

1. You are working for an e-commerce company that deals with a large volume of customer orders. The company wants to optimize its warehouse operations by analyzing the efficiency of order processing.

The goal is to count the number of inversion pairs in the order processing times to identify potential inefficiencies. An inversion pair in this context is defined as a situation where a later order (in terms of processing sequence) took less time to process than an earlier order. By identifying these inversions, you can pinpoint areas where the warehouse team may need to improve their workflow or processes.

Input

An array $P[]$ of n integers representing the processing times of orders, in the order they were processed.

Output

The count of inversion pairs in the array.

```
1 class InversionCount {
2     public static int countInversions(int[] P) {
3         int count = 0;
4         int n = P.length;
5
6         for (int i = 0; i < n - 1; i++) {
7             for (int j = i + 1; j < n; j++) { // Ensure j > i
8                 if (P[i] > P[j]) {
9                     count++;
10                }
11            }
12        }
13        return count;
14    }
15
16    Run main | Debug main | Run | Debug
17    public static void main(String[] args) {
18        int[] P = {1, 9, 6, 4, 5};
19        System.out.println("The inversion count is " + countInversions(P));
20    }
21
22
23
```

PROBLEMS 5 OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
PS C:\Users\vivek> & 'C:\Program Files\Eclipse Adoptium\jdk-21.0.4.7-hotspot\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\vivek\AppData\Local\Temp\vscodesws_f39ab\jdt_ws\jdt.ls-java-project\bin' 'InversionCount'
The inversion count is 5
```

```
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8                  if (P[i] > P[j]) {
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10                 }
11             }
12         }
13         return count;
14     }
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16     public static void main(String[] args) {
17         int[] P = {1, 9, 6, 4, 5};
18         System.out.println("The inversion count is " + countInversions(P));
19     }
20 }
21
```