**NLP – Ex3**

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**Q2**

b. Our accuracy on the dev set is 92.6%

**Q3**

c. We incorporated a few optimizations in our implementation:

- When extracting features for position i, we first extracted features with “mock” tags of ‘#’ (for extracting the features related to the input words like prev\_word, prefixes etc.). Then, for each prev\_tag and prevprev\_tag we just updated the features dictionary with the correct tags and saved if separately.

- We predicted scores for all t, u, v options in specific position i with one call to logreg.predict\_log\_proba(). It seems that it does its own optimizations such that predicting score for one example and for multiple examples together takes pretty much the same time. Then, when calculating the score for each t, u, v triplet we took the proper score from the predicted scores.

- for each k, u, v we took the maximum score (and back pointer) in-place, without going over all possibilities of t after all evaluations.

d. Our accuracy on the dev set is 95.89% with the Viterbi algorithm and 95.87 with the greedy algorithm