

## A. Bag of Words and MCP

Model: "sequential"

| Layer (type)    | Output Shape | Param # |
|-----------------|--------------|---------|
| dense (Dense)   | (None, 50)   | 1900400 |
| dense_1 (Dense) | (None, 1)    | 51      |

Total params: 1,900,451

Trainable params: 1,900,451

Non-trainable params: 0

Epoch 1/10

282/282 - 9s - loss: 0.3722 - accuracy: 0.8466 - 9s/epoch - 31ms/step

Epoch 2/10

282/282 - 6s - loss: 0.0974 - accuracy: 0.9728 - 6s/epoch - 20ms/step

Epoch 3/10

282/282 - 6s - loss: 0.0311 - accuracy: 0.9956 - 6s/epoch - 20ms/step

Epoch 4/10

282/282 - 6s - loss: 0.0108 - accuracy: 0.9991 - 6s/epoch - 20ms/step

Epoch 5/10

282/282 - 6s - loss: 0.0050 - accuracy: 0.9999 - 6s/epoch - 21ms/step

Epoch 6/10

282/282 - 6s - loss: 0.0029 - accuracy: 1.0000 - 6s/epoch - 20ms/step

Epoch 7/10

282/282 - 5s - loss: 0.0019 - accuracy: 1.0000 - 5s/epoch - 19ms/step

Epoch 8/10

282/282 - 5s - loss: 0.0013 - accuracy: 1.0000 - 5s/epoch - 19ms/step

Epoch 9/10

282/282 - 6s - loss: 9.1983e-04 - accuracy: 1.0000 - 6s/epoch - 20ms/step

Epoch 10/10

282/282 - 6s - loss: 6.7788e-04 - accuracy: 1.0000 - 6s/epoch - 22ms/step

282/282 - 3s - loss: 5.3322e-04 - accuracy: 1.0000 - 3s/epoch - 10ms/step

**Training accuracy: 100.00%**

32/32 - 0s - loss: 0.5497 - accuracy: 0.8720 - 275ms/epoch - 9ms/step

**Test accuracy: 87.20%**

Sample review: The Glory was a masterpiece of storytelling and emotion. Every scene was beautifully crafted, and the performances were outstanding.

Predicted sentiment: POSITIVE (Positive Probability: 0.99)

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Sample review: I couldn't connect with the characters in The Glory. The plot felt disjointed and confusing.

Predicted sentiment: NEGATIVE (Positive Probability: 0.94)

=====

Sample review: This movie had me on the edge of my seat from start to finish. The suspense and twists kept me guessing.

Predicted sentiment: POSITIVE (Positive Probability: 0.98)

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Sample review: The Glory was a visual delight, with stunning cinematography and breathtaking scenery.

Predicted sentiment: POSITIVE (Positive Probability: 0.86)

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Sample review: The dialogue in this movie felt forced and unnatural. It was hard to believe the characters' interactions.

Predicted sentiment: NEGATIVE (Positive Probability: 0.84)

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Sample review: I was moved to tears by the heartfelt performances in The Glory. The actors truly brought their characters to life.

Predicted sentiment: POSITIVE (Positive Probability: 0.98)

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Sample review: The pacing of the movie was slow and dragged on. I found myself losing interest in the story.

Predicted sentiment: NEGATIVE (Positive Probability: 0.96)

=====

Sample review: The Glory had a thought-provoking storyline that stayed with me long after the credits rolled.

Predicted sentiment: NEGATIVE (Positive Probability: 0.79)

=====

Sample review: The special effects in this movie were lackluster and took away from the overall experience.

Predicted sentiment: NEGATIVE (Positive Probability: 0.77)

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Sample review: The chemistry between the lead actors was palpable, adding depth to the romantic storyline in The Glory.

Predicted sentiment: POSITIVE (Positive Probability: 0.63)

=====

Sample review: The plot twists in this movie were so unexpected that I couldn't help but be impressed by the writing.

Predicted sentiment: POSITIVE (Positive Probability: 0.51)

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Sample review: Unfortunately, the plot holes in The Glory were glaring and made it difficult to fully enjoy the film.

Predicted sentiment: NEGATIVE (Positive Probability: 0.76)

=====

Sample review: The soundtrack elevated the emotions of The Glory, creating an immersive experience for the audience.

Predicted sentiment: POSITIVE (Positive Probability: 0.92)

=====

Sample review: The character development in this movie was shallow, leaving me feeling disconnected from their journeys.

Predicted sentiment: NEGATIVE (Positive Probability: 0.97)

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Sample review: The Glory was a rollercoaster of emotions, taking me from laughter to tears in a matter of scenes.

Predicted sentiment: POSITIVE (Positive Probability: 0.96)

=====

Sample review: The cinematography was top-notch, capturing the essence of each location in The Glory.

Predicted sentiment: POSITIVE (Positive Probability: 0.85)

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Sample review: The lack of diversity in the cast of The Glory was disappointing and didn't accurately reflect the real world.

Predicted sentiment: NEGATIVE (Positive Probability: 0.72)

=====

Sample review: The climax of the movie left me on the edge of my seat, and the resolution was satisfying and heartwarming.

Predicted sentiment: POSITIVE (Positive Probability: 0.88)

=====

Sample review: The dialogue flowed naturally, adding authenticity to the interactions between characters in The Glory.

Predicted sentiment: NEGATIVE (Positive Probability: 0.79)

=====

Sample review: Unfortunately, the acting in The Glory was wooden and lacked the emotional depth needed to fully engage the audience.

