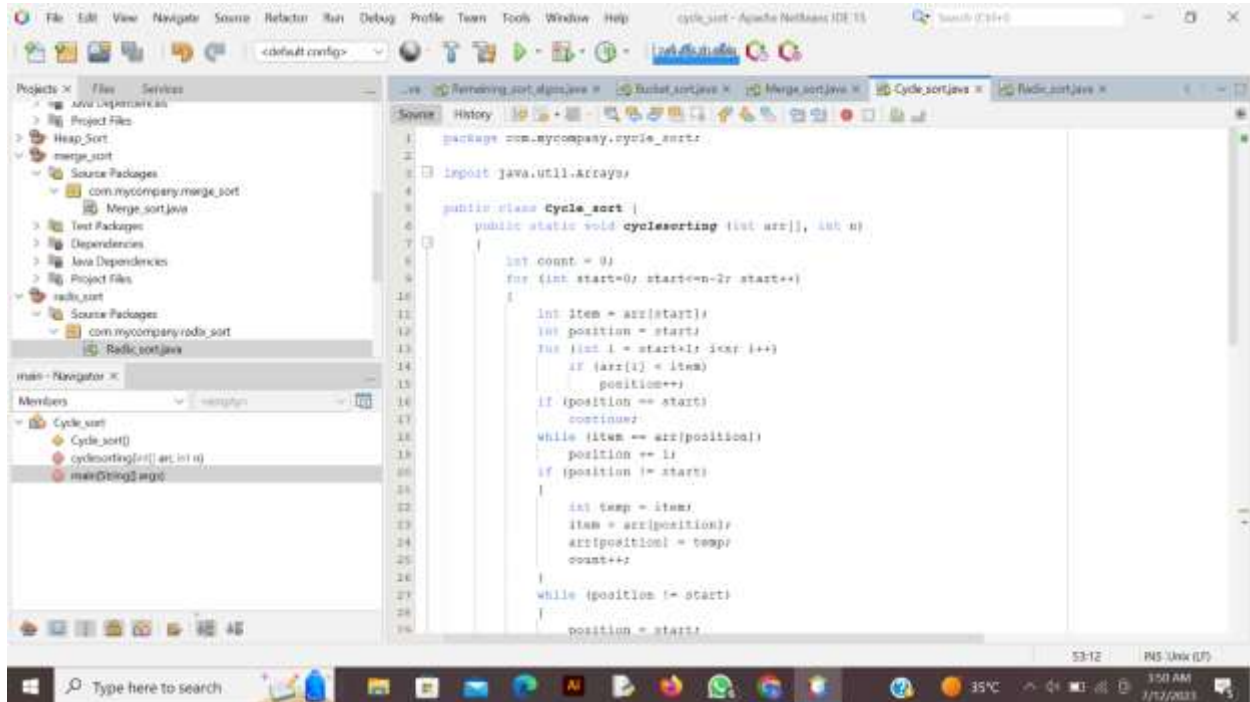


Today's Task (Sorting Algorithm)

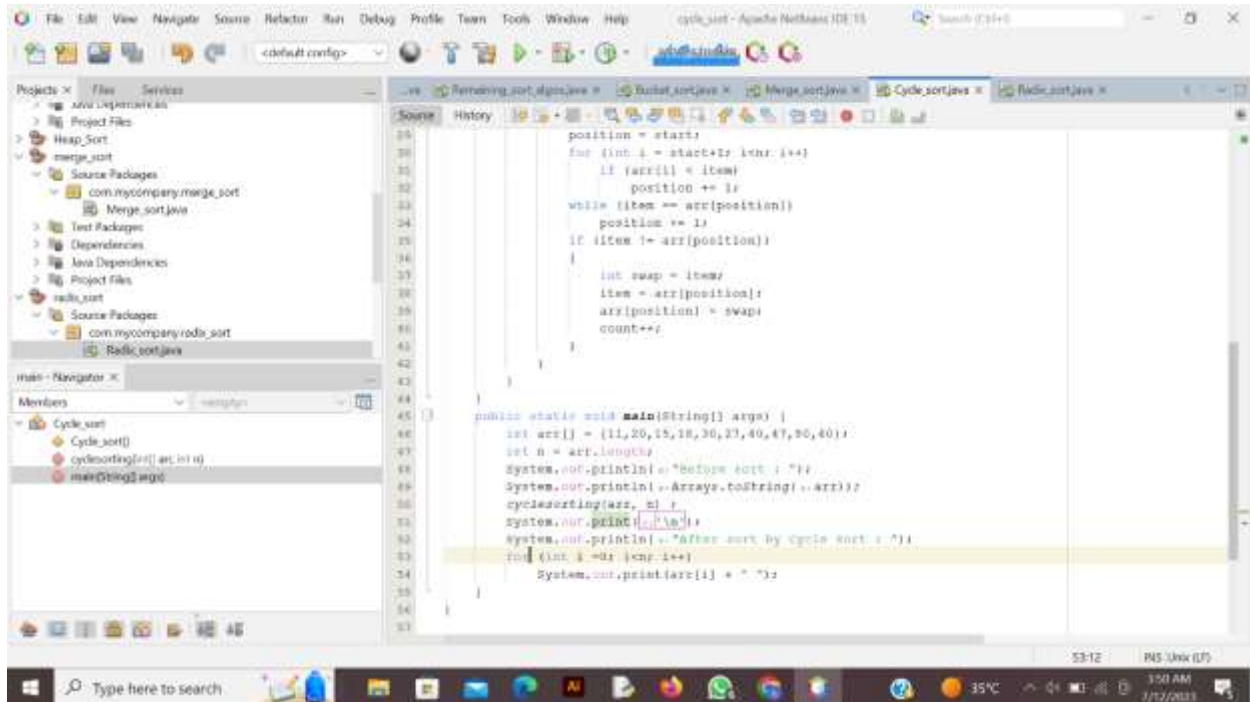
Cycle Sort



The screenshot shows an IDE with the following components:

- Project Explorer:** Shows a project named 'merge_sort' with sub-packages 'com.mycompany.merge_sort' and 'com.mycompany.radix_sort'. The 'main' package contains 'Cycle_sort.java'.
- Source Editor:** Displays the implementation of the Cycle Sort algorithm in Java. The code is as follows:

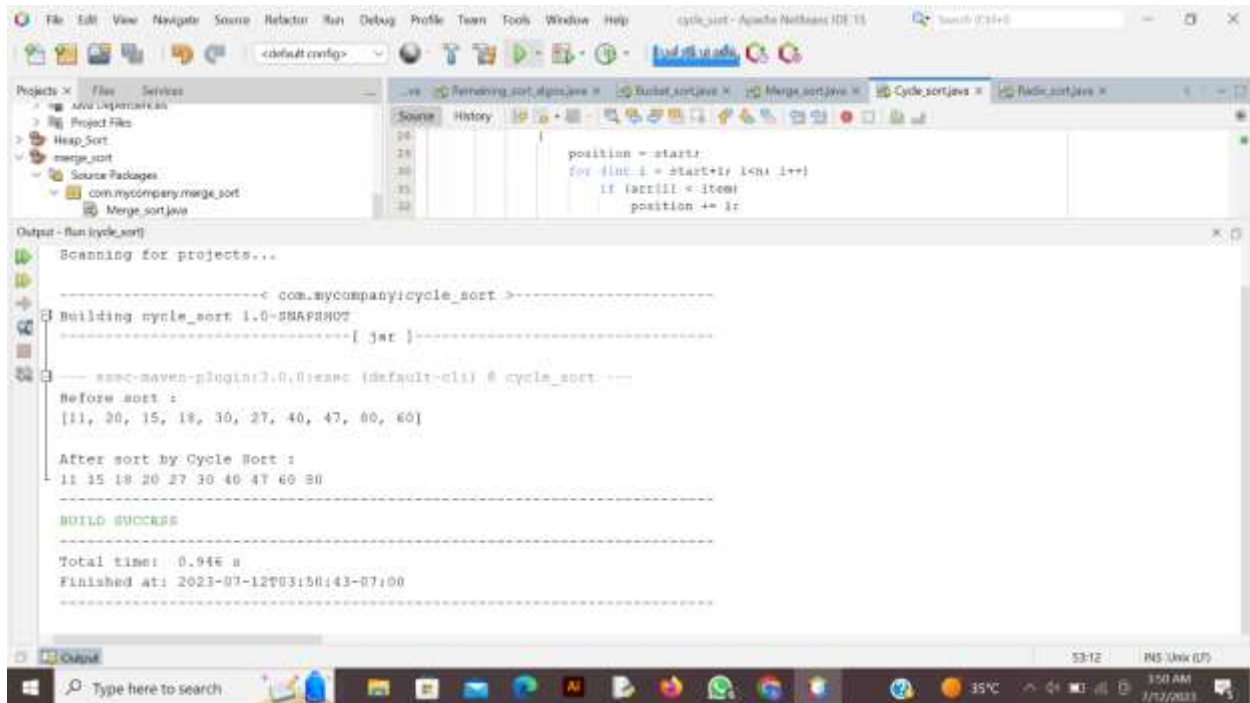
```
