Task - 1

The merge function is defined to merge two sorted list into a single sorted list. The merging process iterates over the element of both lists and compares them to determine the order in the merged list. The merge function maintains two pointers: i for iterating over srt_1 and j for iterating over srt_2. If the element in srt_1 is smaller than the element in srt_2, it is placed in the merged list, and the i pointer is incremented. Else, the element of srt_2 is placed in the merged list, and the j pointer is incremented. If the elements in srt_1 and srt_2 are equal, both elements are placed in the merged list, and both i, j are incremented. The merged list is then returned. The merge sort function is defined to recursively perform the merge sort algorith. The time complexity of merge sort is O(n log n). This is because the algorithm recursively divides the input list into halves until individual elements are reached and then merges the sorted sublists back together.