

# EC4070: Data Structures and Algorithms

## LAB 08

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SEMESTER 4

EC4070

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Q1.

```
1  import java.util.*;
2
3  public class FillBottle
4  {
5      public static int maxbottles(int []array,int capacity)
6      {
7          int total=0,num=0;
8          int[] arr = arr_sort(array);
9          if (capacity <= 0)
10         {
11             return 0;
12         }
13         for (int i = 0; i<arr.length;++i)
14         {
15             if (total<=capacity)
16             {
17                 total+=arr[i];
18                 ++num;
19             }
20         }
21         if(total>capacity)
22         {
23             num-=1;
24         }
25         return num;
26     }
27
28     public static int [] arr_sort(int array[])
29     {
30         int temp;
31         for(int i=0;i<array.length-1;++i)
32         {
33             for(int j=0;j<array.length-i-1;++j)
34             {
35                 if(array[j]>=array[j+1])
36                 {
37                     temp=array[j];
38                     array[j]=array[j+1];
39                     array[j+1]=temp;
40                 }
41             }
42         }
43         return array;
44     }
45
46     public static void main(String arg[])
47     {
48         Scanner sc = new Scanner(System.in);
49         System.out.print("Enter the  of capacity of the container : ");
50         int capacity=sc.nextInt();
51         System.out.print("Enter the number of bottle : ");
52         int num = sc.nextInt();
53         int [] arr2 =new int[num];
54         System.out.print("Enter the bottel capacity: ");
55         for(int i=0;i<num;++i)
56         {
```

```

48 Scanner sc = new Scanner(System.in);
49 System.out.print("Enter the  of capacity of the container : ");
50 int capacity=sc.nextInt();
51 System.out.print("Enter the number of bottle : ");
52 int num = sc.nextInt();
53 int [] arr2 =new int[num];
54 System.out.print("Enter the bottel capacity: ");
55 for(int i=0;i<num;++i)
56 {
57     arr2[i]= sc.nextInt();
58 }
59 System.out.println(maxbottles(arr2,capacity)+" maximum number of bottles can fill.");
60 }
61 }
62
63
64
65

```

```

C:\Users\2021E075\OneDrive - University of Jaffna\lab8>java FillBottle
Enter the  of capacity of the container : 10
Enter the number of bottle : 5
Enter the bottel capacity: 8 5 4 3 2
3 maximum number of bottles can fill.

```

```

C:\Users\2021E075\OneDrive - University of Jaffna\lab8>java FillBottle
Enter the  of capacity of the container : 30
Enter the number of bottle : 6
Enter the bottel capacity: 6 6 6 6 6 7
5 maximum number of bottles can fill.

```

```

C:\Users\2021E075\OneDrive - University of Jaffna\lab8>java FillBottle
Enter the  of capacity of the container : 30
Enter the number of bottle : 6
Enter the bottel capacity: 7 7 7 7 7 6
4 maximum number of bottles can fill.

```