Predicted sentiment: NEGATIVE (Positive Probability: 0.78)

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|                | MCP    | CNN    |
|----------------|--------|--------|
| Train Accuracy | 100%   | 100%   |
| Test Accuracy  | 87.20% | 87.40% |

## B. Embedding and CNN

Model: "sequential"

| Layer (type)                 | Output Shape      | Param # |
|------------------------------|-------------------|---------|
| embedding (Embedding)        | (None, 1480, 100) | 6395900 |
| conv1d (Conv1D)              | (None, 1473, 32)  | 25632   |
| max_pooling1d (MaxPooling1D) | (None, 736, 32)   | 0       |
| flatten (Flatten)            | (None, 23552)     | 0       |
| dense (Dense)                | (None, 10)        | 235530  |
| dense_1 (Dense)              | (None, 1)         | 11      |

Total params: 6,657,073

Trainable params: 6,657,073

Non-trainable params: 0

Epoch 1/10

250/250 - 28s - loss: 0.5168 - accuracy: 0.6955 - 28s/epoch - 113ms/step

Epoch 2/10

250/250 - 31s - loss: 0.1364 - accuracy: 0.9528 - 31s/epoch - 124ms/step

Epoch 3/10

250/250 - 46s - loss: 0.0163 - accuracy: 0.9958 - 46s/epoch - 184ms/step

Epoch 4/10

250/250 - 46s - loss: 0.0028 - accuracy: 0.9996 - 46s/epoch - 184ms/step

Epoch 5/10

250/250 - 49s - loss: 9.6064e-04 - accuracy: 0.9999 - 49s/epoch - 196ms/step

Epoch 6/10

250/250 - 49s - loss: 2.5406e-04 - accuracy: 1.0000 - 49s/epoch - 197ms/step

Epoch 7/10

250/250 - 49s - loss: 1.4924e-04 - accuracy: 1.0000 - 49s/epoch - 196ms/step

Epoch 8/10

250/250 - 49s - loss: 9.9263e-05 - accuracy: 1.0000 - 49s/epoch - 195ms/step

Epoch 9/10

250/250 - 49s - loss: 7.0688e-05 - accuracy: 1.0000 - 49s/epoch - 197ms/step

Epoch 10/10

250/250 - 51s - loss: 5.2190e-05 - accuracy: 1.0000 - 51s/epoch - 202ms/step

**Test Accuracy: 87.40%**

**Train Accuracy: 100.00%**

Review: [The Glory was a masterpiece of storytelling and emotion. Every scene was beautifully crafted, and the performances were outstanding.]

Sentiment: POSITIVE (96.925%)

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Review: [I couldn't connect with the characters in The Glory. The plot felt disjointed and confusing.]

Sentiment: NEGATIVE (98.060%)

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Review: [This movie had me on the edge of my seat from start to finish. The suspense and twists kept me guessing.]

Sentiment: POSITIVE (99.760%)

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Review: [The Glory was a visual delight, with stunning cinematography and breathtaking scenery.]

Sentiment: POSITIVE (98.300%)

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Review: [The dialogue in this movie felt forced and unnatural. It was hard to believe the characters' interactions.]

Sentiment: NEGATIVE (93.452%)

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Review: [I was moved to tears by the heartfelt performances in The Glory. The actors truly brought their characters to life.]

Sentiment: POSITIVE (99.754%)

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Review: [The pacing of the movie was slow and dragged on. I found myself losing interest in the story.]

Sentiment: NEGATIVE (99.972%)

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Review: [The Glory had a thought-provoking storyline that stayed with me long after the credits rolled.]

Sentiment: POSITIVE (80.695%)

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Review: [The special effects in this movie were lackluster and took away from the overall experience.]

Sentiment: NEGATIVE (95.627%)

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Review: [The chemistry between the lead actors was palpable, adding depth to the romantic storyline in The Glory.]

Sentiment: POSITIVE (79.040%)

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Review: [The plot twists in this movie were so unexpected that I couldn't help but be impressed by the writing.]

Sentiment: NEGATIVE (86.924%)

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Review: [Unfortunately, the plot holes in The Glory were glaring and made it difficult to fully enjoy the film.]

Sentiment: POSITIVE (94.649%)

=====

Review: [The soundtrack elevated the emotions of The Glory, creating an immersive experience for the audience.]

Sentiment: POSITIVE (99.716%)

=====

Review: [The character development in this movie was shallow, leaving me feeling disconnected from their journeys.]

Sentiment: NEGATIVE (99.986%)

=====

Review: [The Glory was a rollercoaster of emotions, taking me from laughter to tears in a matter of scenes.]

Sentiment: POSITIVE (98.491%)

=====

Review: [The cinematography was top-notch, capturing the essence of each location in The Glory.]

Sentiment: POSITIVE (98.047%)

=====

Review: [The lack of diversity in the cast of The Glory was disappointing and didn't accurately reflect the real world.]

Sentiment: NEGATIVE (98.522%)

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Review: [The climax of the movie left me on the edge of my seat, and the resolution was satisfying and heartwarming.]

Sentiment: POSITIVE (96.538%)



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Review: [The dialogue flowed naturally, adding authenticity to the interactions between characters in The Glory.]

Sentiment: POSITIVE (93.646%)

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Review: [Unfortunately, the acting in The Glory was wooden and lacked the emotional depth needed to fully engage the audience.]

Sentiment: NEGATIVE (87.271%)

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