

Quiz – Generic Programming

A *merge function* is a function that merges two sorted lists into a single sorted list.

Example: Merging the lists [2, 4, 6], [3, 5, 6, 7] produces [2, 3, 4, 5, 6, 6, 7]

Example: Merging the lists ["Alice", "Tom"], ["Bob", "Richard"] produces ["Alice", "Bob", "Richard", "Tom"]

Example: Merging the lists [2.3, 4.5], [2, 5] produces [2, 2.3, 4.5, 5]

Example: Merging the lists ["A", "XYZ", "XTU"] and [2, 4, 6] (where the first list is sorted by word length, and in the merge operation, if a string length in the first list is the same as a number in the second list, the string comes first) produces ["A", 2, "XYZ", "XTU", 4, 6].

Implement the most general possible merge function, assuming that input lists are in sorted order (according to a natural or a specified ordering). Your merge method should be flexible enough to correctly merge the lists shown in the examples above, and much more.