Quiz 5: Introduction to Deep Learning

Introduction to Supervised Learning

*Required

1. Email address *

2. Please enter your name: *

We want to classify movie reviews into 5 categories: 1 to 5 stars. (1 for the worst movies, 5 for the best movies)

Review (X)	Rating (Y)
"This movie is fantastic! I really like it because it is so good!"	★★★★☆
"Not to my taste, will skip and watch another movie"	★★☆☆☆
"This movie really sucks! Can I get my money back please?"	★☆☆☆☆

Processing sequences of integers (a small example)

Consider the following documents:

- This movie is awesome
- This movie is so bad
- What a great movie

3. Using the following dictionary, how would the second document be encoded? 1 point

```
{ « This »      :  1,
  « movie »     :  2,
  « is »        :  3,
  « awesome »   :  4,
  « so »        :  5,
  « bad »       :  6,
  « What »      :  7,
  « a »         :  8,
  « great »     :  9}
```

Mark only one oval.

- [1, 2, 4, 5]
- [7, 8, 10, 2]
- [1, 2, 3, 5, 6]

4. We want to use One Hot Encoding to transform the list of sequences into a tensor that we can feed to a neural network, what would be the shape of this tensor? 1 point

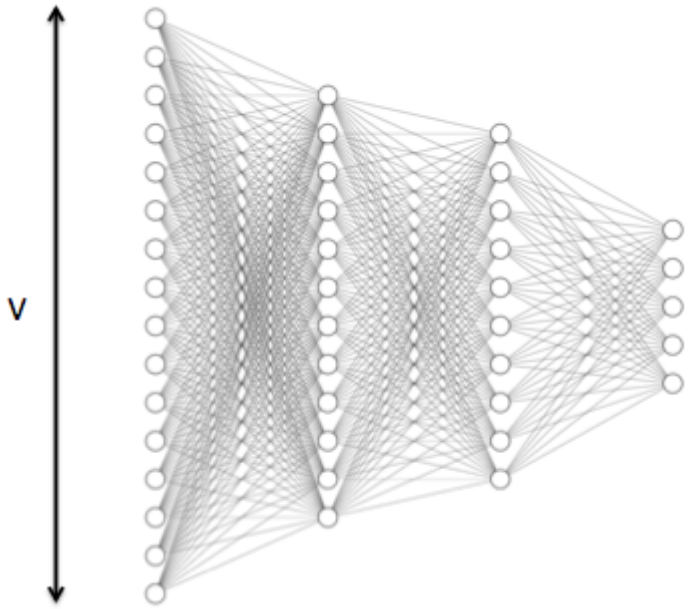
Mark only one oval.

- (3, 9)
- (9, 5)
- (3, 3)

5. What would be the first row of this tensor? 1 point

Building the model

Now that the data has been preprocessed. We want to feed the tensor in a Deep Neural Network with several Dense layers.



6. How many neurons should the last layer contain? 1 point

Mark only one oval.

- 1
- 5
- 10

7. What should be the activation function in the last layer? 1 point

Mark only one oval.

- softmax
- sigmoid
- tanh

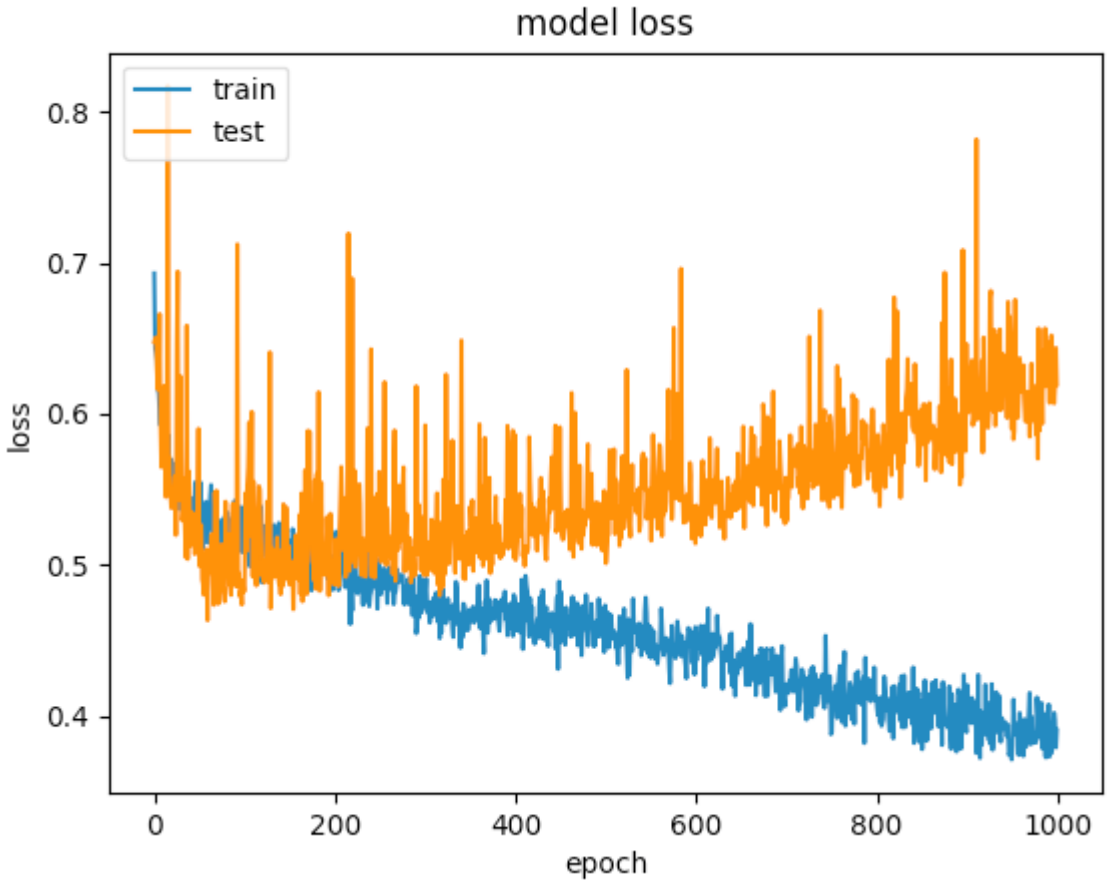
8. What should be the loss function? 1 point

Mark only one oval.

- Binary cross entropy
- Categorical cross entropy
- MSE

9. How is this loss related to Maximum Likelihood Estimation? 1 point

10. After the training process, we obtain the following validation and training losses. What is the problem? 1 point



11. How can we solve the previous problem? 1 point

12. Explain why the previous model is suboptimal regarding the nature of data 1 point

Programming Session

13. Did you understand the problem?

Mark only one oval.

- Yes
- No

Feel free to send us an email if you need more support.

14. Any comment?