Prac 11

```
import tensorflow as tf
from tensorflow.keras.dataset import mnist
from tensorflow.keras.layers import Dense,Flatten
from tensorflow.keras.models import Sequential
from tensorflow.keras.optimizers import Adam

#load dataset
(x_train,y_train),(x_test,y_test)=mnist.load_data()

#preprocess the data
x_train=x_train/255.0
x_test=x_test/255.0

#reshape
x_train=x_train.reshape((x_train.shape[0],-1))
x_test=x_test.reshape((x_test.shape[0],-1))

#define the logistic regression model
logistic_model=Sequential([Dense(10,activation='softmax',input_shape=(784,))])

#compile
logistic_model.compile(optimizer=Adam(learning_rate=0.001),loss='sparse_categorical_crossentropy',
metrics=['accuracy'])

#train
logistic_model.fit(x_train,y_train,validation_split=0.1,epochs=10,batch_size=32)

#evaluate
test_loss,test_acc=logistic_model.evaluate(x_test,y_test)
print(f'Logistic regression test loss:{test_loss:.4f},test accuracy:{test_acc:.4f}')
```