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arihantguptapc1@gmail.com ▾

NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Artificial Intelligence (AI) for Management (course)



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Course outline

- About NPTEL ()
- How does an NPTEL online course work? ()
- Week 1 ()
- Week 2 ()
 - Machine Learning (ML) Fundamentals: Modeling and Testing (unit?)

Week 2 : Assignment 2

Your last recorded submission was on 2026-02-04, 23:07 Due date: 2026-02-04, 23:59 IST. IST

- 1) A key limitation of machine-learning systems is that they: **1 point**
 - Automatically reason using deep commonsense knowledge
 - Typically generalize well even with very small datasets
 - Can be easily misled by small, imperceptible changes in input
 - Do not need supervision or quality checks
- 2) When a flexible ML model fits noise in the dataset and identifies misleading relationships, what is this problem called? **1 point**
 - Underfitting
 - Overfitting
 - Data leakage
 - Regularization failure
- 3) Which of the following are characteristics of Supervised Learning? (Multiple correct options are possible, Select all that apply) **1 point**
 - The training data includes a 'target' or 'label'.
 - It is used for tasks like predicting house prices (Regression) or classifying email spam (Classification).
 - The algorithm tries to find hidden patterns in data without any guidance.
 - The goal is to learn a mapping function from input to output.
- 4) Perceptron training may fail to converge because: **1 point**

unit=18&lesson=30)

Artificial neural networks - 1 (unit? unit=18&lesson=31)

Artificial neural networks - 2 (unit? unit=18&lesson=32)

ANN for Stock Market Application (unit? unit=18&lesson=33)

Quiz: Week 2 : Assignment 2 (assessment? name=29)

Week 2 Feedback Form: Artificial Intelligence (AI) for Management!! (unit? unit=18&lesson=35)

Week 3 ()

Download Videos ()

- The learning rate is too high
- The error is computed incorrectly
- The data is not linearly separable
- It cannot compute gradients

5) Backpropagation was introduced as a solution primarily because:

1 point

- Perceptrons could not adjust bias terms
- Single-layer perceptrons cannot solve nonlinear patterns
- Perceptrons lacked a transfer function
- Linear units cause numerical instability

6) The error function $E(w)$ in backpropagation for a linear unit is defined as:

1 point

- Sum of absolute errors
- Half the squared difference between target and output
- Weighted cross entropy
- Product of outputs across layers

7) Increasing the size of the hidden layer in a feed-forward network of ANN, primarily:

1 point

- Reduces the expressive power of the network
- Ensures that the output has only one dimension
- Increases the risk of overfitting while capturing more patterns
- Forces the activation functions to become linear

8) Compared to a single-layer network, adding a hidden layer allows the ANN to:

1 point

- Ensure linear separability of all input patterns
- Recognize more complex patterns via intermediate activations
- Remove the need for bias weights
- Guarantee zero training error

9) What are the four components typically found in a microeconomic time series, such as stock market data? **1 point**

- Trend, Fluctuation, Forecast, and Error
- Growth, Decline, Stability, and Volatility
- Mean, Median, Mode, and Range
- Trend, Seasonality, Cyclicity, and Randomness

10) What is the main distinction between "white box models" (like standard econometric models) and Neural Networks? **1 point**

- White box models are limited to time series data.
- Neural Networks use different programming languages.
- Neural Networks are generally not interpretable, while white box models are interpretable.

White box models perform better than Neural Networks.

You may submit any number of times before the due date. The final submission will be considered for grading.

Submit Answers