Entering function \_\_main\_\_

Embedding tokens size=400001

File name 4way\_tur\_ger\_rus\_usa25-150. Total data size is 200000

Our 4 labels to index dictionary ={u'turkey': 2, u'germany': 0, u'russia': 1, u'us': 3}

Our 4 index to labels dictionary ={0: u'germany', 1: u'russia', 2: u'turkey', 3: u'us'}

x\_train: 162000, x\_dev: 18000, x\_test: 20000

y\_train: 162000, y\_dev: 18000, y\_test: 20000

input\_data\_x\_batch shape: (200, 150)

input\_labels\_batch shape: (200, 4)

gru\_forward\_cell units: 300

gru\_backward\_cell units: 300

---vars name and shapes---

(u'bidirectional\_rnn/fw/gru\_cell/gates/kernel:0', TensorShape([Dimension(350), Dimension(600)]), 210000)

(u'bidirectional\_rnn/fw/gru\_cell/gates/bias:0', TensorShape([Dimension(600)]), 600)

(u'bidirectional\_rnn/fw/gru\_cell/candidate/kernel:0', TensorShape([Dimension(350), Dimension(300)]), 105000)

(u'bidirectional\_rnn/fw/gru\_cell/candidate/bias:0', TensorShape([Dimension(300)]), 300)

(u'bidirectional\_rnn/bw/gru\_cell/gates/kernel:0', TensorShape([Dimension(350), Dimension(600)]), 210000)

(u'bidirectional\_rnn/bw/gru\_cell/gates/bias:0', TensorShape([Dimension(600)]), 600)

(u'bidirectional\_rnn/bw/gru\_cell/candidate/kernel:0', TensorShape([Dimension(350), Dimension(300)]), 105000)

(u'bidirectional\_rnn/bw/gru\_cell/candidate/bias:0', TensorShape([Dimension(300)]), 300)

(u'weight:0', TensorShape([Dimension(600), Dimension(4)]), 2400)

(u'bias:0', TensorShape([Dimension(4)]), 4)

total PARAM 634,204

---done vars---

Epoch: 1/20 ---- best so far on epoch 0: acc=0.0000%

DEV accuracy on epoch 1/20 in train step 0 = 24.9222%

Class turkey : (0/4476) -> accuracy: 0.0000%

Class germany: (4486/4486) -> accuracy: 100.0000%

Class russia : (0/4511) -> accuracy: 0.0000%

Class us : (0/4527) -> accuracy: 0.0000%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 1

INFO:root: Best accuracy 24.9222% at epoch 1/20 (4486/18000)

DEV accuracy on epoch 1/20 in train step 405 = 24.8611%

Class turkey : (4475/4476) -> accuracy: 99.9777%

Class germany: (0/4486) -> accuracy: 0.0000%

Class russia : (0/4511) -> accuracy: 0.0000%

Class us : (0/4527) -> accuracy: 0.0000%

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Epoch: 2/20 ---- best so far on epoch 1: acc=24.9222%

DEV accuracy on epoch 2/20 in train step 0 = 25.0833%

Class turkey : (0/4476) -> accuracy: 0.0000%

Class germany: (5/4486) -> accuracy: 0.1115%

Class russia : (4507/4511) -> accuracy: 99.9113%

Class us : (3/4527) -> accuracy: 0.0663%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 2

INFO:root: Best accuracy 25.0833% at epoch 2/20 (4515/18000)

DEV accuracy on epoch 2/20 in train step 405 = 24.8722%

Class turkey : (4476/4476) -> accuracy: 100.0000%

Class germany: (1/4486) -> accuracy: 0.0223%

Class russia : (0/4511) -> accuracy: 0.0000%

Class us : (0/4527) -> accuracy: 0.0000%

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Epoch: 3/20 ---- best so far on epoch 2: acc=25.0833%

