Your grade: 100%

Your latest: **100%** • Your highest: **100%**
To pass you need at least 80%. We keep your highest score.

Next item →

1. True/False: Suppose you learn a word embedding for a vocabulary of 60000 words. Then the embedding vectors could be 60000 dimensional, so as to capture the full range of variation and meaning in those words. **1 / 1 point**

- (●) False
- ( ) True

Correct
No, the dimension of word vectors is usually smaller than the size of the vocabulary. Most common sizes for word vectors range between 50 and 1000.

2. What is t-SNE? **1 / 1 point**

- ( ) A linear transformation that allows us to solve analogies on word vectors
- (●) A non-linear dimensionality reduction technique
- ( ) A supervised learning algorithm for learning word embeddings
- ( ) An open-source sequence modeling library

Correct
Yes

3. Suppose you download a pre-trained word embedding which has been trained on a huge corpus of text. You then use this word embedding to train an RNN for a language task of recognizing if someone is happy from a short snippet of text, using a small training set. **1 / 1 point**

x (input text)	y (happy?)
I'm feeling wonderful today!	1
I'm bummed my cat is ill.	0
Really enjoying this!	1

Then even if the word “ecstatic” does not appear in your small training set, your RNN might reasonably be expected to recognize “I’m ecstatic” as deserving a label $y = 1$.

- (●) True
- ( ) False

Correct
Yes, word vectors empower your model with an incredible ability to generalize. The vector for “ecstatic” would contain a positive/happy connotation which will probably make your model classify the sentence as a "1".

4. Which of these equations do you think should hold for a good word embedding? (Check all that apply) **1 / 1 point**

- [ ] $e_{man} - e_{aunt} \approx e_{woman} - e_{uncle}$
- [x] $e_{man} - e_{woman} \approx e_{uncle} - e_{aunt}$

Correct
The order of words is correct in this analogy.

- [ ] $e_{man} - e_{woman} \approx e_{aunt} - e_{uncle}$
- [x] $e_{man} - e_{uncle} \approx e_{woman} - e_{aunt}$

Correct
The order of words is correct in this analogy.

5. Let E be an embedding matrix, and let o_{1234} be a one-hot vector corresponding to word 1234. Then to get the embedding of word 1234, why don't we call $E * o_{1234}$ in Python? **1 / 1 point**

- (•) It is computationally wasteful.
- ( ) This doesn't handle unknown words (<UNK>).
- ( ) The correct formula is $E^T * o_{1234}$.
- ( ) None of the above: calling the Python snippet as described above is fine.

Correct
Yes, the element-wise multiplication will be extremely inefficient.

6. When learning word embeddings, we create an artificial task of estimating $P(target \mid context)$. It is okay if we do poorly on this artificial prediction task; the more important by-product of this task is that we learn a useful set of word embeddings. **1 / 1 point**

- ( ) False
- (•) True

Correct

7. True/False: In the word2vec algorithm, you estimate *P(t | c)*, where *t* is the target word and *c* is a context word. *t* and *c* are chosen from the training set using *c*as the sequence of all the words in the sentence before *t*. **1 / 1 point**

- (●) False
- ( ) True

Correct
t and *c* are chosen from the training set to be nearby words.

8. Suppose you have a 10000 word vocabulary, and are learning 100-dimensional word embeddings. The word2vec model uses the following softmax function: **1 / 1 point**

$$P(t \mid c) = \frac{e^{\theta_t^T e_C}}{\sum_{t'=1}^{10000} e^{\theta_t^T e_C}}$$

Which of these statements are correct? Check all that apply.

- [x] θ_t and e_c are both trained with an optimization algorithm.

Correct
To review this concept watch the *Word2Vec* lecture.

- [ ] θ_t and e_c are both 10000 dimensional vectors.
- [x] θ_t and e_c are both 100 dimensional vectors. Feedback: To review this concept watch the *Word2Vec* lecture.

Correct

- [ ] After training, we should expect θ_t to be very close to e_c when*t*and *c* are the same word.

9. Suppose you have a 10000 word vocabulary, and are learning 500-dimensional word embeddings.The GloVe model minimizes this objective: 1 / 1 point

$$\min \sum_{i=1}^{10,000} \sum_{j=1}^{10,000} f(X_{ij})(\theta_i^T e_j + b_i + b_j' - logX_{ij})^2$$

True/False: θ_i and e_j should be initialized to 0 at the beginning of training.

- (●) False
- ( ) True

Correct
θ_i and e_j should be initialized randomly at the beginning of training.

10. You have trained word embeddings using a text dataset of m_1 words. You are considering using these word embeddings for a language task, for which you have a separate labeled dataset of m_2 words. Keeping in mind that using word embeddings is a form of transfer learning, under which of these circumstances would you expect the word embeddings to be helpful?

- ( ) $m_1 << m_2$
- (●) $m_1 >> m_2$

Correct