Test Your Project Understanding

1. The logistic sigmoid is given by: **1 / 1 point**

   ○ $\dfrac{e^x - e^{-x}}{e^x + e^{-x}}$

   ◉ $\dfrac{1}{1 + e^{-x}}$

   ○ e^x

   ✓ **Correct**
   Correct!

2. The range of the logistic sigmoid function is [-1, 1].   **1 / 1 point**

   ◉ False

   ○ True

   ✓ **Correct**
   Correct!

3. The output of a logistic model can be interpreted as a probability.   **1 / 1 point**

   ○ False

   ◉ True

   ✓ **Correct**
   Correct!

4. A matrix is said to be sparse if it contains: **1 / 1 point**

   ◉ Very few nonzero elements

   ○ Mostly nonzero elements

   ○ Complex numbers

   ✓ **Correct**
   Correct!

5. Select all options that apply. Logistic Regression is a: **1 / 1 point**

   ☑ Supervised learning algorithm

   ✓ **Correct**
   Correct!

   ☐ Regularized regression model

   ☑ Linear classification model

   ✓ **Correct**
   Correct!

6. When analyzing text data, one often encounter words that occur across multiple documents from both classes (in the case of binary classes). Those frequently occurring words typically don't contain useful or discriminatory information. What is the technique used to downweight those frequently occurring words in the feature vectors?

1 / 1 point

○ Cosine similarity

◉ term frequency–inverse document frequency (TF-IDF)

○ Tokenization

✓ **Correct**
Correct!

7. Of the two functions provided in this code block, which one performs stemming and which output corresponds to it?

1 / 1 point

```
1   from nltk.stem.porter import PorterStemmer
2
3   porter = PorterStemmer()
4
5 ▾ def tokenizer(text):
6       return text.split()
7
8 ▾ def tokenizer_porter(text):
9       return [portner.stem(word) for word in text.split()]
10
11  print(tokenizer('runners like running and thus they run'))
12  print(tokenizer_porter('runners like running and thus they run'))
```

○ tokenizer performs stemming and returns

```
1   ['runners', 'like', 'running', 'and', 'thus', 'they', 'run']
```

◉ tokenizer_porter performs stemming and returns

```
1   ['runner', 'like', 'run', 'and', 'thu', 'they', 'run']
```

✓ **Correct**
Correct!

8. Select all that apply. Cross validation can be used to

1 / 1 point

☑ Tune model hyperparameters

✓ **Correct**
Correct!

☑ Assess model performace out of sample

✓ **Correct**
Correct!