Report:

Question 01:

- ➢ In first question, I used the insertion sort method already done in previous lab.
- ➢ I have taken two unsorted lists from user and merged them in insertion sort function using "+" operator sign.
- ➢ After that I used for loop in range from 1 to total length of (list1+list2).
- ➢ I add counts to count how many times will this loop runs.
- ➢ So in first case if a user inputs 6 elements in first unsorted list and also inputs 6 elements in second unsorted list then the loop will run 11 times.
- ➢ Every time it runs it will swap first element with second elements if it is smaller and vice versa.
- ➢ My program consists of 32 lines of code.

Question 02:

- ➢ In second question, I used the insertion sort method already done in previous lab.
- ➢ I have taken first list sorted and the second list unsorted from user and merged them in insertion sort function using "+" operator sign.
- ➢ After that I used for loop in range from length of list1 to total length of (list1+list2) because we know that the first list is sorted so we will not use it for sorting.
- ➢ I add counts to count how many times will this loop runs.
- ➢ So in first case if a user inputs 6 sorted elements in first sorted list and also inputs 6 unsorted elements in second unsorted list then the loop will run 6 times because first list is already sorted.
- ➢ Every time the loop runs it will swap first element with second element if it is smaller and vice versa.
- ➢ My program consists of 32 lines of code. The lines are not reduced but I made it efficient because it runs faster than first program and also the first list is not used for sorting.

Question 03:

- ➢ In third question, I used the insertion sort method already done in previous lab.
- ➢ I have taken both the lists sorted from user and merged them in insertion sort function using "+" operator sign.
- ➢ After that I removed for loop because both the lists are sorted we just have to merged them.
- ➢ I removed counts because I know it will only run one time.
- ➢ So in first case if a user inputs 6 sorted elements in first sorted list and also inputs 6 sorted elements in second sorted list then it will run 1 times because both lists are already sorted.
- ➢ My program is reduced to 25 lines of code after I removed for loop.