

Unit 3 - Week 2-Characterization of Learning Problems

Course outline

How does an NPTEL online course work?

Week 1-Introduction to the Machine Learning course

Week 2-Characterization of Learning Problems

- Characterization of Learning Problems
- Objects, Categories and Features
- Feature related issues
- Scenarios for Concept Learning
- Lecture Notes
- Quiz : Assignment 2
- Week 2 Feedback

Week 3-Forms of Representation

Week 4-Inductive Learning based on Symbolic Representations and Weak Theories

Week 5-Learning enabled by Prior Theories

Week 6-Machine Learning based Artificial Neural Networks

Week 7 - Tools and Resources and Interdisciplinary Inspiration

Text Transcripts

Download Videos

Assignment 2

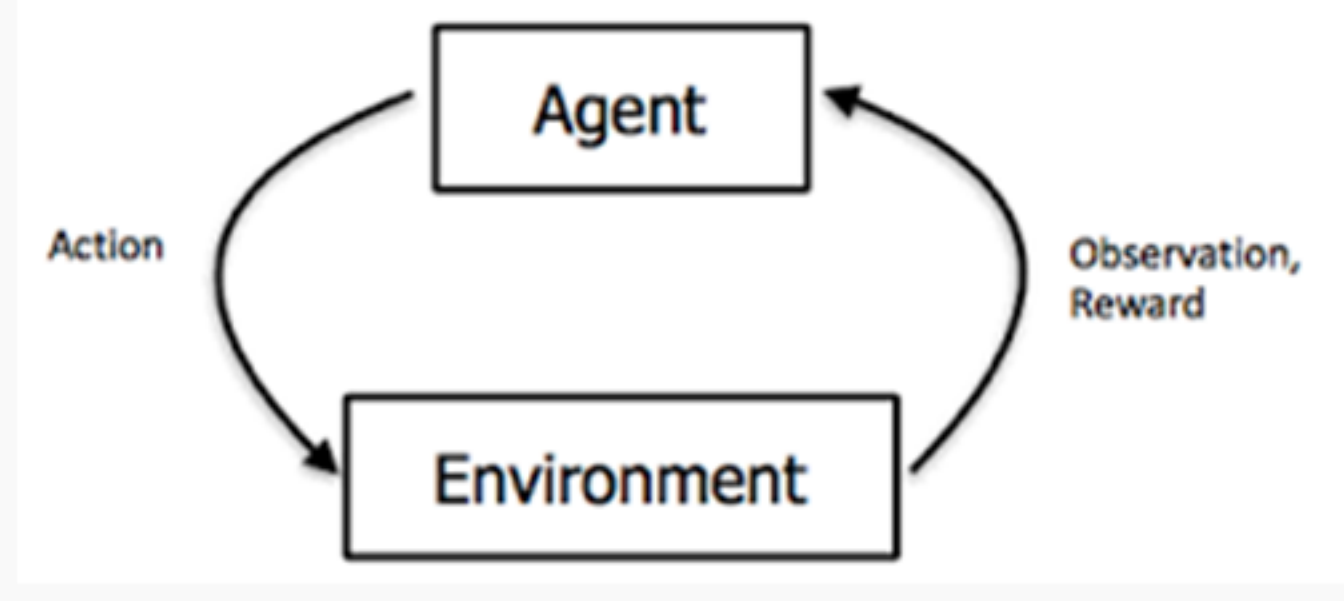
The due date for submitting this assignment has passed. **Due on 2020-03-11, 23:59 IST.**
 As per our records you have not submitted this assignment.

1) What is meant by Multiple Regression Analysis? 1 point

Regression with several predictor values
 Regression with several output variables
 In general regression in many dimensions

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Regression with several predictor values

