# LING 572 Hw6 (MaxEnt decoder)
# Due: 11pm on Feb 15, 2023
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**Q1 (5 points):** Run the Mallet MaxEnt learner (i.e., the trainer's name is MaxEnt) with **train2.vectors.txt** as the training data and **test2.vectors.txt** as the test data.

- Commands used:
  1. mallet import-svmlight –input /dropbox/22-23/572/hw6/examples/train2.vectors.txt –output train2.vectors

  2. mallet import-svmlight –input /dropbox/22-23/572/hw6/examples/test2.vectors.txt –output test2.vectors –use-pipe-from train2.vectors

  3. vectors2classify –training-file train2.vectors –testing-file test2.vectors –output-classifier q1/m1 –trainer MaxEnt >maxent.stdout 2>maxent.stderr
  4. classifier2info –classifier q1/m1 > q1/m1.txt

(b) 1. train accuracy = 0.9685
2. test accuracy = 0.82666

**Q2 (25 points):** Write a MaxEnt classifier, called **maxent_classify.sh**, that classifies test data given a MaxEnt model learned from training data.

- The format is: maxent_classify.sh test_data model_file sys_output > acc_file
- Run "maxent_classify.sh test2.vectors.txt q1/m1.txt q2/res > q2/acc".
- Yes the test accuracy is 0.8266 which is the same as in Q1

**Q3 (15 points):** Write a script, calc_emp_exp.sh, to calculate empiricial expectation.

- Run "calc_emp_exp.sh train2.vectors.txt q3/emp_count" and include q3/emp_count in your submission.

**Q4 (30 points):** Write a script, calc_model_exp.sh, to calculate model expectation.

- Run "calc_model_exp.sh train2.vectors.txt q4/model_count q1/m1.txt" and include q4/model_count in your submission.
- Run "calc_model_exp.sh train2.vectors.txt q4/model_count2" and include q4/model_count2 in your submission.

**Submission:** Submit the following to Canvas:

- Your note file *readme.(txt | pdf)* that includes your answers to Q1 and Q2 and any notes that you want the TA to read.
- hw.tar.gz that includes all the files specified in dropbox/22-23/572/hw6/submit-file-list, plus any source code (and binary code) used by the shell scripts.
- Make sure that you run **check_hw6.sh** before submitting your hw.tar.gz.