EC4070: Data Structures and Algorithms

LAB 08

K.J.M.U.G.S. Eranda Jayasinghe

2021/E/075

SEMESTER 4

EC4070

22.11.2023

Q1.

```
import java.util.*;


public class FillBottle
{
	public static int maxbottles(int []array,int capacity)
	{
		int total=0,num=0;
		int[] arr = arr_sort(array);
		if (capacity <= 0)
		{
			return 0;
		}
		for (int i = 0; i<arr.length;++i)
		{
			if (total<=capacity)
			{
				total+=arr[i];
				++num;
			}
		}
		if(total>capacity)
		{
			num-=1;
		}
		return num;
	}


	public static int [] arr_sort(int array[])
	{
```

```
        int temp;
        for(int i=0;i<array.length-1;++i)
        {
            for(int j=0;j<array.length-i-1;++j)
            {
                if(array[j]>=array[j+1])
                {
                    temp=array[j];
                    array[j]=array[j+1];
                    array[j+1]=temp;
                }
            }
        }
        return array;
    }

    public static void main(String arg[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the  of capacity of the container : ");
        int capacity=sc.nextInt();
        System.out.print("Enter the number of bottle : ");
        int num = sc.nextInt();
        int [] arr2  =new int[num];
System.out.print("Enter the bottel capacity: ");
        for(int i=0;i<num;++i)
        {
     arr2[i]= sc.nextInt();
        }
```

System.out.println(maxbottles(arr2,capacity)+" maximum number of bottles can fill.");

}

}

```java
import java.util.*;

public class FillBottle
{
    public static int maxbottles(int []array,int capacity)
    {
        int total=0,num=0;
        int[] arr = arr_sort(array);
        if (capacity <= 0)
        {
            return 0;
        }
        for (int i = 0; i<arr.length;++i)
        {
            if (total<=capacity)
            {
                total+=arr[i];
                ++num;
            }
        }
        if(total>capacity)
        {
            num-=1;
        }
        return num;
    }

    public static int [] arr_sort(int array[])
    {
        int temp;
        for(int i=0;i<array.length-1;++i)
        {
            for(int j=0;j<array.length-i-1;++j)
            {
                if(array[j]>=array[j+1])
                {
                    temp=array[j];
                    array[j]=array[j+1];
                    array[j+1]=temp;
                }
            }
        }
        return array;
    }

    public static void main(String arg[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the  of capacity of the container : ");
        int capacity=sc.nextInt();
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        int [] arr2  =new int[num];
        System.out.print("Enter the bottel capacity: ");
        for(int i=0;i<num;++i)
        {
```

```
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.
```