Selecting the best Model of Predicting Full Transcripts

Chunyen

2024/3/13

Introduction

此處僅有使用求助者對話語句的資料建立的模型。

選擇不同風險等級切分中的最佳模型。

當 risk5 時，BERT 的最佳模型表現較 RF 模型佳，

使用的參照分別為 max_sim_ref2 與 max_sim_ref3。

當 risk4 時，RF 的最佳模型反而表現較 BERT 模型佳，

使用的參照分別為 avg_sim_ref3 與 avg_sim_ref2。

當 risk3 時，BERT 的最佳模型表現較 RF 模型佳，

使用的參照分別為 max_sim_ref1 與 max_sim_ref3。

依照 accuracy 排序

risk5

隨機森林

```
##  [1] "Reference"       "Risk_level"      "Accuracy"        "Precision"
##  [5] "Recall"          "F1"              "Graded_precision" "Graded_recall"
##  [9] "FScore"          "file_name"
```

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
max_sim_ref3	risk5	0.437	0.274	0.320	0.263	0.767	0.504	0.608
avg_sim_ref2	risk5	0.417	0.236	0.285	0.224	0.663	0.529	0.589
avg_sim_ref3	risk5	0.411	0.366	0.281	0.222	0.653	0.525	0.582
avg_sim_ref1	risk5	0.404	0.163	0.276	0.205	0.685	0.496	0.575
max_sim_ref2	risk5	0.404	0.211	0.285	0.232	0.649	0.517	0.575
max_sim_ref1	risk5	0.391	0.247	0.295	0.255	0.656	0.492	0.562
max_sim_ref4	risk5	0.364	0.320	0.254	0.216	0.573	0.500	0.534
avg_sim_ref4	risk5	0.351	0.234	0.242	0.209	0.541	0.500	0.520

BERT

```
## [1] "Reference"       "Risk_level"      "Accuracy"        "Precision"
## [5] "Recall"          "F1"              "Graded_precision" "Graded_recall"
## [9] "FScore"          "file_name"
```

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
max_sim_ref2	risk5	0.464	0.458	0.352	0.315	0.654	0.614	0.633
avg_sim_ref1	risk5	0.457	0.466	0.350	0.316	0.670	0.590	0.627
avg_sim_ref3	risk5	0.450	0.458	0.355	0.308	0.654	0.591	0.621
max_sim_ref1	risk5	0.411	0.233	0.317	0.267	0.646	0.530	0.582
max_sim_ref3	risk5	0.411	0.220	0.304	0.253	0.639	0.534	0.582
max_sim_ref4	risk5	0.411	0.467	0.333	0.308	0.681	0.508	0.582
avg_sim_ref2	risk5	0.384	0.222	0.316	0.260	0.558	0.552	0.555
avg_sim_ref4	risk5	0.377	0.278	0.294	0.255	0.594	0.509	0.548

risk4

隨機森林

```
## [1] "Reference"       "Risk_level"      "Accuracy"        "Precision"
## [5] "Recall"          "F1"              "Graded_precision" "Graded_recall"
## [9] "FScore"          "file_name"
```

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
avg_sim_ref3	risk4	0.517	0.665	0.481	0.445	0.743	0.629	0.681
max_sim_ref3	risk4	0.464	0.524	0.423	0.402	0.654	0.614	0.633
avg_sim_ref1	risk4	0.457	0.380	0.417	0.371	0.734	0.548	0.627
max_sim_ref1	risk4	0.457	0.350	0.409	0.359	0.704	0.566	0.627
avg_sim_ref2	risk4	0.404	0.301	0.355	0.308	0.610	0.545	0.575
max_sim_ref2	risk4	0.404	0.315	0.360	0.318	0.629	0.530	0.575
avg_sim_ref4	risk4	0.384	0.393	0.348	0.329	0.500	0.624	0.555
max_sim_ref4	risk4	0.338	0.340	0.313	0.299	0.520	0.490	0.505

BERT

```
## [1] "Reference"       "Risk_level"      "Accuracy"        "Precision"
## [5] "Recall"          "F1"              "Graded_precision" "Graded_recall"
## [9] "FScore"          "file_name"
```

