Homework Week 1

Part 1

1) What is the difference between Machine learning and Deep learning
    A. Machine learning is A.I Deep learning is not
    B. Machine learning requires more data
    C. Deep learning can create features
    D. All Machine learning and Deep learning

2) What tools are used for data visualization
    A. scikit-learn
    B. Numpy
    C. Matplotlib
    D. Seaborn

3) What Packages would you use for Deep learning
    A. scikit-learn
    B. PyTorch
    C. Numpy
    D. Keras

4) Usually, Deep learning works better when
    A. If the data is tabular
    B. For medical data
    C. If the data is normalized
    D. If you have lots data

Part 2

Consider the unlabelled sample x_{unknow}, the samples x_1, x_2, x_3, x_4 have distance from x_{unknow} and class given in
the following table

sample	y	Distance from x_{unknow}
1	1	2
2	2	3
3	1	1
4	3	0.5

Table 1 sample number, label and distance

5) Use K-nearest neighbours setting K=1 to predict the class of x_{unkonw}
    A. 1
    B. 2
    C. 3

6) Use K-nearest neighbours setting K=3 to predict the class of x_{unkonw}
   A.1
   B.2
   C.3

7) You are using the NumPy array X as your dataset with 30 rows and 5 columns what statement is correct
   A. You have 30 samples
   B. Your fetcher vector has 30 dimensions
   C. You have 5 samples
   D. You have 150 samples

8) What type of data do you use to choose the free parameter K in K-nearest neighbours?
   A. Training
   B. Validation
   C. Testing

9) Select the correct value of K for K-nearest neighbours from the table of training and validation accuracy

K	1	3	6	9	11
Training accuracy	100%	95%	90%	85%	80%
validation accuracy	80%	85%	90%	85%	75%

10) What method do you use to fit a model in sklearn's K-nearest neighbours?

Solutions

1. C
2. C,D
3. B,D
4. D
5. C
6. A
7. A
8. B
9. K=6
10. fit