Write Up - Implementing the Viterbi Algorithm

The task given was to implement the Viterbi algorithm by using the data of tag transition probabilities and word emission probablities from earlier assignments.

I used the following files for the Assignment:

1) 111603009-bigram-tag-prob.txt
2) 111603009-word-tag-prob.txt
3) 111603009-Assign3_Viterbi_Input.txt
4) 111603009-Assign3_Viterbi_Output.txt

Following was the approach I used :

1.Read file 2) and formed a dictionary dict1 to store the word emission probabilities.
2.Read file 1) and formed a dictionary dict2 to store the tag transition probabilities.
3.Formed the set of used tags C to be used later
4.Added the Unknown Word Tag 'UNK' to C
5.Read the Input to be tagged from file 3)
6.Called the Viterbi function with dict1, dict2, C and a sentence
7.The Viterbi function outputted a tagged sentence and wrote to file 4)

There was a doubt initially regarding how the algorithm is to be implemented which were cleared when the concerned material was shared in the lab session. So I did not feel the need to discuss the assignment with anyone.

Statistics

I gave 7 sentences as Input to my code which outputted 7 tagged sentences. Following are the observed statistics:

Tag	True Positive	False Negative	False Negative
N_NNP	2	0	0
N_NN	13	2	2
N_NST	1	0	0
PR_PRP	3	1	0
QT_QTC	2	0	0
V_VM	6	0	3
J_JJ	3	1	0
RD_RDF	1	0	1
RB	2	0	0
CC_CCD	1	0	0
DM_DMD	1	0	0
UNE	0	0	1
V_VAUX	0	2	0