

Intermediary Level

Module - 2

Course duration = 3 month (3 classes a week)

Fee = 18000 pkr /month

Machine learning:

1. **Supervised Learning:** Understanding the concepts of supervised learning, where the algorithm learns from labeled training data to make predictions or classifications.
2. **Unsupervised Learning:** Exploring unsupervised learning techniques, where the algorithm learns from unlabeled data to find patterns, clusters, or hidden structures.
3. **Semi-Supervised Learning:** Studying the techniques that combine both labeled and unlabeled data for training models.
4. **Reinforcement Learning:** Learning about the process of training agents to make decisions in an environment to maximize rewards.
5. **Feature Engineering:** Learning how to select, transform, and create relevant features to improve model performance.
6. **Model Evaluation and Validation:** Understanding techniques to evaluate and validate machine learning models to ensure their effectiveness and generalization.
7. **Bias-Variance Trade off:** Learning about the tradeoff between bias and variance in machine learning models and how it affects performance.
8. **Hyper-parameter Tuning:** Exploring techniques to optimize hyperparameters of machine learning models for improved performance.
9. **Ensemble Methods:** Understanding how to combine multiple models to create more robust and accurate predictions.
10. **Dimensionality Reduction:** Studying techniques to reduce the number of features in high-dimensional datasets while preserving essential information.
11. **Transfer Learning:** Learning about leveraging pre-trained models for new tasks to improve efficiency and performance.
12. **Time Series Analysis:** Exploring techniques for analyzing and forecasting time-series data using machine learning models.
13. **Model Deployment:** Understanding how to deploy machine learning models in real-world applications.
14. **Ethics in Machine Learning:** Considering the ethical implications of using machine learning and ensuring fairness and transparency in model predictions.
15. **Natural Language Processing (NLP):** Studying techniques for understanding and processing human language using machine learning.
16. **Computer Vision:** Learning about machine learning techniques for image and video analysis.

17. **Clustering and Anomaly Detection:** Exploring techniques for grouping data into clusters and identifying unusual patterns.
18. **Recommendation Systems:** Understanding how machine learning is used to build personalized recommendation systems.
19. **Neural Network Architectures:** Studying different types of neural network architectures, including convolutional neural networks (CNNs) and recurrent neural networks (RNNs).
20. **Deep Learning:** study neural networks, back-propagation, activation functions, and optimization algorithms to develop advanced models for complex pattern recognition and data analysis.