Epoch 1/50

3363/3363 [==============================] - ETA: 0s - loss: 1008.2487 - accuracy: 0.74942024-05-13 14:07:17.265669: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 21018624000 exceeds 10% of free system memory.

2024-05-13 14:08:23.897987: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 2463498240 exceeds 10% of free system memory.

2024-05-13 14:08:25.120059: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 2463498240 exceeds 10% of free system memory.

3363/3363 [==============================] - 3185s 945ms/step - loss: 1008.2487 - accuracy: 0.7494 - val\_loss: 768.5486 - val\_accuracy: 0.7502 - lr: 1.0000e-04

Epoch 2/50

3363/3363 [==============================] - ETA: 0s - loss: 795.1025 - accuracy: 0.74942024-05-13 15:00:18.538436: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 21018624000 exceeds 10% of free system memory.

2024-05-13 15:01:34.598041: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 2463498240 exceeds 10% of free system memory.

3363/3363 [==============================] - 3191s 948ms/step - loss: 795.1025 - accuracy: 0.7494 - val\_loss: 743.4580 - val\_accuracy: 0.7502 - lr: 1.0000e-04

Epoch 3/50

3363/3363 [==============================] - 3136s 932ms/step - loss: 681.2769 - accuracy: 0.7494 - val\_loss: 748.1948 - val\_accuracy: 0.7502 - lr: 1.0000e-04

Epoch 4/50

3363/3363 [==============================] - 3093s 919ms/step - loss: 515.4761 - accuracy: 0.7494 - val\_loss: 784.9935 - val\_accuracy: 0.7502 - lr: 1.0000e-04

Epoch 5/50

3363/3363 [==============================] - 3141s 933ms/step - loss: 361.0176 - accuracy: 0.7494 - val\_loss: 890.6406 - val\_accuracy: 0.7502 - lr: 1.0000e-04

Epoch 6/50

3363/3363 [==============================] - 3072s 913ms/step - loss: 221.0610 - accuracy: 0.7633 - val\_loss: 1072.2452 - val\_accuracy: 0.7584 - lr: 1.0000e-04

Epoch 7/50

3363/3363 [==============================] - ETA: 0s - loss: 119.3495 - accuracy: 0.8225

Epoch 7: ReduceLROnPlateau reducing learning rate to 5.999999848427251e-05.

3363/3363 [==============================] - 3083s 916ms/step - loss: 119.3495 - accuracy: 0.8225 - val\_loss: 1169.9413 - val\_accuracy: 0.6707 - lr: 1.0000e-04

5765/5765 [==============================] - 94s 16ms/step

C:\Users\skape\PycharmProjects\Thesis\_tensorflow\.venv\lib\site-packages\sklearn\metrics\\_classification.py:1471: UndefinedMetricWarning: Precision is ill-defined and being set to 0.0 due to no predicted samples. Use `zero\_division` parameter to control this behavior.

\_warn\_prf(average, modifier, msg\_start, len(result))

Evaluation Metrics:

Precision: 0.0000

Recall: 0.0000

F1 Score: 0.0000

ROC AUC: 0.7220

PR AUC: 0.4201

MCC: 0.0000

y\_pred = (test\_scores > 0.6).astype(int)

...: y\_true = y\_test.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Confusion Matrix

...: conf\_matrix = confusion\_matrix(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

C:\Users\skape\PycharmProjects\Thesis\_tensorflow\.venv\lib\site-packages\sklearn\metrics\\_classification.py:1471: UndefinedMetricWarning: Precision is ill-defined and being set to 0.0 due to no predicted samples. Use `zero\_division` parameter to control this behavior.

\_warn\_prf(average, modifier, msg\_start, len(result))

Evaluation Metrics:

Precision: 0.0000

Recall: 0.0000

F1 Score: 0.0000

ROC AUC: 0.7220

PR AUC: 0.4201

MCC: 0.0000

In [8]: y\_pred = (test\_scores > 0.7).astype(int)

...: y\_true = y\_test.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Confusion Matrix

...: conf\_matrix = confusion\_matrix(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

C:\Users\skape\PycharmProjects\Thesis\_tensorflow\.venv\lib\site-packages\sklearn\metrics\\_classification.py:1471: UndefinedMetricWarning: Precision is ill-defined and being set to 0.0 due to no predicted samples. Use `zero\_division` parameter to control this behavior.

\_warn\_prf(average, modifier, msg\_start, len(result))

Evaluation Metrics:

Precision: 0.0000

Recall: 0.0000

F1 Score: 0.0000

ROC AUC: 0.7220

PR AUC: 0.4201

MCC: 0.0000

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, πολυχρωμία

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, οθόνη, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, γράφημα, γραμμή, διάγραμμα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει διάγραμμα, γράφημα, γραμμή, κείμενο

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, σχεδίαση

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, γράφημα, γραμμή, διάγραμμα

Περιγραφή που δημιουργήθηκε αυτόματα

Triplet 1 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/paragraph9574\_3455, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/Paragraph

157/157 [==============================] - 21s 133ms/step

Intercept 0.09977197012880287

Prediction\_local [0.18376265]

Right: 0.00012963047

Feature Importances (Coefficients):

Predicate: 0.08507478603038525

Object: -0.004302835157648269

Subject: 0.003218731583104818

Triplet 2 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/hlth\_ehis\_aw1u, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/term, Object: hlth\_ehis\_aw1u

157/157 [==============================] - 17s 105ms/step

Intercept 0.18858281073836292

Prediction\_local [-0.00196321]

Right: 0.00032042596

Feature Importances (Coefficients):

Predicate: -0.18672262814277113

Subject: -0.0031944578307206766

Object: -0.0006289305405024131

Triplet 3 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/glossaryArticle118, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/hasReference, Object: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/referenceSource59

157/157 [==============================] - 9s 59ms/step

Intercept 0.0977161623769717

Prediction\_local [0.18916975]

Right: 0.18932126

Feature Importances (Coefficients):

Predicate: 0.08568153745249313

Subject: 0.0040145808651504845

Object: 0.0017574699149851519

Triplet 4 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/fats\_08, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/level, Object: 4

157/157 [==============================] - 9s 55ms/step

Intercept 0.1350353886046838

Prediction\_local [0.21525676]

Right: 0.21929893

Feature Importances (Coefficients):

Predicate: 0.0569137574158699

Object: 0.029025855279581986

Subject: -0.005718237668751706

Triplet 5 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/ei\_qna, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/StatisticalData

157/157 [==============================] - 9s 56ms/step

Intercept 0.1026867593508074

Prediction\_local [0.16498294]

Right: 0.00020056577

Feature Importances (Coefficients):

Predicate: 0.08690207134393123

Object: -0.02493282116869301

Subject: 0.0003269297081330311