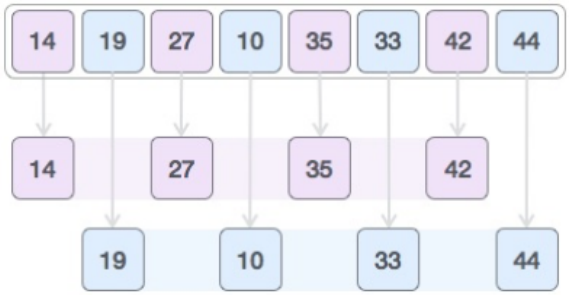
Sorting Shells

by matfah

Problem Submissions Discussions

Dory is organizing her collection of shells. She'd like to organize them by weight, but she doesn't know a strategy to put them in order. Her mom and dad suggest that she use the Shell Sort method (how appropriate!). Shell Sort works by sorting values using the standard insertion sort technique but with the twist of using a gap value. For the shell weights below, a gap of 2 is being shown. There are essentially two subarrays that are created.



The two subarrays are then sorted. In the example above, the final order of weights after sorting with a gap of 2 would be 14, 10, 27, 19, 35, 33, 42, 44. If the gap was 3, then there would be three subarrays to sort.

Please help Dory write a program that implements the Shell Sort method!

https://drive.google.com/open?id=0BxxolsFkwnDqeTZIZTBPcVpPZU0

Input Format

On the first line will be a single number n, the number of shell weights to sort On the second line will be n positive integers, separated by spaces On the third line will be a single number k, the number of consecutive shell sort procedures to run On the fourth line will be k positive integers, representing the gaps to use with the shell sort procedure

Constraints

1 <= n <= 1000 1 <= k <= 10

Output Format

The n shell weights after the k shell sort procedures are applied, each weight separated by a space

Sample Input 0

```
8
14 19 27 10 35 33 42 44
1
2
```

Sample Output 0

```
14 10 27 19 35 33 42 44
```

Sample Input 1

```
8
14 19 27 10 35 33 42 44
3
5 3 1
```

Sample Output 1

```
10 14 19 27 33 35 42 44
```