

```

DL 3 fashion
import pandas as pd
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import LabelEncoder
import tensorflow as tf
from tensorflow.keras import Sequential
from tensorflow.keras.layers import Conv2D, MaxPooling2D, Flatten, Dense

# Load the dataset from CSV
df = pd.read_csv('fashion_mnist.csv')

# Separate features and target variable
X = df.drop('label', axis=1).values.reshape(-1, 28, 28, 1)
y = df['label']

# Normalize the features
X = X / 255.0

# Encode the target variable
label_encoder = LabelEncoder()
y = label_encoder.fit_transform(y)

# Split data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,
random_state=42)

# Build the CNN model
model = Sequential([
    Conv2D(32, (3, 3), activation='relu', input_shape=(28, 28, 1)),
    MaxPooling2D((2, 2)),
    Conv2D(64, (3, 3), activation='relu'),
    MaxPooling2D((2, 2)),
    Flatten(),
    Dense(128, activation='relu'),
    Dense(10, activation='softmax')
])

# Compile the model
model.compile(optimizer='adam', loss='sparse_categorical_crossentropy',
metrics=['accuracy'])

# Train the model
model.fit(X_train, y_train, epochs=10, batch_size=32, verbose=1)

# Evaluate the model
test_loss, test_accuracy = model.evaluate(X_test, y_test, verbose=0)
print("Test Accuracy:", test_accuracy)

```