1. Verses a less flexible model,
   1. One of the **advantage** of more flexible model:

It can generate a much wider range of possible shapes to estimate f, which leads a more accuracy of prediction.

* 1. One of the **disadvantage** of more flexible model:

It always contains more predictors, which makes model more complex so that it is harder to interpret the relationship between predictors and responses.

* 1. When we have a goal of inference, a less flexible approach which makes the relationship easier to understand will be preferred.

1. In this classification problem, for a lower testing error rate, we will choose a relatively **small** value of k. Because when we perform a k-nearest neighbor classification, as K grows, the model will become less flexible and produce a decision boundary that is close to linear. In this problem for which decision boundary is highly non-linear, a relatively small value of k will fit data well and lead a lower testing error rate.
2. (a)