

RESULTS

	Task	Intent Recognition		Entity Extraction	
Language	Model	1mg	WebMD	1mg	WebMD
English	SVM	0.47	0.61	0.5	0.3
	RoBERTa	0.7	0.78	0.66	0.66
	BcBERT	0.71	0.77	0.58	0.66
Hindi	XLMR	0.58	0.67	0.42	0.39
	Back-translate	0.69	0.77	0.58	0.6
	Bridge	0.65	0.71	0.49	0.62

ANALYSIS

Intent Recognition :

1) *lr svm en* :

IHQID-1mg :

precision recall f1-score support

0	0.51	0.92	0.66	24
1	0.80	0.98	0.88	54
2	1.00	0.15	0.27	13
3	1.00	0.05	0.09	21

accuracy			0.70	112
macro avg	0.83	0.52	0.47	112
weighted avg	0.80	0.70	0.61	112

```
[[22 2 0 0]
 [ 1 53 0 0]
 [ 8 3 2 0]
 [12 8 0 1]]
```

IHQID-webmd :

	precision	recall	f1-score	support
0	0.69	0.66	0.68	76
1	0.66	0.66	0.66	53
2	0.58	0.77	0.66	73
3	0.68	0.33	0.45	39
accuracy			0.64	241
macro avg	0.65	0.60	0.61	241
weighted avg	0.65	0.64	0.63	241

```
[[50 5 18 3]
 [ 6 35 10 2]
 [ 8 8 56 1]
 [ 8 5 13 13]]
```

2) lr_rob_en :

IHQID-1mg :

	precision	recall	f1-score	support
0	0.68	0.88	0.76	24
1	0.91	0.98	0.95	54
2	0.75	0.23	0.35	13
3	0.79	0.71	0.75	21
accuracy			0.82	112
macro avg	0.78	0.70	0.70	112
weighted avg	0.82	0.82	0.80	112

```
[[21 1 1 1]
 [ 0 53 0 1]
 [ 6 2 3 2]
 [ 4 2 0 15]]
```

IHQID-WebMD :

	precision	recall	f1-score	support
0	0.89	0.71	0.79	76
1	0.71	0.94	0.81	53
2	0.82	0.75	0.79	73
3	0.70	0.77	0.73	39
accuracy			0.78	241
macro avg	0.78	0.79	0.78	241
weighted avg	0.80	0.78	0.78	241

[[54 11 6 5]
[1 50 1 1]
[6 5 55 7]
[0 4 5 30]]

3) lr_bcbert_en :

IHQID-1mg :

	precision	recall	f1-score	support
0	0.75	0.88	0.81	24
1	0.91	0.98	0.95	54
2	0.67	0.15	0.25	13
3	0.78	0.86	0.82	21
accuracy			0.84	112
macro avg	0.78	0.72	0.71	112
weighted avg	0.83	0.84	0.81	112

[[21 1 1 1]
[0 53 0 1]
[6 2 2 3]
[1 2 0 18]]

IHQID-WebMD :

	precision	recall	f1-score	support
0	0.79	0.75	0.77	76
1	0.87	0.75	0.81	53
2	0.82	0.79	0.81	73
3	0.60	0.79	0.68	39
accuracy			0.77	241
macro avg	0.77	0.77	0.77	241
weighted avg	0.78	0.77	0.77	241
[[57 1 5 13]				
[4 40 6 3]				
[7 3 58 5]				
[4 2 2 31]]				

4) lr_xlmr_hi :

1mg :

	precision	recall	f1-score	support
0	0.54	0.88	0.67	24
1	0.91	0.91	0.91	54
2	0.67	0.15	0.25	13
3	0.56	0.43	0.49	21
accuracy			0.72	112
macro avg	0.67	0.59	0.58	112
weighted avg	0.74	0.72	0.70	112
[[21 1 0 2]				
[2 49 0 3]				
[7 2 2 2]				
[9 2 1 9]]				

