity
   (c) Normalize input data
   (d) Initialize weights
9. What is overfitting in machine learning?
   (a) Underutilizing data
   (b) Fitting the model too closely to training data
   (c) Using an insufficient number of features
   (d) Selecting an inappropriate algorithm

10. Which type of learning involves algorithms that improve their performance over time without explicit programming?

    (a) Unsupervised learning
    (b) Reinforcement learning
    (c) Semi-supervised learning
    (d) Supervised learning

B. Rewrite the statements correcting the mistakes in it.

1. Machine learning only involves algorithms that follow explicit instructions.
2. Deep learning is a type of machine learning that doesn't use neural networks.
3. In supervised learning, the algorithm doesn't require labelled data for training.
4. Deep learning is not used in computer vision applications.
5. Machine learning is not applicable in the field of finance.