Week 2 Quiz

TOTAL POINTS 8

1. What is the correct syntax for the first layer in a convolutional neural network that takes an MNIST (28x28 monochrome) input? 1 point

- [x]
```
model.add(tf.layers.conv2d({inputShape: [28, 28, 1], kernelSize: 3, filters: 8,
  activation: 'relu'}));
```
- [ ]
```
model.add(tf.layers.conv({inputShape: (28, 28, 1), kernelSize: 3, filters: 8,
  activation: 'relu'}));
```
- [ ]
```
model.add(tf.layers.conv2d({inputShape: [28, 28], kernelSize: 3, filters: 8,
  activation: 'relu'}));

```
- [ ]
```
model.add(tf.layers.conv({inputShape: [28, 28, 1], kernelSize: 3, filters: 8,
  activation: 'relu'}));
```

2. What is the correct syntax for adding a maxPooling2D layer to a Convolutional neural network in JavaScript? 1 point

- [ ]
```
model.add(tf.layers.maxPooling2D({poolSize: [2, 2]}));
```
- [ ]
```
model.add(tf.layers.maxPooling2d({poolSize = [2, 2]}));
```
- [ ]
```
model.add(tf.layers.maxPooling2D({poolSize =  [2, 2]}));
```
- [x]
```
model.add(tf.layers.maxPooling2d({poolSize: [2, 2]}));
```

3. What is the correct syntax for compiling a model with an optimizer, loss function and metrics? 1 point

- [ ]
```
model.compile({  tf.optimizer: tf.train.adam(), tf.loss:
  'categoricalCrossentropy', tf.metrics: ['accuracy']});
```
- [x]
```
model.compile({  optimizer: tf.train.adam(), loss: 'categoricalCrossentropy',
  metrics: ['accuracy']});
```
- [ ]
```
model.compile({  optimizer: tf.train.adam(); loss: 'categoricalCrossentropy';
  metrics: ['accuracy']});
```
- [ ]
```
model.compile({  optimizer = tf.train.adam(), loss = 'categoricalCrossentropy',
  metrics = ['accuracy']});
```

4. How do you correctly pass a set of validation data called textXs and testYs to the model.fit method in JavaScript? 1 point

- [ ] Use validationData: [testXs, testYs] in the list of parameters to model.fit
- [ ] Use validationData= [testXs, testYs] and pass it to the model.fit method
- [x] Use validationData: [testXs, testYs] in the list of parameters sent as the third parameter to model.fit
- [ ] Use validationData = [testXs, testYs] in the list of parameters to model.fit

5. How do you get the built in callbacks visualizer with TensorFlow.js? 1 point

- [ ] Include the tfjs-vis script and it will work automatically
- [ ] Include the tfjs-vis script, call show.fitCallbacks() on the tfvis object
- [ ] Include the tfjs-vis script, set a callback in model.fit and it will work automatically
- [x] Include the tfjs-vis script, set a callback in model.fit, and set it to a const that called show.fitCallbacks() on the tfvis object

6. If you want to see loss, validation loss, accuracy and validation accuracy on each epoch while training, how do you do this? 1 point

- [ ] Create a list containing [1, 1, 1, 1] indicating that you want those 4 values to be true and pass it to the fitCallbacks() as a parameter
- [x] Create a list containing text values with the names of the analytics you want to capture, i.e. ['loss', 'val_loss', 'acc', 'val_acc'] and pass it to fitCallbacks() as a parameter
- [ ] Create a list containing text values ["loss=true", "val_loss=true", "acc=true", "val_acc=true"] and pass it to fitCallbacks() as a parameter
- [ ] Create a list setting loss=true, val_loss=true, acc=true, val_acc=true, and pass it to the fitCallbacks() as a parameter

7. When using a dataset like MNIST or FashionMNIST, why is it advisable to use a sprite sheet containing all the images? 1 point

- [x] It prevents excessive multiple HTTP calls to download the data
- [ ] It makes the data more secure
- [ ] It keeps the data in the native JS format
- [ ] It doesn't require any additional pre-processing

8. What is the role of tf.tidy() in TensorFlow.js? 1 point

- [ ] It shuts down tensorflow when done, cleaning up all memory
- [x] When it is executed, it cleans up all intermediate tensors allocated by a function except those returned by the function
- [ ] When it is executed, it removes everything tensorflow from the browser memory and cache
- [ ] When it is executed it clears memory for new tensors