WebMD :

	precision	recall	f1-score	support
0	0.65	0.75	0.70	76
1	0.67	0.79	0.72	53
2	0.85	0.55	0.67	73
3	0.56	0.62	0.59	39
accuracy			0.68	241
macro avg	0.68	0.68	0.67	241
weighted avg	0.70	0.68	0.68	241

[[57 6 3 10]
[7 42 2 2]
[16 10 40 7]
[8 5 2 24]]

5) lr_trans_hi :

1mg :

	precision	recall	f1-score	support
0	0.72	0.88	0.79	24
1	0.92	1.00	0.96	54
2	0.50	0.15	0.24	13
3	0.80	0.76	0.78	21
accuracy			0.83	112
macro avg	0.73	0.70	0.69	112
weighted avg	0.80	0.83	0.80	112

[[21 1 1 1]
[0 54 0 0]
[6 2 2 3]
[2 2 1 16]]

WebMD :

	precision	recall	f1-score	support
0	0.80	0.79	0.79	76
1	0.81	0.83	0.82	53
2	0.76	0.73	0.74	73
3	0.69	0.74	0.72	39
accuracy			0.77	241
macro avg	0.77	0.77	0.77	241
weighted avg	0.77	0.77	0.77	241

[[60 2 6 8]
[1 44 7 1]
[11 5 53 4]
[3 3 4 29]]

6) Ir_bridge_hi:

1mg :

	precision	recall	f1-score	support
0	0.68	0.79	0.73	24
1	0.91	0.96	0.94	54
2	0.43	0.23	0.30	13
3	0.65	0.62	0.63	21
accuracy			0.78	112
macro avg	0.67	0.65	0.65	112
weighted avg	0.76	0.78	0.76	112

[[19 1 1 3]
[1 52 0 1]
[5 2 3 3]
[3 2 3 13]]

Web-MD :

	precision	recall	f1-score	support
0	0.74	0.75	0.75	76
1	0.68	0.74	0.71	53
2	0.80	0.59	0.68	73
3	0.60	0.82	0.70	39
accuracy			0.71	241
macro avg	0.71	0.72	0.71	241
weighted avg	0.72	0.71	0.71	241

[[57 2 4 13]
[5 39 7 2]
[11 13 43 6]
[4 3 0 32]]

Entity Extraction

1) ee svm en :

1mg :

	precision	recall	f1-score	support
0	0.87	0.94	0.91	745
1	0.50	0.25	0.33	60
2	1.00	0.12	0.21	17
3	0.70	0.86	0.77	56
4	0.78	0.77	0.78	101
5	0.67	0.11	0.19	18
6	0.75	0.18	0.29	17
accuracy			0.84	1014
macro avg	0.75	0.46	0.50	1014
weighted avg	0.83	0.84	0.82	1014

```
[[704 9 0 10 21 0 1]
 [ 42 15 0 3 0 0 0]
 [ 13 2 2 0 0 0 0]
 [ 7 0 0 48 1 0 0]
 [ 14 1 0 8 78 0 0]
 [ 15 1 0 0 0 2 0]
 [ 11 2 0 0 0 1 3]]
```

WebMD :

	precision	recall	f1-score	support
0	0.84	0.99	0.91	2045
1	0.62	0.16	0.26	160
2	0.36	0.06	0.10	83
3	0.65	0.19	0.30	89
4	0.60	0.13	0.21	46
5	0.00	0.00	0.00	52
6	0.80	0.21	0.33	38
accuracy			0.83	2513
macro avg	0.55	0.25	0.30	2513
weighted avg	0.78	0.83	0.78	2513


```
[[2019  8  8  5  3  0  2]
 [ 133 26  0  1  0  0  0]
 [  73  5  5  0  0  0  0]
 [  71  1  0 17  0  0  0]
 [  37  1  0  2  6  0  0]
 [  50  1  0  1  0  0  0]
 [  28  0  1  0  1  0  8]]
```

2) ee_rob_en:

