DSAL Group E Assignment No.13

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Q. Implement the Shell sort algorithm implemented in Java demonstrating shell data structure with modularity of programming language.

Program

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| --- |
| import java.util.\*; public class vivek\_a12 {  private static int N; public static void sort(int arr[]){ heapMethod(arr); for (int i = N; i > 0; i--){ swap(arr,0, i); N = N-1; heap(arr, 0);  } }  public static void heapMethod(int arr[]){ N = arr.length-1; for (int i = N/2; i >= 0; i--) heap(arr, i);  } public static void heap(int arr[], int i){ int left = 2\*i ; int right = 2\*i + 1; int max = i; if (left <= N && arr[left] > arr[i]) max = left; if (right <= N && arr[right] > arr[max]) max = right; if (max != i){ swap(arr, i, max); heap(arr, max);  } }  public static void swap(int arr[], int i, int j){ int tmp = arr[i]; arr[i] = arr[j]; arr[j] = tmp;  }  public static void main(String[] args) { Scanner in = new Scanner( System.in ); int n;  System.out.println("Enter the number of elements to be sorted:"); n = in.nextInt(); int arr[] = new int[ n ];  System.out.println("Enter "+ n +" integer elements"); for (int i = 0; i < n; i++) arr[i] = in.nextInt(); sort(arr);  System.out.println("After sorting "); |

for (int i = 0; i < n; i++)

System.out.println(arr[i]+" ");

System.out.println();

}

}

Output

Enter the number of elements to be sorted:

5

Enter 5 integer elements

9

5

10

3

7

After sorting

3

5

7

9

10