1. Explain what cause the difference of results between two algorithms which you choose?

KNN(K-近鄰演算法) vs MLP(多層類神經網路)

KNN是一種用於[分類](https://zh.wikipedia.org/wiki/%E5%88%86%E7%B1%BB%E9%97%AE%E9%A2%98)和[迴歸](https://zh.wikipedia.org/wiki/%E8%BF%B4%E6%AD%B8%E5%88%86%E6%9E%90)的[無母數統計](https://zh.wikipedia.org/wiki/%E7%84%A1%E6%AF%8D%E6%95%B8%E7%B5%B1%E8%A8%88)方法[[1]](https://zh.wikipedia.org/wiki/K-%E8%BF%91%E9%82%BB%E7%AE%97%E6%B3%95#cite_note-1)。在這兩種情況下，輸入包含[特徵空間](https://zh.wikipedia.org/w/index.php?title=%E7%89%B9%E5%BE%B5%E7%A9%BA%E9%96%93(%E6%A9%9F%E5%99%A8%E5%AD%B8%E7%BF%92)&action=edit&redlink=1)中的**k**個最接近的訓練樣本。

MLP意為多層類神經網路。何謂多層，即有輸入層、輸出層跟至少一個隱藏層。

1. Compare your prediction results on training data against the prediction result on the testing set. Show the accuracy results and explain why they are different.

Without tuning any parameter, KNN have 82% training accuracy and 77% testing accuracy. MPL have 83% training accuracy and 76% testing accuracy, as you can see, this two classifier don’t have significant difference between each other.

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| KNN Classifier |
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| MPL Classifier |

1. Choose the best of your algorithms and tune it with best performance, and briefly specify how you do it.

I choose KNN for my algorithms, because MPL Classifier has so many parameters to change , after I keep changing their parameter, MPL Classifier still don’t have that much changing its accuracy, but knn is not. After I try to change its parameters it have 5% more to training accuracy,and test accuracy has also has 4% increased.

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| After changing parameters KNN Classifier |