**Question** **1**

Sorting and searching algorithms are essential in computer science because of how data must be accessed and organized in all types of projects. Some projects need to compare sets of data to each other and find subsets or differences and this needs to be quick, thus it makes sense to order data in accessible ways. Some projects need to be able to pinpoint exact values, so efficient searching algorithms are necessary.

Sorting algorithms are the set of steps known to put the elements in a set of data into an order dictated by the programmer. Orders include numeric, alphabetical, or other rules made by developers in a program. Some algorithms are proven to be more efficient than others because of the way they sift through data sets and how short their runtime is. Sorting algorithms include merge and quick sort which approach sorting by dividing data sets into more manageable pieces, sorting them, and then making one big and sorted data set in the end.

Searching algorithms commonly work in tandem with sorting algorithms and are used to find certain values within a set of data. They work best if a set of data has been sorted but they will still manage to find their target if not. Some search algorithms include linear and binary search. Linear search will walk down an entire list looking for its target, so it isn’t known to be efficient. Binary search works by dividing a sorted dataset into halves until it reaches the spot where its target should be.

**References:**

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