## Submitted by: Ashish Jain

HomeWork-2B

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| **No. Words** | **Training Time (seconds)** | **Error Rate (%)** | **Avg. Conditional Log Likelihood** |
| 50 | 80.72 | 13.96 | -4.132 |
| 100 | 175.92 | 7.95 | -2.265 |
| 150 | 276.81 | 6.01 | -2.069 |
| 200 | 379.64 | 6.29 | -2.301 |
| 250 | 512.43 | 5.18 | -1.988 |
| 300 | 642.34 | 4.44 | -1.803 |
| 350 | 815.14 | 4.25 | -1.792 |
| 400 | 956.71 | 3.23 | -1.417 |

**Important Notes:**

* I used python for the implementation using numpy vectorization and l\_bfgs optimizer from scipy.
* Training time is high as compared to Matlab implementation because Matlab is by default connected to BLAS library which do fast and efficient computation thus saving substantial time.

**Question 1.**

**Question 2.**

**Question 3.**