Name: Ayush Chanchal

Sap id: 500097569

Batch: B6

Roll No.: R2142211432

Lab: 6

Experiment:6

SourceCode:

import tensorflow as tf

from tensorflow.keras import layers, models

from tensorflow.keras.datasets import cifar10

from tensorflow.keras.utils import to\_categorical

# Load CIFAR-10 dataset

(train\_images, train\_labels), (test\_images, test\_labels) = cifar10.load\_data()

# Preprocess data

train\_images = train\_images.astype('float32') / 255.0

test\_images = test\_images.astype('float32') / 255.0

train\_labels = to\_categorical(train\_labels)

test\_labels = to\_categorical(test\_labels)

# Define the model

model = models.Sequential([

layers.Conv2D(32, (3, 3), activation='relu', input\_shape=(32, 32, 3)),

layers.MaxPooling2D((2, 2)),

layers.Conv2D(64, (3, 3), activation='relu'),

layers.MaxPooling2D((2, 2)),

layers.Conv2D(64, (3, 3), activation='relu'),

layers.Flatten(),

layers.Dense(64, activation='relu'),

layers.Dense(10, activation='softmax')

])

# Compile the model

model.compile(optimizer='adam',

loss='categorical\_crossentropy',

metrics=['accuracy'])

# Train the model

history = model.fit(train\_images, train\_labels, epochs=10, batch\_size=64, validation\_data=(test\_images, test\_labels))

# Evaluate the model

test\_loss, test\_acc = model.evaluate(test\_images, test\_labels)

print(f'Test accuracy: {test\_acc}')

# Save the model

model.save('cifar10\_model.h5')

Screenshot:

