Universidad de los Andes

Movie Genre Classification

Analytics

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Description

- Classify a movie genre based on two inputs:
    1. Poster(Image)
    2. Poster description

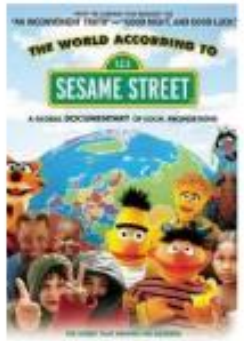
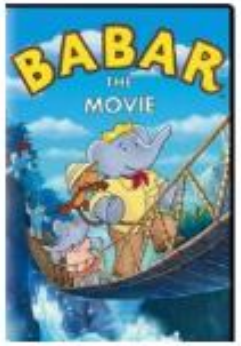
	The world according to sesame street		Babar: The movie	
Input		A documentary which examines the creation and co-production of the popular children's television program in three developing countries: Bangladesh, Kosovo and South Africa.		In his spectacular film debut, young Babar, King of the Elephants, must save his homeland from certain destruction by Rataxes and his band of invading rhinos.
Prediction	Comedy, Adventure, Family, Animation	Documentary, History	Comedy, Adventure, Family, Animation	Adventure, War, Documentary, Music

Imagen Model

Steps

1. Rescale of imagen 244x244

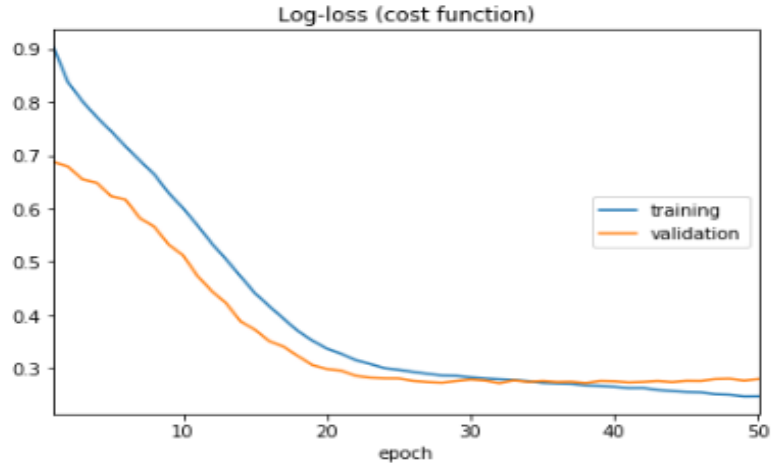
2. Use Vgg16

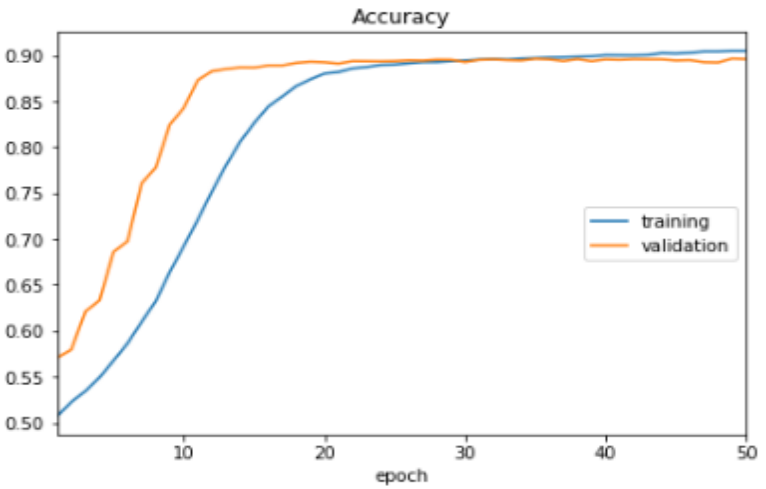
```
model_vgg16 = VGG16(weights='imagenet', include_top=False, input_shape=(224, 224, 3))
```

