Stimulation Exercise 4

You are a data scientist working for a tech company that wants to develop an AI system for image recognition. Your task is to use neural networks and deep learning techniques to build a model that can accurately classify images into different categories. You will need to use concepts such as neural networks, convolutional neural networks (CNNs), and deep learning.

Questions

1. Data Collection: What type of data would you need to collect to train your neural network model for image recognition?

A) Text documents

B) Audio recordings

C) Images with labeled categories

D) Financial data

2. Data Preprocessing: Before training your neural network model, what preprocessing steps would you take to ensure the data is ready for analysis?

A) Data cleaning (removing noisy or irrelevant data)

B) Data augmentation (creating additional data samples through transformations)

C) Data normalization (scaling pixel values to a standard range)

D) All of the above

3. Model Selection: Which type of neural network is most suitable for image recognition tasks?

A) Recurrent Neural Networks (RNNs)

B) Convolutional Neural Networks (CNNs)

C) Feedforward Neural Networks

D) Support Vector Machines (SVMs)

4. Training the Model: What is the purpose of using a deep learning model with multiple layers for image recognition?

A) To capture complex patterns and features in the images

B) To reduce the amount of data needed

C) To increase the model's complexity without improving performance

D) To improve data storage

5. Model Evaluation: After training your model, which metrics would you use to evaluate its performance in classifying images?

A) Accuracy

B) Precision

C) Recall

D) All of the above

Answers

1. C) Images with labeled categories

2. D) All of the above

3. B) Convolutional Neural Networks (CNNs)

4. A) To capture complex patterns and features in the images

5. D) All of the above