## Video Quiz: Why We Need RNNs

1/1 point (graded)
As we saw in the previous problem, it is possible to use feed-forward networks for predicting future values of temporal sequences. However, there is a reason why recurrent neural networks can be more useful than feed-forward networks when it comes to temporal sequences. In general, RNNs automatically address some issues that need to be engineered with feed-forward networks. What are some of these issues?

- How do we deal with the time complexity if the feature vector is very long?
- How many time steps back should we look at in the feature vector? ✔
- How do we calculate the mean and the variance inside the sliding window?

**Solution:**

As discussed in the lecture, an inconvenient aspect of feed-forward networks is that we have to manually engineer how history is mapped to a feature vector (representation). However, in fact, this mapping into feature vectors (encoding) is also what we would like to learn. RNN's learn the encoding into a feature vector, unlike feed-forward networks.

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Answers are displayed within the problem

## Understanding RNNs

3/3 points (graded)
You can use a vector representation of a sentence to...
(Choose all that apply.)

- [x] predict whether the sentence is positive or negative ✔
- [x] translate the sentence to another language ✔

- [x] to predict the next word in the sentence ✔

✔

All of the above tasks that you selected should use the same vector representation of the sentence.

- [ ] true
- [x] false ✔

In order to accomplish the tasks you selected above, which two steps are necessary?

- [x] mapping a sequence to a vector ✔
- [x] mapping a vector to a prediction ✔
- [ ] mapping a prediction to a sequence

✔

**Solution:**

All of the above tasks are possible. Sentiment analysis, language translation, and language modelling are covered in the lecture video. However, each task requires a different sentence representation as they focus on different parts of the sentence. One example is that sentiment analysis focuses on the holistic meaning of a sentence, where translation focuses more on individual words. Thirdly, the lecture explains that we need encoding, or mapping a sequence to a vector, and decoding, or mapping a vector to a prediction. A prediction is our end goal, we don't need to map it to a sequence.

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ℹ Answers are displayed within the problem

## Vector Representations

1/1 point (graded)
Only textual information, such as words and sentences, can be turned into vectors or matrices.

- true
- false ✔

**Solution:**

As covered in the lecture, images and videos can also be represented as vectors or matrices. An image is comprised on integer pixels, so it is already in numerical representation

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Answers are displayed within the problem

## Discussion

Show Discussion

Topic: Unit 3 Neural networks (2.5 weeks):Lecture 10. Recurrent Neural Networks 1 / 3. Why we need RNNs