1 package com.mycompany.cycle_sort;
2 import java.util.Arrays;
3
4 public class Cycle_sort {
5     public static void cyclesorting(int arr[], int n)
6     {
7         int count = 0;
8         for (int start=0; start<n-2; start++)
9         {
10             int item = arr[start];
11             int position = start;
12             for (int i = start+1; i<n; i++)
13                 if (arr[i] < item)
14                     position++;
15             if (position == start)
16                 continue;
17             while (item == arr[position])
18                 position++;
19             if (position != start)
20             {
21                 int temp = item;
22                 item = arr[position];
23                 arr[position] = temp;
24                 count++;
25             }
26             while (position != start)
27                 position = start;
28         }
29     }
30 }
```



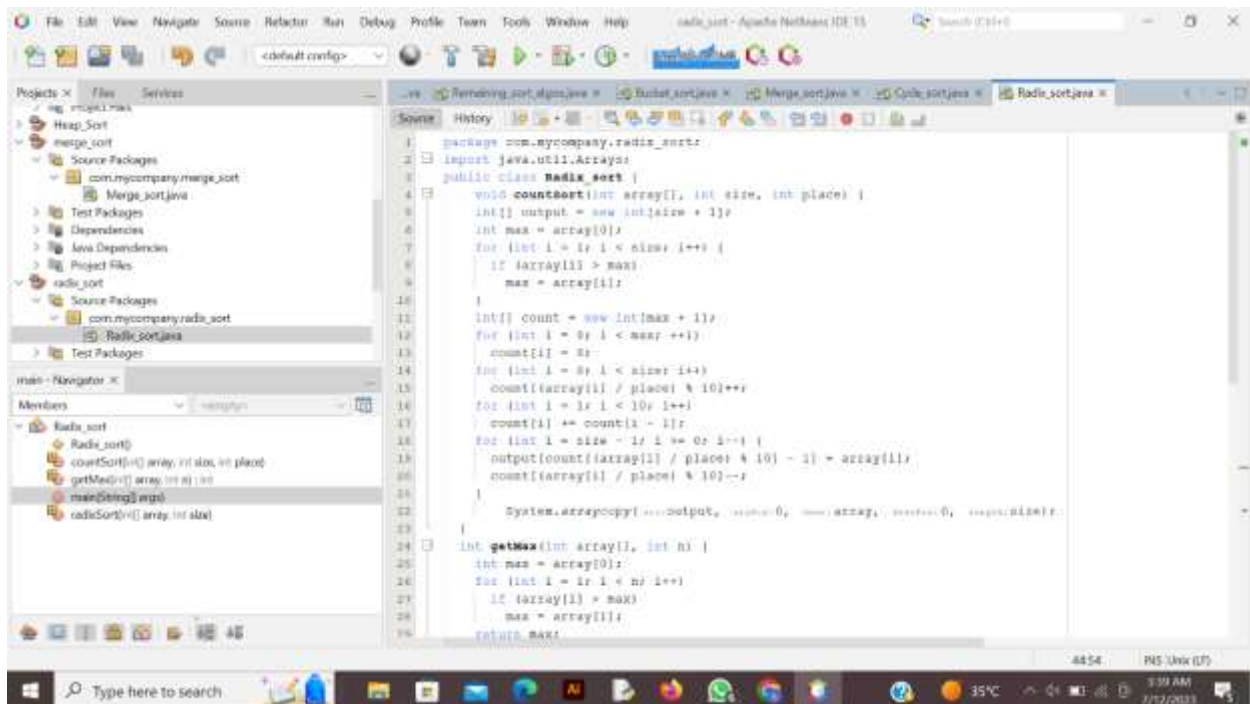
The screenshot shows the same IDE with the following components:

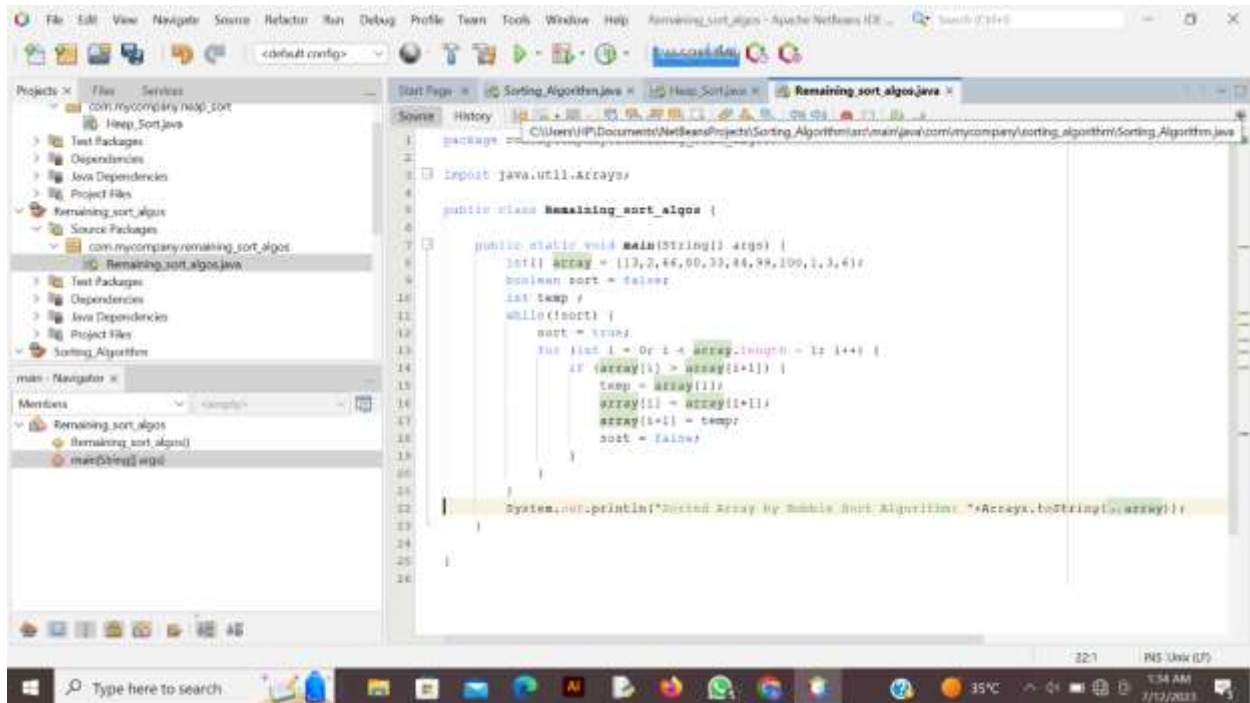