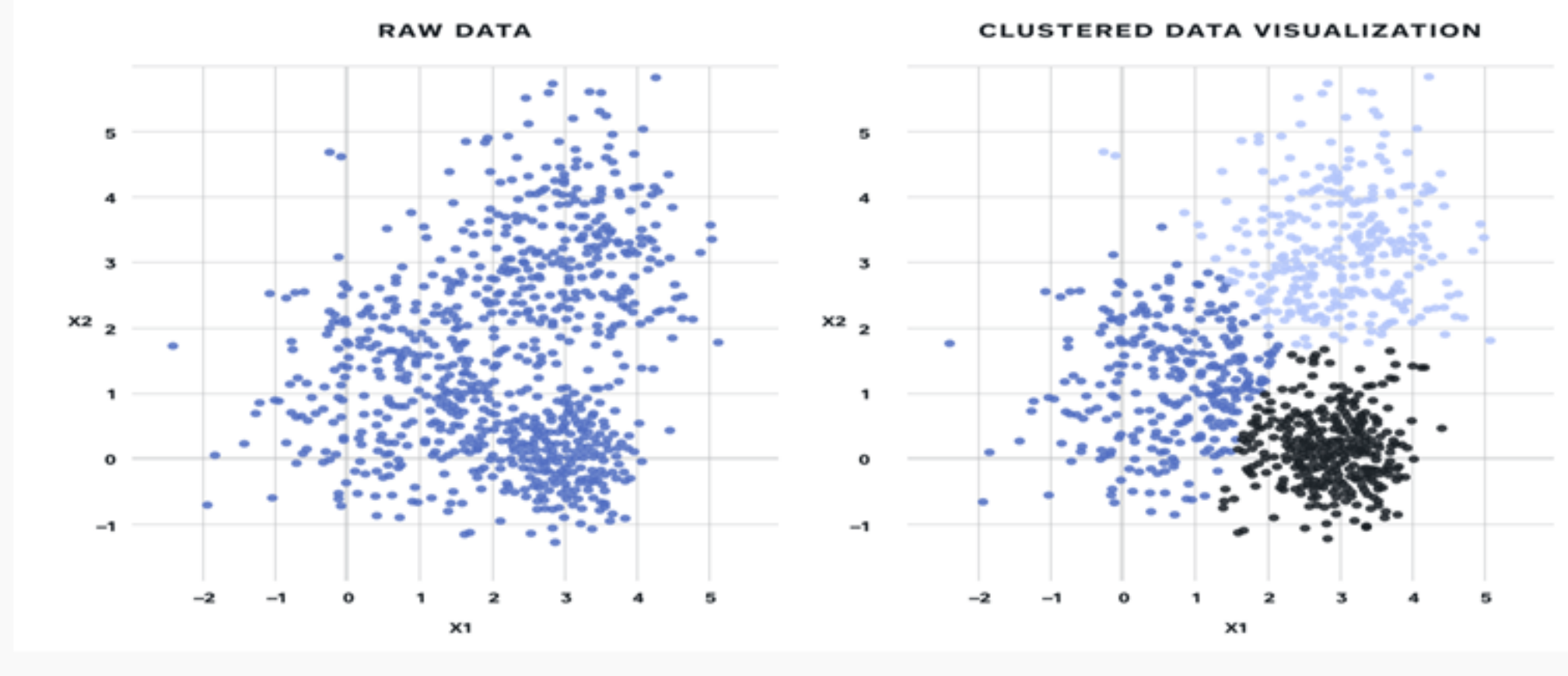
2) Which kind of learning scenario is depicted in the figure below? 2 points



Supervised learning
 Unsupervised learning
 Reinforcement learning
 Deep learning

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Reinforcement learning

3) Which kind of learning scenario is depicted in the figure below? 1 point



Supervised learning
 Unsupervised learning
 Reinforcement learning
 Deep learning

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Unsupervised learning

4) Feature selection is the process of selecting a subset of relevant features from the original set. One of the criteria given below is not prioritized for selection of a feature. Which? 2 points

Informative-ness
 Being quantitative
 Relevance
 Non-redundancy.

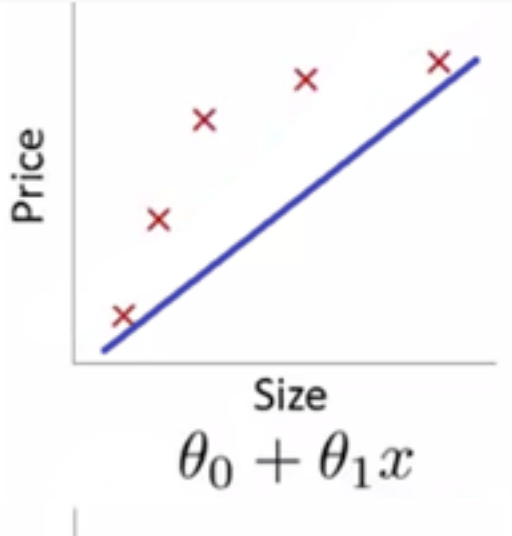
No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Being quantitative

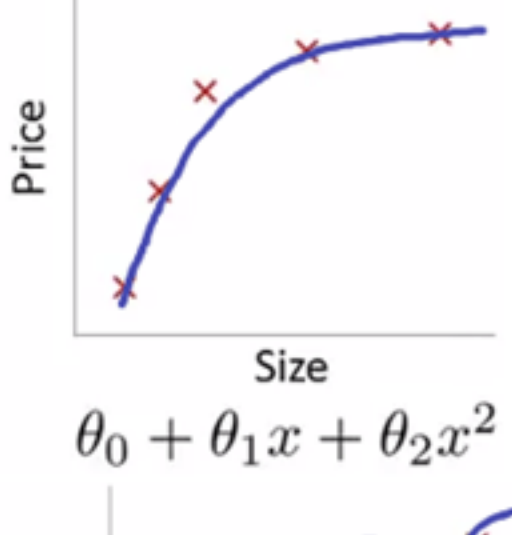
5) The Hypothesis space is the space spanned by what can be expressed in the Hypothesis Language. Normally available background knowledge was embedded in the definition of the Hypothesis Language with the purpose to simplify the learning process. What is the common term used for this phenomenon. 2 points

