CS224N: NATURAL LANGUAGE PROCESSING WITH DEEP LEARNING
ASSIGNMENT #3

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1. (a) (i) Example 1: "Stanford is great." - where "Stanford" could refer to Stanford University (organization) or a person with last name Stanford (person).
Example 2: "I am going to Stanford." - where "Stanford could refer to Stanford Unviersity (organization) or Stanford, California (location).

   (ii) Because the features apart from the word itself could provide context that could remove ambiguity from the named entity.

   (iii) Feature 1: the feature "in" that immediately preceded a word could be helpful for identifying the word as a location.
Feature 2: an action verb that immediately succeeded a word could be helpful for identifying the word as a named entity.

   (b) (i) The dimensions are:

$$\boldsymbol{e}^{(t)} \in \mathbb{R}^{1\times D(2w+1)}$$
$$W \in \mathbb{R}^{D(2w+1)\times H}$$
$$U \in \mathbb{R}^{H\times C}$$

   (ii) The computational complexity of predicting labels for a sentence of length T is $\mathcal{O}(T(D(2w+1)H+HC))$.

   (c)

   (d)

2. (a)

   (b)

   (c)

   (d)

   (e)

   (f)

   (g)

3. (a)

   (b)

   (c)

   (d)

   (e)

   (f)