

**Classification using Deep neural network: Binary classification using Deep Neural Networks Example: Classify movie reviews into positive" reviews and "negative" reviews, just based on the text content of the reviews. Use IMDB dataset.**

```
import numpy as np
from tensorflow.keras.datasets import imdb
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense, Embedding, Flatten
from tensorflow.keras.preprocessing.sequence import pad_sequences

# Load the IMDB dataset
max_features = 10000 # Number of words to consider as features
max_len = 500 # Maximum sequence length
(X_train, y_train), (X_test, y_test) = imdb.load_data(num_words=max_features)

# Pad sequences to a fixed length
X_train = pad_sequences(X_train, maxlen=max_len)
X_test = pad_sequences(X_test, maxlen=max_len)

# Define the model
model = Sequential()
model.add(Embedding(max_features, 32, input_length=max_len))
model.add(Flatten())
model.add(Dense(1, activation='sigmoid'))

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

# Train the model
model.fit(X_train, y_train, batch_size=32, epochs=10, validation_data=(X_test, y_test))

# Evaluate the model
loss, accuracy = model.evaluate(X_test, y_test, verbose=0)
print("Test Loss:", loss)
print("Test Accuracy:", accuracy)
```