1mg:

	precision	recall	f1-score	support
0	0.95	0.86	0.91	2511
1	0.54	0.69	0.61	121
2	0.44	0.73	0.55	181
3	0.48	0.84	0.61	64
4	0.54	0.75	0.63	166
5	0.77	0.74	0.76	46
6	0.68	0.44	0.54	95
accuracy			0.83	3184
macro avg	0.63	0.72	0.66	3184
weighted avg	0.87	0.83	0.84	3184

```
[[2172  47 128  47  93  8 16]
 [  24 84  8  4  1  0  0]
 [  26 13 133  0  6  1  2]
 [  6  1  0 54  2  1  0]
 [  25  1  7  7 124  0  2]
 [  4  7  0  1  0 34  0]
 [  21  3  26  0  3  0 42]]
```

WebMD :

	precision	recall	f1-score	support
0	0.93	0.90	0.91	2511
1	0.55	0.68	0.61	121
2	0.52	0.69	0.59	181
3	0.63	0.64	0.64	64
4	0.59	0.54	0.56	166
5	0.69	0.76	0.72	46
6	0.61	0.59	0.60	95
accuracy			0.84	3184
macro avg	0.64	0.68	0.66	3184
weighted avg	0.85	0.84	0.85	3184

```
[[2263 45 95 17 55 12 24]
 [ 29 82 5 2 0 2 1]
 [ 36 11 124 0 1 1 8]
 [ 19 2 0 41 2 0 0]
 [ 57 4 9 4 89 0 3]
 [ 7 3 0 1 0 35 0]
 [ 26 2 7 0 3 1 56]]
```

3) ee_bcbert_en :

1mg :

	precision	recall	f1-score	support
0	0.92	0.93	0.92	945
1	0.74	0.53	0.62	49
2	0.60	0.82	0.69	73
3	0.87	0.95	0.91	57
4	0.91	0.96	0.93	289
5	0.00	0.00	0.00	16
6	0.00	0.00	0.00	29
accuracy			0.89	1458
macro avg	0.58	0.60	0.58	1458
weighted avg	0.87	0.89	0.88	1458

```

[[878 5 26 7 29 0 0]
 [23 26 0 0 0 0 0]
 [11 2 60 0 0 0 0]
 [ 3 0 0 54 0 0 0]
 [10 0 0 1 278 0 0]
 [14 2 0 0 0 0 0]
 [15 0 14 0 0 0 0]]

```

WebMD :

	precision	recall	f1-score	support
0	0.92	0.90	0.91	2653
1	0.54	0.60	0.57	136
2	0.53	0.73	0.61	222
3	0.63	0.61	0.62	70
4	0.65	0.64	0.65	207
5	0.71	0.57	0.63	44
6	0.70	0.52	0.60	107
accuracy			0.84	3439
macro avg	0.67	0.65	0.66	3439
weighted avg	0.85	0.84	0.84	3439

```

[[2385 49 119 19 62 3 16]
 [ 49 81 3 1 0 2 0]
 [ 41 10 161 1 1 2 6]
 [ 22 1 0 43 2 2 0]
 [ 60 2 9 2 132 0 2]
 [ 11 6 0 2 0 25 0]
 [ 31 0 14 0 5 1 56]]

```

4) ee_xlmr_hi :

1mg :

	precision	recall	f1-score	support
0	0.91	0.93	0.92	1337
1	0.67	0.04	0.07	53
2	0.51	0.90	0.65	127
3	0.93	0.23	0.37	60
4	0.89	0.98	0.93	458
5	0.00	0.00	0.00	20
6	0.00	0.00	0.00	58
accuracy			0.86	2113
macro avg	0.56	0.44	0.42	2113
weighted avg	0.84	0.86	0.83	2113

```
[[1238  0  56  0  43  0  0]
 [ 41  2  10  0  0  0  0]
 [ 13  0 114  0  0  0  0]
 [ 40  0  0 14  6  0  0]
 [  3  0  4  1 450  0  0]
 [ 16  1  3  0  0  0  0]
 [ 16  0 36  0  6  0  0]]
```

