Write a program to print unique permutations of a given number

CODE:

import java.util.HashSet;

import java.util.Scanner;

import java.util.Set;

public class UniquePermutations {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a string of numbers: ");

String input = scanner.nextLine();

scanner.close();

Set<String> uniquePermutations = findUniquePermutations(input);

System.out.println("Unique permutations of " + input + ":");

for (String permutation : uniquePermutations) {

System.out.println(permutation);

}

}

public static Set<String> findUniquePermutations(String str) {

Set<String> result = new HashSet<>();

if (str == null || str.length() == 0) {

result.add("");

return result;

}

char[] arr = str.toCharArray();

findUniquePermutationsHelper(arr, 0, result);

return result;

}

private static void findUniquePermutationsHelper(char[] arr, int index, Set<String> result) {

if (index >= arr.length) {

result.add(new String(arr));

return;

}

Set<Character> swapped = new HashSet<>();

for (int i = index; i < arr.length; i++) {

if (!swapped.contains(arr[i])) {

swapped.add(arr[i]);

swap(arr, index, i);

findUniquePermutationsHelper(arr, index + 1, result);

swap(arr, index, i); // Backtrack

}

}

}

private static void swap(char[] arr, int i, int j) {

char temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

OUTPUT:

C:\javap>javac UniquePermutations.java

C:\javap>java UniquePermutations

Enter a string of numbers: 143

Unique permutations of 143:

143

341

134

431

413

314

