CS626: Assignment Discussion and Demo: Final

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HMM based POS tagging

- Overall accuracy   0.9468
- Precision   0.88045
- F0.5_score   0.89389
- F1_score   0.88492
- F2_score   0.88139

HMM based POS tagging

Demo sentences-

I   have   a   dog   .

['PRON', 'VERB', 'DET', 'NOUN']

I   play   .

['PRON', 'NOUN']

The State Bank of   India   is   the

['DET', 'NOUN', 'NOUN', 'ADP', 'NOUN', 'VERB', 'DET'

largest bank   in   the country.

'ADJ,   'NOUN', 'ADP', 'DET', 'NOUN']

Overlap based WSD

(For the following test sentences, the POS tag of the word has been used to filter the senses of the word)

1. I went to the bank(N) to withdraw some money.

2. I went to the bank(N) to have a bath in the river.

   Predicted sense: depository_financial_institution.n.01

   Gloss: a financial institution that accepts deposits and channels the money into lending activities

   Examples: 'he cashed a check at the bank', 'that bank holds the mortgage on my home'

   Actual sense(1): depository_financial_institution.n.01

   Actual sense(2): bank.n.01 -> sloping land (especially the slope beside a body of water)

2. The school(N) is seeing return of students.

Predicted sense: school.n.06

Gloss: an educational institution's faculty and students

Examples: 'the school keeps parents informed', 'the whole school turned out for the game'

Actual sense: school.n.06

The school(N) of fish is swimming past the island.

Predicted sense: school.n.07

Gloss: a large group of fish

Examples: 'a school of small glittering fish swam by'

Actual sense: school.n.07

Precision - 0.2972, Recall - 0.2940

HMM based WSD

For HMM based WSD initially we were considering all the sense and tags ,due to which our model was take long time to execute

Considering only senses of word that are present in sentence we got the following result-

Precision- 0.3842

Recall-0.2143

F1 score-0.2353

SVM based NEI

P, R, F, Accuracy

- Precision: 0.8912799706500112
- Recall: 0.8923007281100408
- f1score: 0.891790057286208
- f2score: 0.8920963896137768

SVM based NEI

Demo Output-

"The State Bank of India is the largest bank in the country"
 0 1 1 1 1 0 0 0 0 0 0 0 "

– "Pushpak Bhattacharyya teaches us CS626"-->
  "1 1 0 0 1 "

– "India got its freedom on 15th August 1947" -->
   "1 0 0 0 0 1 1 1 "

SVM based NEI

Demo Output-

- "India got its freedom on 15-8-1947" --> "1 0 0 0 0 1"

- "India got its freedom on 15/8/1947" --> "1 0 0 0 0 1"

- "India got its freedom on 15.8.1947" --> "1 0 0 0 0"