WebMD :

	precision	recall	f1-score	support
0	0.86	0.91	0.88	3578
1	0.44	0.06	0.10	139
2	0.41	0.48	0.44	356
3	0.39	0.28	0.32	79
4	0.56	0.67	0.61	292
5	0.00	0.00	0.00	52
6	0.73	0.22	0.33	175
accuracy			0.79	4671
macro avg	0.48	0.37	0.39	4671
weighted avg	0.77	0.79	0.77	4671

```

[[3250  5 172 21 120  0 10]
 [116  8  8  3  3  0  1]
 [165  1 170  3 17  0  0]
 [ 48  1  1 22  7  0  0]
 [ 73  0 17  2 197  0  3]
 [ 42  3  1  6  0  0  0]
 [ 87  0 42  0  8  0 38]]

```

5) ee_dtrans_hi:

1mg:

	precision	recall	f1-score	support
0	0.94	0.92	0.93	964
1	0.62	0.67	0.64	43
2	0.57	0.93	0.71	54
3	0.85	0.94	0.89	53
4	0.87	0.96	0.91	269
5	0.00	0.00	0.00	15
6	0.00	0.00	0.00	27
accuracy			0.89	1425
macro avg	0.55	0.63	0.58	1425
weighted avg	0.88	0.89	0.88	1425

```

[[884 10 24  8 38  0  0]
 [14 29  0  0  0  0  0]
 [ 2  2 50  0  0  0  0]
 [ 2  1  0 50  0  0  0]
 [ 9  0  1 1258 0  0]
 [10  5  0  0  0  0  0]
 [15  0 12  0  0  0  0]]

```

WebMD :

	precision	recall	f1-score	support
0	0.92	0.90	0.91	2748
1	0.55	0.62	0.58	125
2	0.54	0.67	0.60	208
3	0.52	0.57	0.54	54
4	0.51	0.56	0.54	140
5	0.51	0.47	0.49	43
6	0.56	0.57	0.57	93
accuracy			0.84	3411
macro avg	0.59	0.62	0.60	3411
weighted avg	0.85	0.84	0.84	3411

```
[[2463 46 103 22 68 12 34]
 [ 41 77 1 2 0 4 0]
 [ 51 9 140 1 1 1 5]
 [ 18 2 0 31 1 2 0]
 [ 56 0 2 1 79 0 2]
 [ 16 5 0 2 0 20 0]
 [ 21 0 13 1 5 0 53]]
```

6) ee bridge hi :

1mg :

	precision	recall	f1-score	support
0	0.90	0.89	0.89	1049
1	0.58	0.38	0.46	39
2	0.61	0.83	0.71	59
3	0.63	0.69	0.66	35
4	0.61	0.78	0.68	166
5	0.00	0.00	0.00	14
6	0.00	0.00	0.00	24
accuracy			0.83	1386
macro avg	0.48	0.51	0.49	1386
weighted avg	0.81	0.83	0.82	1386

```

[[929  4 20 13 83  0  0]
 [ 24 15  0  0  0  0  0]
 [  8  2 49  0  0  0  0]
 [ 10  1  0 24  0  0  0]
 [ 33  0  3  1 129  0  0]
 [ 10  4  0  0  0  0  0]
 [ 16  0  8  0  0  0  0]]

```

WebMD :

	precision	recall	f1-score	support
0	0.93	0.91	0.92	2778
1	0.54	0.51	0.52	103
2	0.54	0.67	0.60	161
3	0.50	0.56	0.53	52
4	0.51	0.58	0.54	142
5	0.57	0.62	0.59	39
6	0.60	0.64	0.62	88
accuracy			0.85	3363
macro avg	0.60	0.64	0.62	3363
weighted avg	0.86	0.85	0.86	3363

```

[[2516 37 82 23 74 12 34]
 [ 44 53  2  2  0  2  0]
 [ 42  6 108  0  2  2  1]
 [ 19  2  0 29  1  1  0]
 [ 54  0  2  2 82  0  2]
 [ 13  0  0  2  0 24  0]
 [ 24  1  5  0  1  1 56]]

```