Learning Constraints
 Learning Bias
 Learning Circumscriptions
 Learning Limitations

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Learning Bias

6) Which of the regression curves in the below represents overfitting? 1 point

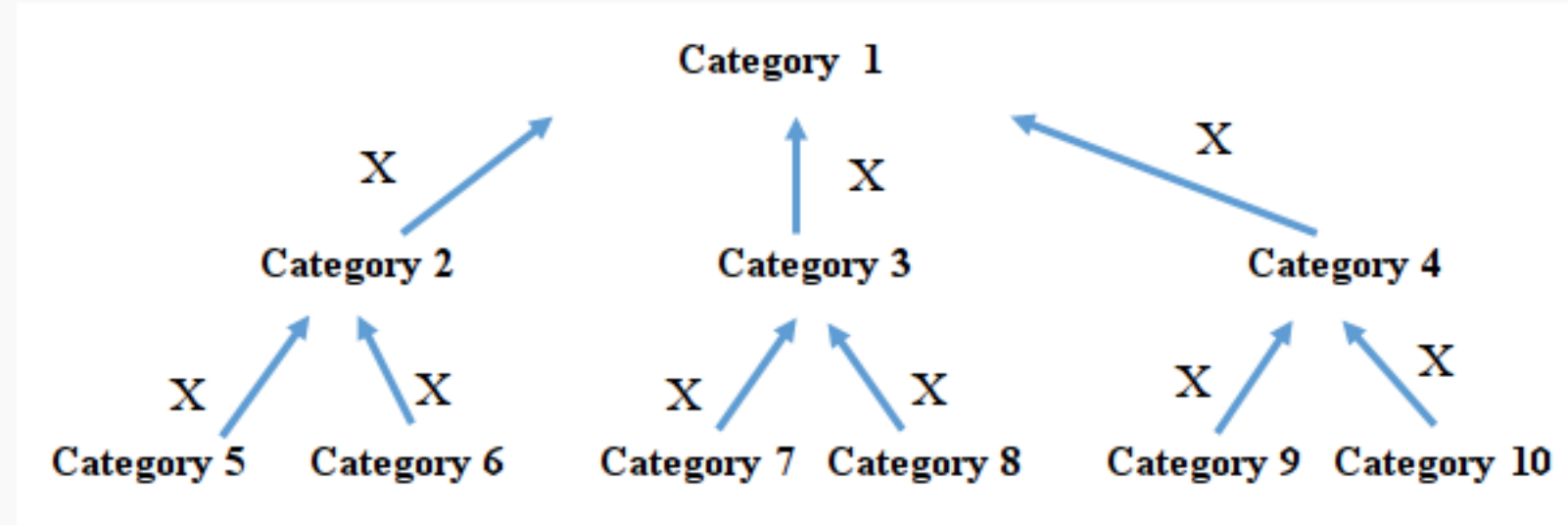

 $\theta_0 + \theta_1 x$


 $\theta_0 + \theta_1 x + \theta_2 x^2$


 $\theta_0 + \theta_1 x + \theta_2 x^2 + \theta_3 x^3 + \theta_4 x^4$

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 $\theta_0 + \theta_1 x + \theta_2 x^2 + \theta_3 x^3 + \theta_4 x^4$

7) 1 point



What is upward directed relation normally called?

Abstraction
 Aggregation
 Generalization
 Escalation

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Generalization

8) A taxonomy is a directed acyclic graph (DAG) under the Specialization relation. A taxonomy where categories are allowed to be specializations of several other categories is normally referred to as a X. What is term X. 1 point

Heterarchy
 Semi-hierarchy
 Lattice
 Bi-graph

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Semi-hierarchy

9) A taxonomy is a category structure, typically a hierarchical one. Normally features are attributed to all categories on the different levels of the taxonomy. When we want to refer to all attributes relevant for an object belonging to leaf or terminal category, one principle is of key importance. What is this principle called? 1 point

Inclusion
 Inheritance
 Aggregation
 Aggregation

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Inheritance

10) For everyday entities such as tools, clothes, furniture, fruits, pets etc, a typical taxonomy (category structure) has three levels of categories : superordinate, basic and subordinate. What is the primary characteristic of the basic level. 2 points

It is the most abstract level with the fewest features
 It is the level with the highest density of attributes and the most common sense and everyday character of features
 It is the most concrete level with detailed features

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 It is the level with the highest density of attributes and the most common sense and everyday character of features

11) For everyday entities such as tools, clothes, furniture, fruits, pets etc, a typical taxonomy (category structure) has three levels: superordinate, basic and subordinate. Which of the following Categories in a fruit taxonomy would normally be characterized as BASIC? 2 points

Fruit
 Apple
 Macintosh

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Apple

12) 0 points



Has fur
 Has fur, has a spinal cord
 Has fur, has a spinal cord, can move, fishes salmon
 Has fur, has a spinal cord, can move

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 Has fur, has a spinal cord, can move, fishes salmon