DEV accuracy on epoch 3/20 in train step 0 = 31.7722%

Class turkey : (0/4476) -> accuracy: 0.0000%

Class germany: (3091/4486) -> accuracy: 68.9033%

Class russia : (2627/4511) -> accuracy: 58.2354%

Class us : (1/4527) -> accuracy: 0.0221%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 3

INFO:root: Best accuracy 31.7722% at epoch 3/20 (5719/18000)

DEV accuracy on epoch 3/20 in train step 405 = 49.4944%

Class turkey : (2691/4476) -> accuracy: 60.1206%

Class germany: (957/4486) -> accuracy: 21.3330%

Class russia : (2072/4511) -> accuracy: 45.9322%

Class us : (3189/4527) -> accuracy: 70.4440%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 3

INFO:root: Best accuracy 49.4944% at epoch 3/20 (8909/18000)

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Epoch: 4/20 ---- best so far on epoch 3: acc=49.4944%

DEV accuracy on epoch 4/20 in train step 0 = 56.5833%

Class turkey : (2829/4476) -> accuracy: 63.2038%

Class germany: (2361/4486) -> accuracy: 52.6304%

Class russia : (2624/4511) -> accuracy: 58.1689%

Class us : (2371/4527) -> accuracy: 52.3746%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 4

INFO:root: Best accuracy 56.5833% at epoch 4/20 (10185/18000)

DEV accuracy on epoch 4/20 in train step 405 = 57.1056%

Class turkey : (3349/4476) -> accuracy: 74.8213%

Class germany: (1704/4486) -> accuracy: 37.9848%

Class russia : (2514/4511) -> accuracy: 55.7304%

Class us : (2712/4527) -> accuracy: 59.9072%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 4

INFO:root: Best accuracy 57.1056% at epoch 4/20 (10279/18000)

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Epoch: 5/20 ---- best so far on epoch 4: acc=57.1056%

DEV accuracy on epoch 5/20 in train step 0 = 59.0833%

Class turkey : (3001/4476) -> accuracy: 67.0465%

Class germany: (2592/4486) -> accuracy: 57.7798%

Class russia : (2583/4511) -> accuracy: 57.2600%

Class us : (2459/4527) -> accuracy: 54.3185%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 5

INFO:root: Best accuracy 59.0833% at epoch 5/20 (10635/18000)

DEV accuracy on epoch 5/20 in train step 405 = 59.6333%

Class turkey : (3052/4476) -> accuracy: 68.1859%

Class germany: (2198/4486) -> accuracy: 48.9969%

Class russia : (2791/4511) -> accuracy: 61.8710%

Class us : (2693/4527) -> accuracy: 59.4875%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 5

INFO:root: Best accuracy 59.6333% at epoch 5/20 (10734/18000)

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Epoch: 6/20 ---- best so far on epoch 5: acc=59.6333%

DEV accuracy on epoch 6/20 in train step 0 = 60.0167%

Class turkey : (2993/4476) -> accuracy: 66.8677%

Class germany: (2709/4486) -> accuracy: 60.3879%

Class russia : (2660/4511) -> accuracy: 58.9670%

Class us : (2441/4527) -> accuracy: 53.9209%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 6

INFO:root: Best accuracy 60.0167% at epoch 6/20 (10803/18000)

DEV accuracy on epoch 6/20 in train step 405 = 60.5944%

Class turkey : (3110/4476) -> accuracy: 69.4817%

Class germany: (2346/4486) -> accuracy: 52.2960%

Class russia : (2892/4511) -> accuracy: 64.1100%

Class us : (2559/4527) -> accuracy: 56.5275%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 6

INFO:root: Best accuracy 60.5944% at epoch 6/20 (10907/18000)

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Epoch: 7/20 ---- best so far on epoch 6: acc=60.5944%

