Epoch 1/15

3363/3363 [==============================] - 29058s 9s/step - loss: 2.4451 - accuracy: 0.6516 - val\_loss: 0.8161 - val\_accuracy: 0.6430 - lr: 5.0000e-05

Epoch 2/15

3363/3363 [==============================] - 28912s 9s/step - loss: 0.5716 - accuracy: 0.7513 - val\_loss: 0.6046 - val\_accuracy: 0.6658 - lr: 5.0000e-05

Epoch 3/15

3363/3363 [==============================] - 31340s 9s/step - loss: 0.4711 - accuracy: 0.7956 - val\_loss: 1.0448 - val\_accuracy: 0.6638 - lr: 5.0000e-05

Epoch 4/15

3363/3363 [==============================] - 31371s 9s/step - loss: 0.4164 - accuracy: 0.8129 - val\_loss: 0.6038 - val\_accuracy: 0.6477 - lr: 5.0000e-05

Epoch 5/15

3363/3363 [==============================] - 30884s 9s/step - loss: 0.3878 - accuracy: 0.8220 - val\_loss: 0.6511 - val\_accuracy: 0.6490 - lr: 5.0000e-05

Epoch 6/15

3363/3363 [==============================] - 29251s 9s/step - loss: 0.3666 - accuracy: 0.8334 - val\_loss: 0.7070 - val\_accuracy: 0.6450 - lr: 5.0000e-05

Epoch 7/15

3363/3363 [==============================] - 29167s 9s/step - loss: 0.2971 - accuracy: 0.8721 - val\_loss: 0.9193 - val\_accuracy: 0.6332 - lr: 2.5000e-05

2883/2883 [==============================] - 1344s 466ms/step

Evaluation Metrics:

Precision: 0.6466

Recall: 0.6434

F1 Score: 0.6450

ROC AUC: 0.7597

PR AUC: 0.7925

MCC: 0.2917

In [11]: 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: 0.7018

Recall: 0.5327

F1 Score: 0.6057

ROC AUC: 0.7597

PR AUC: 0.7925

MCC: 0.3157

In [12]: 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: 0.7466

Recall: 0.4755

F1 Score: 0.5810

ROC AUC: 0.7597

PR AUC: 0.7925

MCC: 0.3372

Εικόνα που περιέχει κείμενο, διάγραμμα, γραμμή, γράφημα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, διάγραμμα, γράφημα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

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

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Περιγραφή που δημιουργήθηκε αυτόματα

Triplet 1 (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 [==============================] - 75s 476ms/step

Intercept 0.40539309803660695

Prediction\_local [0.19073362]

Right: 0.14342721

Feature Importances (Coefficients):

Object: -0.24187719370388586

Predicate: 0.01606686381339595

Subject: 0.011150854758700172

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 [==============================] - 75s 476ms/step

Intercept 0.302022904137235

Prediction\_local [0.46782217]

Right: 0.41512695

Feature Importances (Coefficients):

Predicate: 0.2559471082811475

Object: -0.07520983294813538

Subject: -0.0149380130174198

Triplet 3 (Original):

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

157/157 [==============================] - 80s 507ms/step

Intercept 0.480250525973415

Prediction\_local [-0.01133398]

Right: 0.014451487

Feature Importances (Coefficients):

Predicate: -0.41166235206181184

Object: -0.07640417474754746

Subject: -0.003517979844146585

Triplet 4 (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 [==============================] - 79s 505ms/step

Intercept 0.2646432633810552

Prediction\_local [0.50463242]

Right: 0.5215991

Feature Importances (Coefficients):

Predicate: 0.259831610604458

Object: -0.039207247089012395

Subject: 0.019364792614563045

Triplet 5 (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 [==============================] - 80s 511ms/step

Intercept 0.2726940365495682

Prediction\_local [0.71243892]

Right: 0.79671574

Feature Importances (Coefficients):

Object: 0.420096004029704

Predicate: 0.030388790839188457

Subject: -0.010739915141952557