Neural Network A Simple Perception

Assignment Questions

Neural Network A Simple Perception

1. What is deep learning, and how is it connected to artificial intelligence
2. What is a neural network, and what are the different types of neural networks?
3. What is the mathematical structure of a neural network?
4. What is an activation function, and why is it essential in neural
5. Could you list some common activation functions used in neural networks?
6. What is a multilayer neural network?
7. What is a loss function, and why is it crucial for neural network training?
8. What are some common types of loss functions?
9. How does a neural network learn?
10. What is an optimizer in neural networks, and why is it necessary?
11. Could you briefly describe some common optimizers?
12. Can you explain forward and backward propagation in a neural network?
13. What is weight initialization, and how does it impact training?
14. What is the vanishing gradient problem in deep learning?
15. What is the exploding gradient problem?

Practical

1. How do you create a simple perceptron for basic binary classification?
2. How can you build a neural network with one hidden layer using Keras?
3. How do you initialize weights using the Xavier (Glorot) initialization method in Keras?
4. How can you apply different activation functions in a neural network in Keras?
5. How do you add dropout to a neural network model to prevent overfitting?
6. How do you manually implement forward propagation in a simple neural network?
7. How do you add batch normalization to a neural network model in Keras?
8. How can you visualize the training process with accuracy and loss curves?
9. How can you use gradient clipping in Keras to control the gradient size and prevent exploding gradients?
10. How can you create a custom loss function in Keras?
11. How can you visualize the structure of a neural network model in Keras?