**Elizabeth Oyebade**

**MET CS 526-O2**

**04/09/2022**

**Problem 1:**

**Diagram

Description automatically generated**

**Problem 2:**

**Text, letter

Description automatically generated**

**Problem 3:**

**Diagram

Description automatically generated**

**Problem 4:**

**Text, letter

Description automatically generated**

**Problem 5:**

**Text, letter

Description automatically generated**

**Problem 6:**

So, the result below shows that the HashMap has the largest insert time but it’s the slowest in terms of its searching time. Although LinkedList is faster than the ArrayList and HashMap for the insert time, the searching time is almost 4000 times of HashMap. When comparing the total time, we can find that the HashMap can be used to store content with a large among of data. In closing, when the numbers of elements are not very large, the data structures will come out as a smaller difference. The search time for ArrayList or LinkedList is O(n) on average whereas searching a HashMap is O(1) on average.

**Text

Description automatically generated**