Problem 1

* Based on the analysis we can conclude that we have 2 different customer segments: Cluster0 and Cluster1. It is obvious that Cluster1 includes customers who made the highest purchases compared to customers in Cluster2.
* Cluster1 customers are mostly attracted by the Mountain bike, while Cluster0 customers made more purchases on Road bikes.

Problem 3

NPS(for branch A)=% of Promoters - % of Detractors = 40 – 20 = 20%

NPS (for branch B)=% of Promoters - % of Detractors = 34 - 33 = 1%

We cannot surely say whether branch A customers are very loyal or not since there are 3 important factors that we should take into consideration while making decisions.

Although the NPS of branch A is higher, this information is not enough to conclude that customers in branch A are very loyal. Final decision is depended on 3 important factors.

1. **Signal independence**

When making decisions based on NPS we should take into account the correlated opinions to avoid wrong decisions. For example, if there are respondents who are close friends they are likely to give the same answer (they might share their opinions between each other and therefore one of them might be influenced by his friend’s opinion).

1. **Sampling**

We do not have information about the sample size, which is important because small samples might result in larger variance. Thus larger samples are better for making decisions since those are more precise due to relatively little variance. Also as larger your sample size as closer you are to the real population.

1. **Inference**

Inference should not be made based on individual opinions, since personal perception might be misleading and lead to a wrong decision. It is better to a conduct hypothesis testing to be confident with the significance of your claim.

Problem 4

Question 1 - 2

Question 2 - 1