- Source Editor:** Displays the main method of the Cycle Sort algorithm in Java. The code is as follows:

```
31 position = start;
32 for (int i = start+1; i<n; i++)
33     if (arr[i] < item)
34         position++;
35 while (item == arr[position])
36     position++;
37 if (item != arr[position])
38 {
39     int swap = item;
40     item = arr[position];
41     arr[position] = swap;
42     count++;
43 }
44 }
45
46 public static void main(String[] args) {
47     int arr[] = {11,20,15,18,30,21,40,47,50,40};
48     int n = arr.length;
49     System.out.println("Before sort : ");
50     System.out.println(Arrays.toString(arr));
51     cyclesorting(arr, n);
52     System.out.println("After sort by Cycle sort : ");
53     for (int i = 0; i<n; i++)
54         System.out.print(arr[i] + " ");
55 }
```

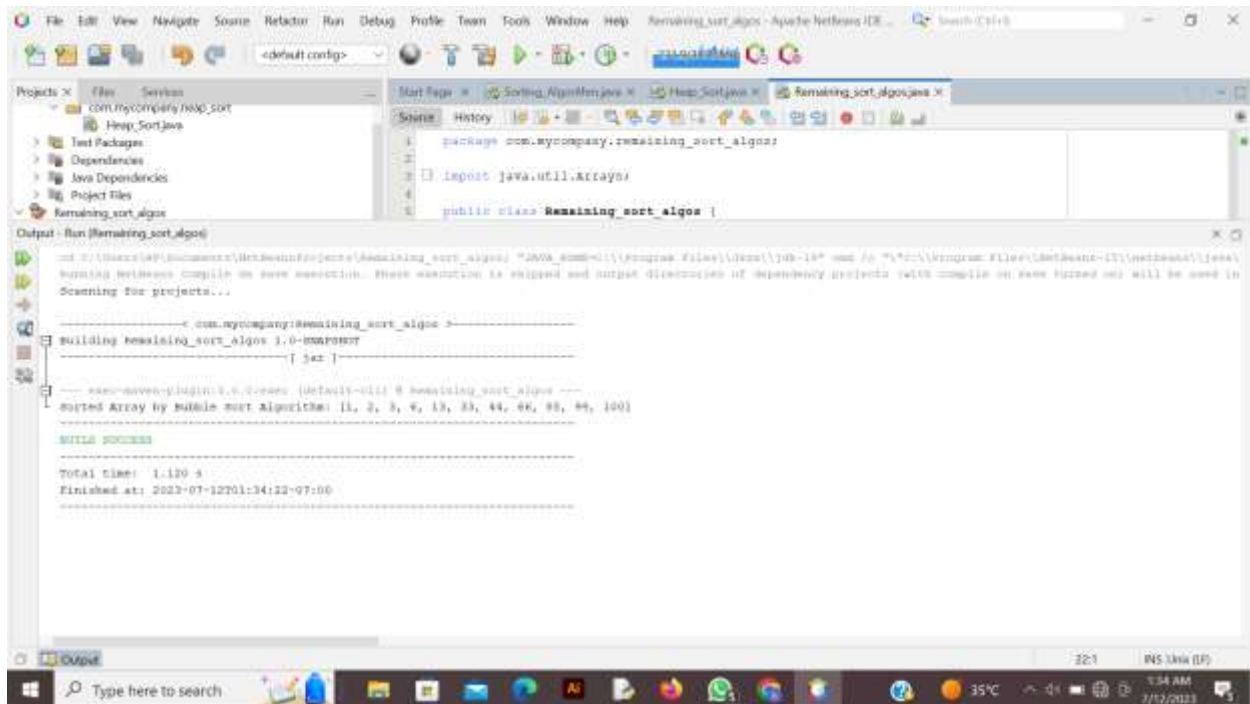


Radix Sort



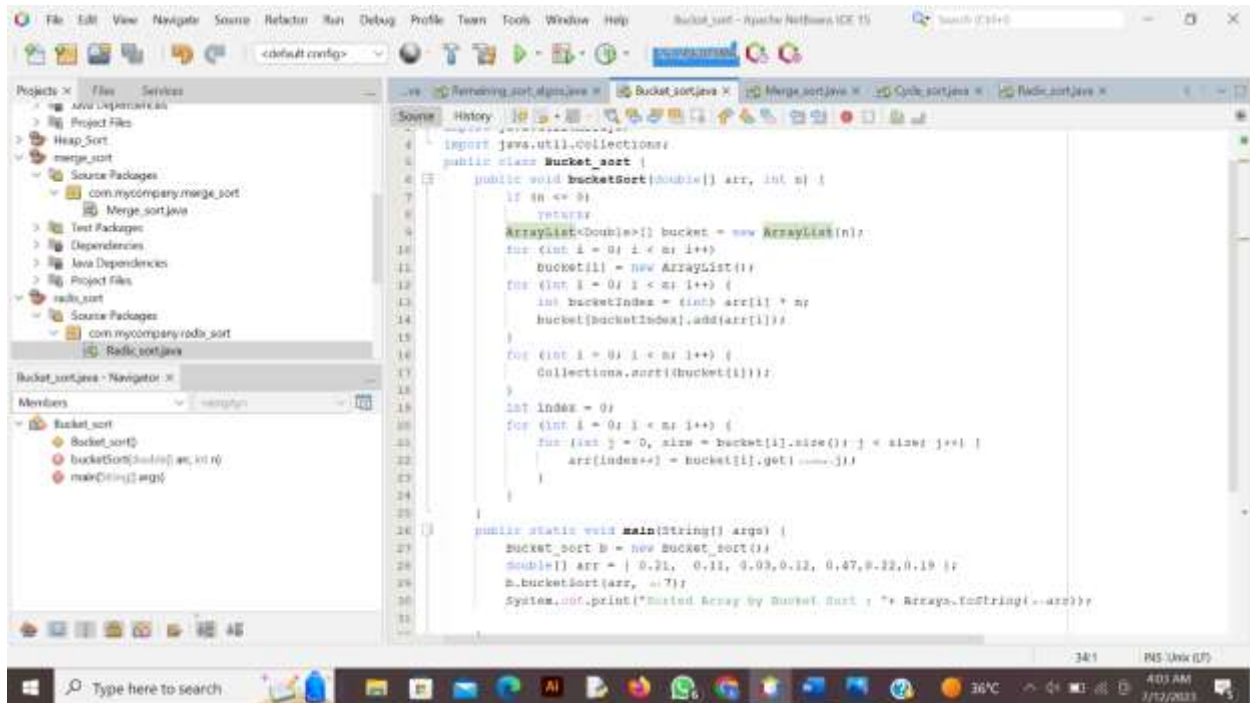


```
1 package com.mycompany.remaining_sort_algos;
2
3 import java.util.Arrays;
4
5 public class Remaining_sort_algos {
6
7     public static void main(String[] args) {