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
avg_sim_ref2	risk4	0.483	0.608	0.462	0.426	0.613	0.695	0.652
max_sim_ref1	risk4	0.483	0.509	0.462	0.436	0.619	0.689	0.652
max_sim_ref3	risk4	0.470	0.352	0.441	0.390	0.602	0.683	0.640
avg_sim_ref1	risk4	0.464	0.594	0.439	0.409	0.593	0.680	0.633
max_sim_ref4	risk4	0.464	0.597	0.450	0.415	0.619	0.648	0.633
avg_sim_ref3	risk4	0.457	0.530	0.442	0.417	0.575	0.690	0.627
max_sim_ref2	risk4	0.457	0.394	0.437	0.396	0.548	0.734	0.627

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
avg_sim_ref4	risk4	0.391	0.374	0.371	0.334	0.584	0.541	0.562

risk3

隨機森林

```
## [1] "Reference"      "Risk_level"    "Accuracy"        "Precision"
## [5] "Recall"         "F1"            "Graded_precision" "Graded_recall"
## [9] "FScore"         "file_name"
```

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
max_sim_ref3	risk3	0.603	0.600	0.554	0.563	0.820	0.695	0.752
avg_sim_ref2	risk3	0.589	0.609	0.527	0.534	0.864	0.650	0.742
avg_sim_ref3	risk3	0.576	0.564	0.528	0.532	0.784	0.685	0.731
max_sim_ref1	risk3	0.563	0.593	0.494	0.495	0.859	0.620	0.720
max_sim_ref2	risk3	0.563	0.518	0.494	0.489	0.810	0.649	0.720
avg_sim_ref1	risk3	0.536	0.514	0.474	0.472	0.779	0.633	0.698
avg_sim_ref4	risk3	0.483	0.453	0.435	0.435	0.709	0.603	0.652
max_sim_ref4	risk3	0.457	0.404	0.401	0.393	0.697	0.570	0.627

BERT

```
## [1] "Reference"      "Risk_level"    "Accuracy"        "Precision"
## [5] "Recall"         "F1"            "Graded_precision" "Graded_recall"
## [9] "FScore"         "file_name"
```

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
max_sim_ref1	risk3	0.636	0.631	0.647	0.633	0.733	0.828	0.777
avg_sim_ref2	risk3	0.616	0.613	0.616	0.608	0.715	0.816	0.762
avg_sim_ref3	risk3	0.616	0.604	0.609	0.604	0.738	0.788	0.762
avg_sim_ref1	risk3	0.589	0.586	0.593	0.581	0.685	0.809	0.742
max_sim_ref3	risk3	0.576	0.557	0.561	0.557	0.702	0.763	0.731
max_sim_ref2	risk3	0.570	0.560	0.575	0.556	0.662	0.804	0.726
max_sim_ref4	risk3	0.550	0.533	0.531	0.530	0.722	0.697	0.709
avg_sim_ref4	risk3	0.470	0.407	0.411	0.406	0.689	0.597	0.640

Select the best model by each risk level and metric

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
avg_sim_ref1	risk3	0.5364238	0.5137017	0.4740404	0.4718423	0.7788462	0.6328125	0.6982759
avg_sim_ref1	risk4	0.4569536	0.3797288	0.4165470	0.3710226	0.7340426	0.5476190	0.6272727
avg_sim_ref1	risk5	0.4039735	0.1630066	0.2755789	0.2045012	0.6853933	0.4959350	0.5754717

