```
import tensorflow as tf
from tensorflow.keras import Sequential
from tensorflow.keras.layers import Flatten, Dense,Conv2D, MaxPool2D, Dropout
print(tf.__version__)

import numpy as np
import matplotlib.pyplot as plt
import matplotlib

from tensorflow.keras.datasets import cifar10
(X_train,y_train),(X_test,y_test)=cifar10.load_data()

class_name=['airplane','automobile','bird','cat','deer','dog','frog','horse','ship','truck’]
X_train.max()

X_train=X_train/255
X_test=X_test/255
X_train.shape

X_test.shape

plt.imshow(X_test[0])

y_test

model=Sequential()
model.add(Conv2D(filters=32, kernel_size=(3,3), padding='same', activation='relu', input_shape =
[32,32,3]))
model.add(MaxPool2D(pool_size=(2,2), strides=2, padding='valid'))
model.add(Dropout(0.5))
model.add(Flatten())
model.add(Dense(units=128, activation='relu'))
model.add(Dense(units=10, activation='softmax'))
model.summary()

model.compile(optimizer='adam', loss='sparse_categorical_crossentropy',
metrics=['sparse_categorical_accuracy’])
history=model.fit(X_train, y_train, batch_size=10, epochs=10, validation_data=(X_test, y_test))

epoch_range=range(1, 11)
plt.plot(epoch_range, history.history['sparse_categorical_accuracy'])
plt.plot(epoch_range, history.history['val_sparse_categorical_accuracy'])
plt.title('Model Accuracy')
plt.ylabel('val Accuracy')
plt.X_label('Epoch')
plt.legend(['train','val'], loc='upper left')
plt.show()

from mlxtend.plotting import plot_confusion_matrix
from sklearn.metrics import confusion_matrix
y_pred=model.predict_classes(X_test)

y_pred

y_test
```

```
mat = confusion_matrix(y_test, y_pred)

plot_confusion_matrix(mat, figsize = (6,6), show_normed = True)
```