3. Add the VGG16 output as the convolutional base model input
4. Optimizer: RMSprop

Imagen Model

```
# Add the vgg convolutional base model
#model.add(model_vgg16)
#model.add(Conv2D(512, (3,3),padding='same'))

model.add(Conv2D(32, (3,3),padding='same',input_shape=X_train2.shape[1:]))
model.add(Activation('relu'))
model.add(BatchNormalization(axis=ChanDim))
model.add(Conv2D(32, (3,3),padding='same'))
model.add(Activation('relu'))
model.add(BatchNormalization(axis=ChanDim))
model.add(MaxPooling2D (2,2))
model.add(Dropout(0.3))


model.add(Conv2D(64, (3,3),padding='same'))
model.add(Activation('relu'))
model.add(BatchNormalization(axis=ChanDim))
model.add(Conv2D(64, (3,3),padding='same'))
model.add(Activation('relu'))
model.add(BatchNormalization(axis=ChanDim))
model.add(MaxPooling2D (2,2))
model.add(Dropout(0.3))


model.add(Flatten())
model.add(Dense(1024))
model.add(Activation('relu'))
model.add(BatchNormalization())
model.add(Dropout(0.3))


model.add(Dense(units=y_train_genres.shape[1]))
model.add(Activation('sigmoid'))
model.summary()
```






```
roc_auc_score(y_test_genres,image_predict, average='macro')
```

```
0.6937807521564547
```

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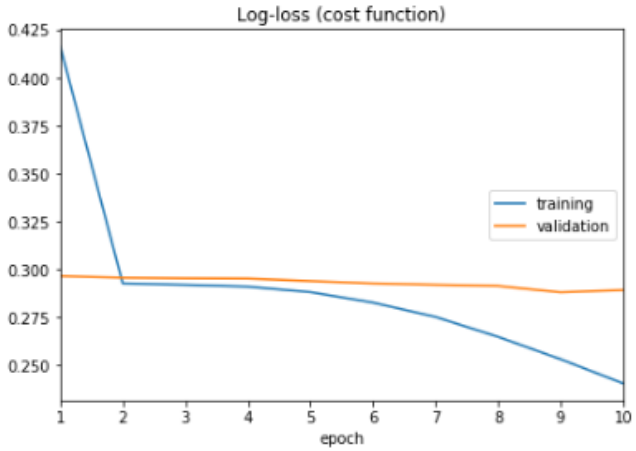
Text Model

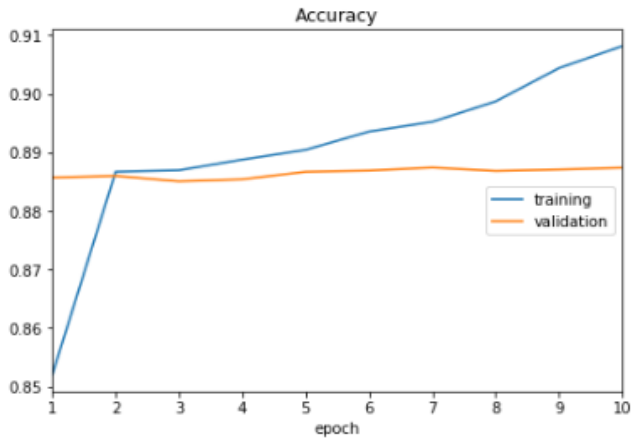
Steps

1. Remove punctuation
2. Convert words to lower case and split them
3. Remove stop words
4. Clean up the text (special characters)
5. Create embedding

```
model3 = Sequential()
model3.add(Embedding(max_words, 128, input_length=max_plot_len))
model3.add(LSTM(128, dropout=0.2,recurrent_dropout=0.2))
#model3.add(Dropout(0.3))
model3.add(Dense(24, activation='sigmoid'))
model3.compile(loss='binary_crossentropy', optimizer='adam', metrics=['accuracy'])
```

Text Model






```
roc_auc_score(y_test_plot,y_pred_plot, average='macro')
```

```
0.6422832068051859
```

Average two Model

Note: The final outcome is the result of averaging the text model's output and the imagen model's output