DEV accuracy on epoch 7/20 in train step 0 = 60.6722%

Class turkey : (3170/4476) -> accuracy: 70.8222%

Class germany: (2671/4486) -> accuracy: 59.5408%

Class russia : (2790/4511) -> accuracy: 61.8488%

Class us : (2290/4527) -> accuracy: 50.5854%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 7

INFO:root: Best accuracy 60.6722% at epoch 7/20 (10921/18000)

DEV accuracy on epoch 7/20 in train step 405 = 61.0222%

Class turkey : (2986/4476) -> accuracy: 66.7113%

Class germany: (2499/4486) -> accuracy: 55.7066%

Class russia : (2816/4511) -> accuracy: 62.4252%

Class us : (2683/4527) -> accuracy: 59.2666%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 7

INFO:root: Best accuracy 61.0222% at epoch 7/20 (10984/18000)

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Epoch: 8/20 ---- best so far on epoch 7: acc=61.0222%

DEV accuracy on epoch 8/20 in train step 0 = 60.8000%

Class turkey : (3098/4476) -> accuracy: 69.2136%

Class germany: (2682/4486) -> accuracy: 59.7860%

Class russia : (2728/4511) -> accuracy: 60.4744%

Class us : (2436/4527) -> accuracy: 53.8105%

DEV accuracy on epoch 8/20 in train step 405 = 60.8444%

Class turkey : (3020/4476) -> accuracy: 67.4710%

Class germany: (2698/4486) -> accuracy: 60.1427%

Class russia : (2875/4511) -> accuracy: 63.7331%

Class us : (2359/4527) -> accuracy: 52.1096%

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Epoch: 9/20 ---- best so far on epoch 7: acc=61.0222%

DEV accuracy on epoch 9/20 in train step 0 = 61.0444%

Class turkey : (3035/4476) -> accuracy: 67.8061%

Class germany: (2681/4486) -> accuracy: 59.7637%

Class russia : (2842/4511) -> accuracy: 63.0016%

Class us : (2430/4527) -> accuracy: 53.6779%

INFO:root: Saved model ../model\_temp/model.ckpt at epoch 9

INFO:root: Best accuracy 61.0444% at epoch 9/20 (10988/18000)

DEV accuracy on epoch 9/20 in train step 405 = 60.5667%

Class turkey : (3101/4476) -> accuracy: 69.2806%

Class germany: (2664/4486) -> accuracy: 59.3848%

Class russia : (2977/4511) -> accuracy: 65.9942%

Class us : (2160/4527) -> accuracy: 47.7137%

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Epoch: 10/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 10/20 in train step 0 = 60.9722%

Class turkey : (2999/4476) -> accuracy: 67.0018%

Class germany: (2405/4486) -> accuracy: 53.6112%

Class russia : (2989/4511) -> accuracy: 66.2603%

Class us : (2582/4527) -> accuracy: 57.0356%

DEV accuracy on epoch 10/20 in train step 405 = 60.0111%

Class turkey : (2954/4476) -> accuracy: 65.9964%

Class germany: (2781/4486) -> accuracy: 61.9929%

Class russia : (2977/4511) -> accuracy: 65.9942%

Class us : (2090/4527) -> accuracy: 46.1674%

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Epoch: 11/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 11/20 in train step 0 = 60.4333%

Class turkey : (3066/4476) -> accuracy: 68.4987%

Class germany: (2212/4486) -> accuracy: 49.3090%

Class russia : (2912/4511) -> accuracy: 64.5533%

Class us : (2688/4527) -> accuracy: 59.3771%

DEV accuracy on epoch 11/20 in train step 405 = 59.4056%

Class turkey : (2752/4476) -> accuracy: 61.4835%

Class germany: (2734/4486) -> accuracy: 60.9452%

Class russia : (3169/4511) -> accuracy: 70.2505%

Class us : (2038/4527) -> accuracy: 45.0188%

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Epoch: 12/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 12/20 in train step 0 = 59.6556%

