**Sample Structure of Report for Algorithms & Analysis Assignment 1**

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We certify that this is all our group’s original work. If we took any parts from elsewhere, then they were non-essential parts of the assignment, and they are clearly attributed in our submission. We will show that we agree to this honour code by typing ``Yes": YES.

**Experimental Setup**

# Describe briefly how you generated your data?

We generated our data through creating a different Lists of Points that can be accessible through an Iterator for the NaiveNN and key retrieval for the KDTree, which both have the ability to retrieve the values one at a time, such as by obtaining values from iterators, other classes’ constructors, or key values (For KDTree), especially for comparison reasons in order to shift values accordingly. Such as alternating or switching between X and Y values, median calculation, etc.

# What parameter settings you decide to test on, and briefly why?

Generation of scenarios – how did you decide to generate the scenarios? Briefly describe.

As with a Binary Tree constantly performing specific search patterns, we decided to focus on alternation tests, where values can be confirmed to swap with each other in order to fully access the perpendicular distance, so for our first test, we focused on the Search, Add, Delete and Category methods to ensure implementation is correct.

Timing - How did you perform the timing? How many tests did you perform and average over for each generated data set?

**Evaluation**

Scenario 1 (k-nearest neighbour searches)

[Sample text] We found that k, the number of nearest neighbours increased, the naive, brute force performance degraded (see Figure 1). We hypothesise the reason for this is that as k increases, it takes longer to check each point against the current k-nearest neighbour. Compare this kd-tree performance (Figure 2)….

Scenario 2 (Dynamic points set)

[Sample text] As we performed more adds and equivalent number of deletions to the kd-tree, we found that ...

**Recommendation**

For different scenarios, which data structures do you recommend to use?