Course: Machine Learning Techniques
Week 2: Graded Questions

Graded Questions

1. (1 point) Swarnim is a Virat Kohli fan. He wants to predict the runs Virat Kohli will score in the next 14 matches of coming IPL he plays, based on the runs scored by him in previous IPLs. This problem can be classified as a

   A. Single label Regression

   B. Single label Classification

   C. Multi label Regression

   D. Multi label classification

   Answer: C

2. (1 point) For a regression problem having $m > 3$ features, the model is represented geometrically by

   A. a hyperplane in m dimension

   B. a hyperplane in $m - 1$ dimension

   C. a hyperplane in $m + 1$ dimension

   D. a hyperplane in $2m$ dimension

   Answer: C

3. (1 point) Following table shows the values of actual and predicted labels. Find the sum squared error.

Actual	Predicted
1	1.5
2	2.2
3	3.5
4	4.1

   A. 0.55

   B. 0.50

   C. 0.45

   D. 0.40

   Answer: A

4. (1 point) The gradient of $f(x_1, x_2) = x_1 + x_2$ at (0,0) is
   A. $[1, 1]^T$
   B. $[1, 0]^T$
   C. $[1, -1]^T$
   D. $[-1, -1]^T$

Answer: A

Consider the following code for next 4 questions

```
import numpy as np

w1=5
w0=6
n=200

X=10*np.random.rand(n,)

y=w0+w1*X+np.random.randn(n,)

print("Shape of feature matrix",X.shape)
print("Shape of label vector",y.shape)

from sklearn.model_selection import train_test_split
X_train,X_test,y_train,y_test = train_test_split (X,y,
                                    test_size=0.2,random_state=36)

print("shape of training feature matrix", X_train.shape)
print("shape of test feature matrix",X_test.shape)
print("shape of training label",y_train.shape)
print("shape of test label",y_test.shape)
```

5. (1 point) What is the value of X_train.shape?
   A. (160,)
   B. (10,)
   C. (200,)
   D. (20,)

Answer: A

6. (1 point) What is the value of y_train.shape?
   A. (100,)

B. (160,)

C. (200,)

D. (40,)

Answer: B

7. (1 point) What is the value of y_test.shape?

A. (100,)

B. (160,)

C. (200,)

D. (40,)

Answer: D

8. (1 point) What is the value of X_test.shape?

A. (100,)

B. (160,)

C. (200,)

D. (40,)

Answer: D