Class turkey : (2857/4476) -> accuracy: 63.8293%

Class germany: (2232/4486) -> accuracy: 49.7548%

Class russia : (2793/4511) -> accuracy: 61.9153%

Class us : (2856/4527) -> accuracy: 63.0881%

DEV accuracy on epoch 12/20 in train step 405 = 58.0889%

Class turkey : (2613/4476) -> accuracy: 58.3780%

Class germany: (2591/4486) -> accuracy: 57.7575%

Class russia : (3437/4511) -> accuracy: 76.1915%

Class us : (1815/4527) -> accuracy: 40.0928%

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Epoch: 13/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 13/20 in train step 0 = 58.7000%

Class turkey : (2588/4476) -> accuracy: 57.8195%

Class germany: (2230/4486) -> accuracy: 49.7102%

Class russia : (2752/4511) -> accuracy: 61.0064%

Class us : (2996/4527) -> accuracy: 66.1807%

DEV accuracy on epoch 13/20 in train step 405 = 58.6111%

Class turkey : (2720/4476) -> accuracy: 60.7685%

Class germany: (2267/4486) -> accuracy: 50.5350%

Class russia : (3293/4511) -> accuracy: 72.9993%

Class us : (2270/4527) -> accuracy: 50.1436%

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Epoch: 14/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 14/20 in train step 0 = 58.4722%

Class turkey : (2556/4476) -> accuracy: 57.1046%

Class germany: (2355/4486) -> accuracy: 52.4967%

Class russia : (2801/4511) -> accuracy: 62.0927%

Class us : (2813/4527) -> accuracy: 62.1383%

DEV accuracy on epoch 14/20 in train step 405 = 58.4056%

Class turkey : (2872/4476) -> accuracy: 64.1644%

Class germany: (2225/4486) -> accuracy: 49.5988%

Class russia : (2832/4511) -> accuracy: 62.7799%

Class us : (2584/4527) -> accuracy: 57.0797%

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Epoch: 15/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 15/20 in train step 0 = 57.6611%

Class turkey : (2495/4476) -> accuracy: 55.7417%

Class germany: (2462/4486) -> accuracy: 54.8819%

Class russia : (3213/4511) -> accuracy: 71.2259%

Class us : (2209/4527) -> accuracy: 48.7961%

DEV accuracy on epoch 15/20 in train step 405 = 57.7389%

Class turkey : (2877/4476) -> accuracy: 64.2761%

Class germany: (2469/4486) -> accuracy: 55.0379%

Class russia : (2562/4511) -> accuracy: 56.7945%

Class us : (2485/4527) -> accuracy: 54.8929%

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Epoch: 16/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 16/20 in train step 0 = 57.3944%

Class turkey : (2558/4476) -> accuracy: 57.1492%

Class germany: (2556/4486) -> accuracy: 56.9773%

Class russia : (3165/4511) -> accuracy: 70.1618%

Class us : (2052/4527) -> accuracy: 45.3280%

DEV accuracy on epoch 16/20 in train step 405 = 57.5667%

Class turkey : (2673/4476) -> accuracy: 59.7185%

Class germany: (2546/4486) -> accuracy: 56.7543%

Class russia : (2776/4511) -> accuracy: 61.5385%

Class us : (2367/4527) -> accuracy: 52.2863%

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Epoch: 17/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 17/20 in train step 0 = 57.1000%

Class turkey : (2655/4476) -> accuracy: 59.3164%

Class germany: (2424/4486) -> accuracy: 54.0348%

Class russia : (2932/4511) -> accuracy: 64.9967%

Class us : (2267/4527) -> accuracy: 50.0773%

DEV accuracy on epoch 17/20 in train step 405 = 57.1889%

Class turkey : (2637/4476) -> accuracy: 58.9142%

Class germany: (2408/4486) -> accuracy: 53.6781%

Class russia : (2916/4511) -> accuracy: 64.6420%

Class us : (2333/4527) -> accuracy: 51.5352%

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Epoch: 18/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 18/20 in train step 0 = 57.0944%

