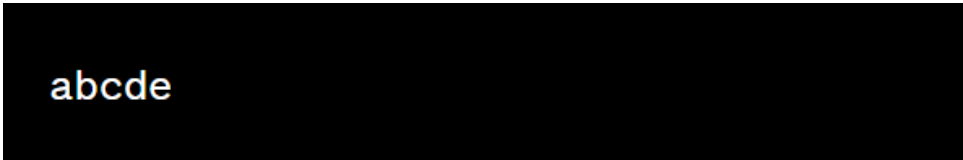


**Task 1:** When we run the code provided with the given sample input, the output will be as follows:

Sample Input:

```
char[] arr = {'a', 'b', 'c', 'a', 'd', 'b', 'e', 'c'};
```

Output:



abcde

The output is the array of characters after removing the duplicates. In this case, the duplicates 'a', 'b', and 'c' are removed, and the unique characters 'a', 'b', 'c', 'd', and 'e' are printed in the resulting array.

**Task 2:** When we run the code provided with the given sample input, the output will be as follows:

Sample Input:

```
Int [] arr1 = {1, 2, 3, 4, 5};
```

```
Int [] arr2 = {3, 2, 5, 1, 4};
```

Output:

```
true
```

The output is a boolean value indicating whether both arrays have the same set of numbers. In this case, the arrays **arr1** and **arr2** have the same numbers, albeit in different orders, so the output is **true**.

**Task 3:** When we run the code provided with the given sample input, the output will be as follows:

Output:

```
5
4
```

The output is the result of popping the top elements from the red and blue stacks, respectively. In this case, we pushed elements **1**, **2**, **3**, **4**, and **5** onto the stacks and then popped the top elements,

resulting in **5** being popped from the red stack and **4** being popped from the blue stack.

**Task 4:** Here is the sample output of the given code:

Output:

First Come First Served: Processing job with priority 1 Processing job with priority 2

Highest priority: Processing job with priority 2 Processing job with priority 1

Shortest Remaining Time First: Processing job with priority 2 Processing job with priority 1

The output demonstrates the scheduling process for the given sample input based on the three different policies: First Come First Served (FCFS), Highest Priority, and Shortest Remaining Time First (SRTF).

In the **First Come First Served policy**, the jobs are processed in the order they were added to the scheduler. Thus, job 1 is processed first, followed by job 2.

In the **Highest Priority policy**, the job with the highest priority is processed first. In this case, job 2 has a higher priority than Job 1, so it is processed first, followed by Job 1.

In the **Shortest Remaining Time First policy**, the job with the shortest remaining duration is processed first. Job 2 has a duration of 5, which is shorter than job 1 with a duration of 10. Therefore, job 2 is processed first, followed by job 1.

#### Task –5

requires you to convert a fully parenthesized arithmetic expression into a binary expression tree and allow leaves to store variables that can be updated interactively.

#### Task –6

requires you to write a spell-checker class that can handle common misspellings and phonetic substitutions.

Task -7 requires you to implement a heapsort algorithm using a min heap

Task -8 requires you to build routing tables for nodes in a computer network based on shortest-path routing, given connectivity information for all nodes in the network.