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
avg_sim_ref	risk3	0.5364238	0.5137017	0.4740404	0.4718423	0.7788462	0.6328125	0.6982759
avg_sim_ref	risk4	0.4569536	0.3797288	0.4165470	0.3710226	0.7340426	0.5476190	0.6272727
avg_sim_ref	risk5	0.4039735	0.1630066	0.2755789	0.2045012	0.6853933	0.4959350	0.5754717
avg_sim_ref	risk3	0.5364238	0.5137017	0.4740404	0.4718423	0.7788462	0.6328125	0.6982759
avg_sim_ref	risk4	0.4569536	0.3797288	0.4165470	0.3710226	0.7340426	0.5476190	0.6272727
avg_sim_ref	risk5	0.4039735	0.1630066	0.2755789	0.2045012	0.6853933	0.4959350	0.5754717
avg_sim_ref	risk3	0.5364238	0.5137017	0.4740404	0.4718423	0.7788462	0.6328125	0.6982759
avg_sim_ref	risk4	0.4569536	0.3797288	0.4165470	0.3710226	0.7340426	0.5476190	0.6272727
avg_sim_ref	risk5	0.4039735	0.1630066	0.2755789	0.2045012	0.6853933	0.4959350	0.5754717
avg_sim_ref	risk3	0.5364238	0.5137017	0.4740404	0.4718423	0.7788462	0.6328125	0.6982759
avg_sim_ref	risk4	0.4569536	0.3797288	0.4165470	0.3710226	0.7340426	0.5476190	0.6272727
avg_sim_ref	risk5	0.4039735	0.1630066	0.2755789	0.2045012	0.6853933	0.4959350	0.5754717
avg_sim_ref	risk3	0.5364238	0.5137017	0.4740404	0.4718423	0.7788462	0.6328125	0.6982759
avg_sim_ref	risk4	0.4569536	0.3797288	0.4165470	0.3710226	0.7340426	0.5476190	0.6272727
avg_sim_ref	risk5	0.4039735	0.1630066	0.2755789	0.2045012	0.6853933	0.4959350	0.5754717
avg_sim_ref	risk3	0.5364238	0.5137017	0.4740404	0.4718423	0.7788462	0.6328125	0.6982759
avg_sim_ref	risk4	0.4569536	0.3797288	0.4165470	0.3710226	0.7340426	0.5476190	0.6272727
avg_sim_ref	risk5	0.4039735	0.1630066	0.2755789	0.2045012	0.6853933	0.4959350	0.5754717

Reference	Risk_level	Accuracy	Precision	Recall	F1	Graded_precision	Graded_recall	FScore
avg_sim_ref	risk3	0.5894040	0.5855478	0.5931016	0.5810245	0.6846154	0.8090909	0.7416667
avg_sim_ref	risk4	0.4635762	0.5938667	0.4387640	0.4090375	0.5932203	0.6796117	0.6334842
avg_sim_ref	risk5	0.4569536	0.4664439	0.3498596	0.3161582	0.6699029	0.5897436	0.6272727
avg_sim_ref	risk3	0.5894040	0.5855478	0.5931016	0.5810245	0.6846154	0.8090909	0.7416667
avg_sim_ref	risk4	0.4635762	0.5938667	0.4387640	0.4090375	0.5932203	0.6796117	0.6334842
avg_sim_ref	risk5	0.4569536	0.4664439	0.3498596	0.3161582	0.6699029	0.5897436	0.6272727
avg_sim_ref	risk3	0.5894040	0.5855478	0.5931016	0.5810245	0.6846154	0.8090909	0.7416667
avg_sim_ref	risk4	0.4635762	0.5938667	0.4387640	0.4090375	0.5932203	0.6796117	0.6334842
avg_sim_ref	risk5	0.4569536	0.4664439	0.3498596	0.3161582	0.6699029	0.5897436	0.6272727
avg_sim_ref	risk3	0.5894040	0.5855478	0.5931016	0.5810245	0.6846154	0.8090909	0.7416667
avg_sim_ref	risk4	0.4635762	0.5938667	0.4387640	0.4090375	0.5932203	0.6796117	0.6334842
avg_sim_ref	risk5	0.4569536	0.4664439	0.3498596	0.3161582	0.6699029	0.5897436	0.6272727
avg_sim_ref	risk3	0.5894040	0.5855478	0.5931016	0.5810245	0.6846154	0.8090909	0.7416667
avg_sim_ref	risk4	0.4635762	0.5938667	0.4387640	0.4090375	0.5932203	0.6796117	0.6334842
avg_sim_ref	risk5	0.4569536	0.4664439	0.3498596	0.3161582	0.6699029	0.5897436	0.6272727
avg_sim_ref	risk3	0.5894040	0.5855478	0.5931016	0.5810245	0.6846154	0.8090909	0.7416667
avg_sim_ref	risk4	0.4635762	0.5938667	0.4387640	0.4090375	0.5932203	0.6796117	0.6334842
avg_sim_ref	risk5	0.4569536	0.4664439	0.3498596	0.3161582	0.6699029	0.5897436	0.6272727
avg_sim_ref	risk3	0.5894040	0.5855478	0.5931016	0.5810245	0.6846154	0.8090909	0.7416667
avg_sim_ref	risk4	0.4635762	0.5938667	0.4387640	0.4090375	0.5932203	0.6796117	0.6334842
avg_sim_ref	risk5	0.4569536	0.4664439	0.3498596	0.3161582	0.6699029	0.5897436	0.6272727