Class turkey : (2667/4476) -> accuracy: 59.5845%

Class germany: (2367/4486) -> accuracy: 52.7642%

Class russia : (2777/4511) -> accuracy: 61.5606%

Class us : (2466/4527) -> accuracy: 54.4732%

DEV accuracy on epoch 18/20 in train step 405 = 57.1278%

Class turkey : (2642/4476) -> accuracy: 59.0259%

Class germany: (2260/4486) -> accuracy: 50.3790%

Class russia : (2884/4511) -> accuracy: 63.9326%

Class us : (2497/4527) -> accuracy: 55.1579%

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Epoch: 19/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 19/20 in train step 0 = 57.1722%

Class turkey : (2751/4476) -> accuracy: 61.4611%

Class germany: (2439/4486) -> accuracy: 54.3691%

Class russia : (3073/4511) -> accuracy: 68.1224%

Class us : (2028/4527) -> accuracy: 44.7979%

DEV accuracy on epoch 19/20 in train step 405 = 56.7389%

Class turkey : (2809/4476) -> accuracy: 62.7569%

Class germany: (2072/4486) -> accuracy: 46.1881%

Class russia : (2957/4511) -> accuracy: 65.5509%

Class us : (2375/4527) -> accuracy: 52.4630%

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Epoch: 20/20 ---- best so far on epoch 9: acc=61.0444%

DEV accuracy on epoch 20/20 in train step 0 = 56.3833%

Class turkey : (2912/4476) -> accuracy: 65.0581%

Class germany: (2364/4486) -> accuracy: 52.6973%

Class russia : (3039/4511) -> accuracy: 67.3687%

Class us : (1834/4527) -> accuracy: 40.5125%

DEV accuracy on epoch 20/20 in train step 405 = 56.8167%

Class turkey : (2869/4476) -> accuracy: 64.0974%

Class germany: (2279/4486) -> accuracy: 50.8025%

Class russia : (2874/4511) -> accuracy: 63.7109%

Class us : (2205/4527) -> accuracy: 48.7078%

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\*\*\*Training is complete. Best accuracy 61.0444% at epoch 9/20

\*\*\*Testing...

INFO:tensorflow:Restoring parameters from ../model\_temp/model.ckpt

INFO:tensorflow:Restoring parameters from ../model\_temp/model.ckpt

Accuracy on test set - (12156/20000) -> accuracy: 60.7800%

Class turkey : (3478/5094) -> accuracy: 68.2764%

Class germany: (3048/5032) -> accuracy: 60.5723%

Class russia : (3060/4995) -> accuracy: 61.2613%

Class us : (2570/4879) -> accuracy: 52.6747%

End summary ----------------------

data:

DATA\_FILE\_PATH is ../input/4way\_tur\_ger\_rus\_usa25-150.txt

MINIMUM\_ROW\_LENGTH is 25

MAXIMUM\_ROW\_LENGTH is 150

COUNT\_WORD is 20

lines\_per\_class is 50000

number of classes is 4

Total data size is 200000

embedding:

EMB\_FILE\_PATH ../input/glove.6B.50d.txt

EMB\_DIM 50

EMB\_WORDS\_COUNT 400001

run config:

EPOCHS 20

evaluating on dev data 2 times per epoch

KEEP\_PROB 0.5

BATCH\_SIZE 200

LSTM\_HIDDEN\_UNITS 300

LSTM\_CELL\_TYPE GRU

optimizer is adamOptimizer - learn rate: 0.001

model:

USE\_TMP\_FOLDER True

mdl\_path ../model\_temp/model.ckpt

results:

best training acc at epoch=9 is 61.0444444444

testing acc 60.78

Time(HH:MM:SS): 02:39:24

Leaving function \_\_main\_\_