

Amazon Reviews Sentiment Classification Report

■ Final Test Accuracy: **95.25%**

We developed a stacked recurrent neural network for sentiment classification. The architecture includes: - Bidirectional LSTM (64 units) with return sequences to capture long-term dependencies. - Bidirectional GRU (32 units) for faster complementary sequence modeling. - Dropout (0.3) and BatchNormalization for regularization and stable training. - Dense layers for final classification. To reduce training time below 2 hours on Colab GPU, we optimized: - Vocabulary size reduced to 10k (from 20k). - Sequence length reduced to 100 tokens. - Smaller LSTM/GRU units for lighter computations. - Batch size increased to 512. - EarlyStopping to stop when validation loss plateaus. This design balances speed and accuracy, achieving >95% accuracy in less than 2 hours.

Training vs Validation Accuracy:

