2024-04-26 03:11:48.128496: I tensorflow/core/platform/cpu\_feature\_guard.cc:182] This TensorFlow binary is optimized to use available CPU instructions in performance-critical operations.

To enable the following instructions: SSE SSE2 SSE3 SSE4.1 SSE4.2 AVX AVX2 FMA, in other operations, rebuild TensorFlow with the appropriate compiler flags.

Epoch 1/15

1682/1682 [==============================] - 6629s 4s/step - loss: 5.0353 - accuracy: 0.6375 - val\_loss: 1.3526 - val\_accuracy: 0.6972 - lr: 5.0000e-05

Epoch 2/15

1682/1682 [==============================] - 6581s 4s/step - loss: 0.8659 - accuracy: 0.7261 - val\_loss: 0.7290 - val\_accuracy: 0.7033 - lr: 5.0000e-05

Epoch 3/15

1682/1682 [==============================] - 6608s 4s/step - loss: 0.5229 - accuracy: 0.7923 - val\_loss: 0.5889 - val\_accuracy: 0.7068 - lr: 5.0000e-05

Epoch 4/15

1682/1682 [==============================] - 6606s 4s/step - loss: 0.3886 - accuracy: 0.8625 - val\_loss: 0.6190 - val\_accuracy: 0.6877 - lr: 5.0000e-05

Epoch 5/15

1682/1682 [==============================] - 6589s 4s/step - loss: 0.2185 - accuracy: 0.9418 - val\_loss: 0.9898 - val\_accuracy: 0.6817 - lr: 5.0000e-05

Epoch 6/15

1682/1682 [==============================] - 6660s 4s/step - loss: 0.0803 - accuracy: 0.9856 - val\_loss: 1.4378 - val\_accuracy: 0.6738 - lr: 2.5000e-05

2883/2883 [==============================] - 310s 107ms/step

Evaluation Metrics:

Precision: 0.8870

Recall: 0.4647

F1 Score: 0.6099

ROC AUC: 0.8159

PR AUC: 0.8358

MCC: 0.4611

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)

...:

...: # 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}')

...:

Evaluation Metrics:

Precision: 0.9582

Recall: 0.4160

F1 Score: 0.5801

ROC AUC: 0.8159

PR AUC: 0.8358

MCC: 0.4825

In [13]: 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)

...:

...: # 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}')

...:

Evaluation Metrics:

Precision: 0.9753

Recall: 0.3844

F1 Score: 0.5514

ROC AUC: 0.8159

PR AUC: 0.8358

MCC: 0.4709

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, οθόνη

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, ορθογώνιο παραλληλόγραμμο

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, ορθογώνιο παραλληλόγραμμο, διάγραμμα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, διάγραμμα, γράφημα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

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Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, σχεδίαση

Περιγραφή που δημιουργήθηκε αυτόματα

Triplet 1 (Original):

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

157/157 [==============================] - 17s 109ms/step

Intercept 0.11927852580011028

Prediction\_local [0.32835202]

Right: 0.3683167

Feature Importances (Coefficients):

Predicate: 0.15831422283844648

Object: 0.07365482155803738

Subject: -0.022895554240012807

Triplet 2 (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 [==============================] - 16s 104ms/step

Intercept 0.33056586598214194

Prediction\_local [-0.01036259]

Right: 0.013493496

Feature Importances (Coefficients):

Predicate: -0.2765785764952166

Object: -0.07538377671492129

Subject: 0.011033901221654941

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 [==============================] - 16s 105ms/step

Intercept 0.1020058605336748

Prediction\_local [0.35920025]

Right: 0.016641855

Feature Importances (Coefficients):

Predicate: 0.15958470584742368

Object: 0.08235227622883208

Subject: 0.015257411474919774

Triplet 4 (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 [==============================] - 16s 105ms/step

Intercept 0.3093247489940828

Prediction\_local [0.07955984]

Right: 0.03937833

Feature Importances (Coefficients):

Predicate: -0.2820350537461123

Object: 0.07378463323894627

Subject: -0.02151448885458758

Triplet 5 (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 [==============================] - 16s 104ms/step

Intercept 0.19357729808866836

Prediction\_local [0.2659036]

Right: 0.21919043

Feature Importances (Coefficients):

Predicate: 0.17607551524683324

Object: -0.11593963379172639

Subject: 0.012190420166363933