

## Report: PS5

We worked together to implement a Hidden Markov Model (HMM) for Part of Speech (POS) tagging, in Java. We set up the POS class and created transition and observation maps to track frequencies of POS tag transitions and word occurrences. Firdavs focused on developing the `viterbiAlgorithm` method, which utilizes the Viterbi algorithm to predict the sequence of POS tags for a given sentence. Dhanush did the `NFAtrain` method, which reads training files containing POS tags and sentences, updating the transition and observation maps accordingly.

We worked collaboratively on the `readFiles` method to process test files and assess POS tagging accuracy using the Viterbi algorithm. Both of us participated in testing the model with defined training data using the `hardCoded` method generating predicted POS tags for specific sentences. Lastly, we collaborated on integrating console testing into the method enabling users to input sentences, for real time POS tagging.