8         int[] array = {13, 2, 44, 00, 33, 44, 98, 100, 1, 3, 6};
9         boolean sort = false;
10         int temp;
11         while(!sort) {
12             sort = true;
13             for (int i = 0; i < array.length - 1; i++) {
14                 if (array[i] > array[i+1]) {
15                     temp = array[i];
16                     array[i] = array[i+1];
17                     array[i+1] = temp;
18                     sort = false;
19                 }
20             }
21         }
22         System.out.println("Sorted Array by Bubble Sort Algorithm: "+Arrays.toString(array));
23     }
24 }
25
26 }
```

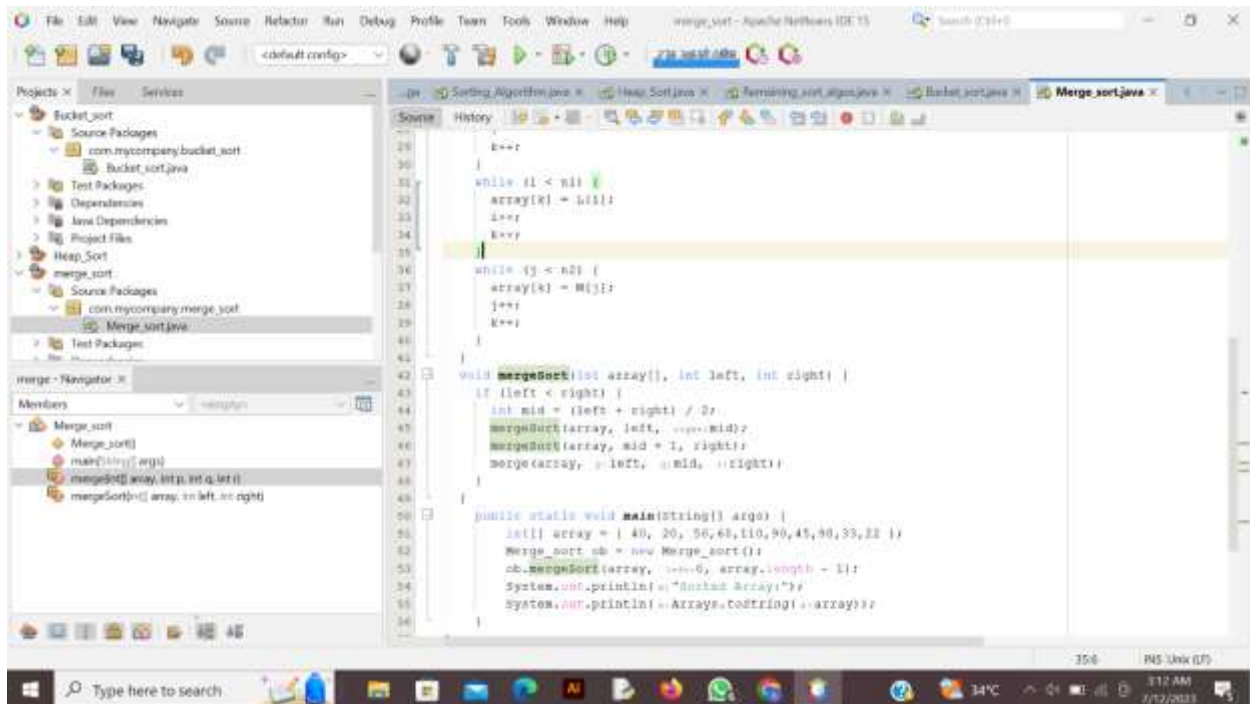
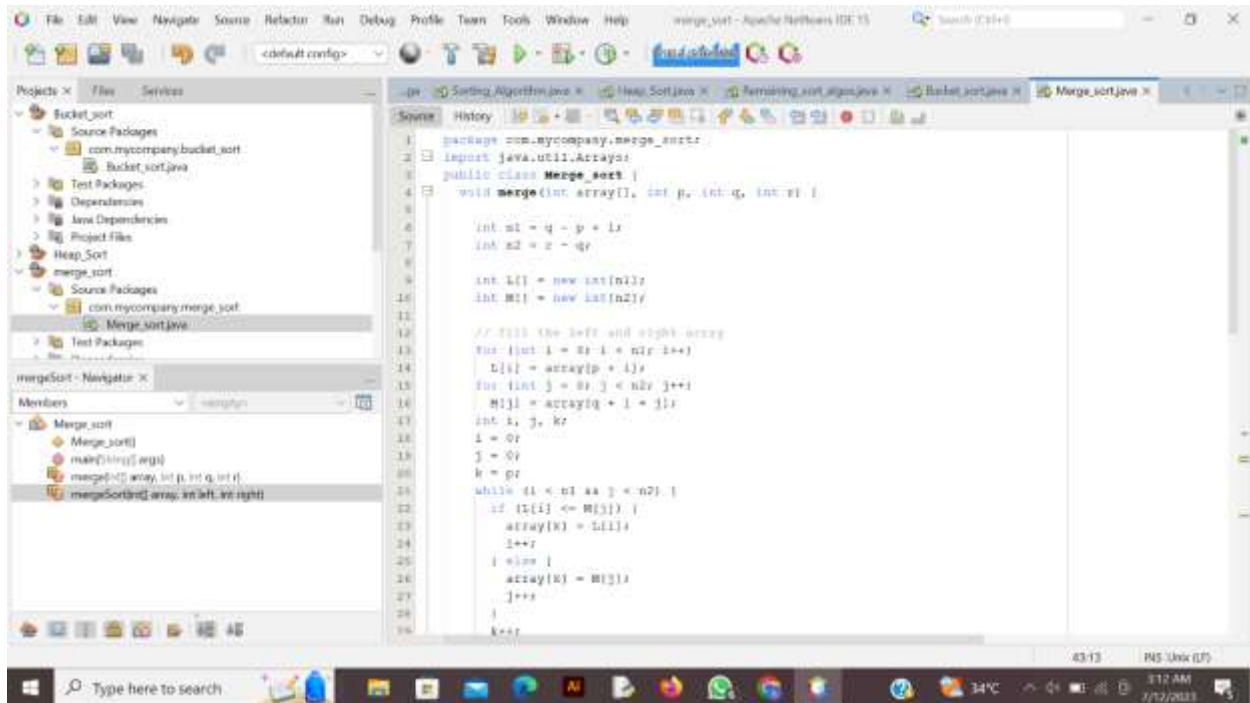


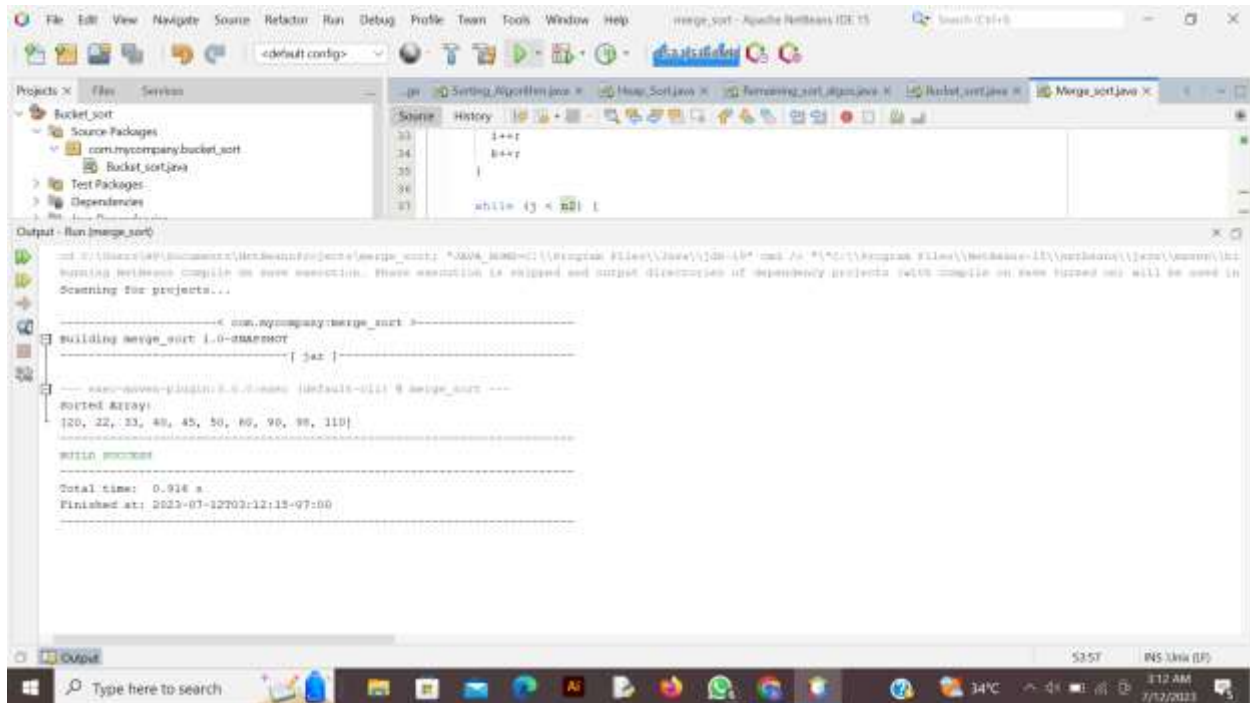
```
1 package com.mycompany.remaining_sort_algos;
2
3 import java.util.Arrays;
4
5 public class Remaining_sort_algos {
6
7     public static void main(String[] args) {
8         int[] array = {13, 2, 44, 00, 33, 44, 98, 100, 1, 3, 6};
9         boolean sort = false;
10         int temp;
11         while(!sort) {
12             sort = true;
13             for (int i = 0; i < array.length - 1; i++) {
14                 if (array[i] > array[i+1]) {
15                     temp = array[i];
16                     array[i] = array[i+1];
17                     array[i+1] = temp;
18                     sort = false;
19                 }
20             }
21         }
22         System.out.println("Sorted Array by Bubble Sort Algorithm: "+Arrays.toString(array));
23     }
24 }
25
26 }
```

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Merge Sort





Counting Sort

