

Chapter – 1

INTRODUCTION TO MACHINE LEARNING

Numerical Problems and Activities

1. Let us assume a regression algorithm generates a model $y = 0.54 + 0.66x$ for data pertaining to week and sales of a product. Here, x is the week and y is the product sales. Find the prediction for the 5th and 8th week.

Solution

The generated model is given as $y = 0.54 + 0.66x$. For the fifth week, $x=5$, the prediction value of y , product sales, is given as $y = 0.54 + 0.66 \times 5 = 3.84$.

The prediction value of y , product sales, for 8th week is given as
 $y = 0.54 + 0.66 \times 8 = 5.34$

2. Give two examples of patterns and models.

Solution

Models are global and applicable for the entire dataset. Examples of models are

$$y = 0.54 + 0.66x$$

$$y = 0.62 + 0.73x$$

Patterns are local and reflect the properties of local data. Example, association rules in the form $x \rightarrow y$, showing the associations

bread \rightarrow butter

milk \rightarrow coffee

3. Survey and find out at least five latest applications of machine learning.

Solution

Bank credit

Company Churn application

Sentiment analysis

Tourism Scheduling

Planning Algorithms

4. Survey and list out at least five products that use machine learning.

Solution

Alexa

Cortana

Google Translate

Amazon Recommendations

Netflix Recommendations