Neural Network and Deep Learning

ICP-4

Name –

700 Number-

CRN- 30828

Github link-

ICP File Github link-

Video Link –

1. Using TensorFlow, the provided code demonstrates ways to construct a convolutional neural network (CNN) for image classification on the CIFAR-10 dataset.

**Data Preparation**: The CIFAR-10 dataset is loaded and normalized to [0, 1]. Labels are one-hot encoded.

**Model Architecture**: Sequential model with multiple convolutional layers followed by max pooling, dropout for regularization, and dense layers for classification using softmax activation.

**Training**: SGD optimizer with exponential learning rate decay is used. The model is trained for 5 epochs with a batch size of 32.

**Evaluation**: After training, the model's accuracy is evaluated on the test set, achieving around 70-80% accuracy**.**

**Prediction**: Predictions are made on the first 4 test images, and results are displayed along with the corresponding actual labels. The images' predicted labels and actual labels are visualized using Matplotlib.

Overall, the model uses max pooling and dropout convolutional layers to extract features from images, then uses dense layers for classification to achieve good results on the CIFAR-10 classification task.

A screenshot of a computer program

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A screenshot of a computer program

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**Output**

**A screenshot of a computer

Description automatically generated**

A screenshot of a computer

Description automatically generated