NORTH WESTERN UNIVERSITY

Object Oriented Programming Laboratory - 2102

Group Lab Report

Submitted By

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Session : Spring - 2022

Dept. : CSE 2.1

Section : C

Team Link : https://icpc.global/private/teams/802516

Submitted To

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CONTRIBUTION TO LAB REPORT

ALGORITHM

UTSHO MRIDHA
ID: 20221102101
Time Spent: ~30 minutes

PSEUDO CODE

MULLAH MOHAMMAD SHAHJALAL
ID: 20221089010
Time Spent: ~25 minutes

CODING

SWAPNIL DAS SAIKAT
ID: 20221101010
Time Spent: ~20 minutes

Algorithm:

1. Initialize a scanner to take input of a long variable N
2. Initialize an array "count" of size 10 to keep track of the frequency of each digit
3. Use a while loop to iterate through each digit of N by repeatedly taking the modulus with 10 and dividing by 10
4. For each digit, increment the corresponding index in the count array
5. Initialize variables "maxCount" and "maxDigit" to keep track of the maximum frequency and digit
6. Use a for loop to iterate through the count array and update "maxCount" and "maxDigit" if a higher frequency is found
7. If count of current digit is same as maxCount, update maxDigit with the minimum of maxDigit and current digit
8. Print maxDigit
9. Close the scanner

Pseudo code:

```
scan = create new Scanner
N = scan.nextLong()
count = new int[10]
while N > 0:
   digit = N % 10
   count[digit]++
   N = N / 10
maxCount = 0
maxDigit = 9
for i = 0 to 9:
   if count[i] > maxCount:
      maxCount = count[i]
      maxDigit = i
   else if count[i] == maxCount:
      maxDigit = min(maxDigit, i)
print(maxDigit)
scan.close()
```

Source Code:

```java
package oop.lab.mostfrequentdigit;
import java.util.Scanner;

public class MostFrequentDigit {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        long N = scan.nextLong();
        int[] count = new int[10];
        while (N > 0) {
            int digit = (int) (N % 10);
            count[digit]++;
            N /= 10;
        }
        int maxCount = 0, maxDigit = 9;
        for (int i = 0; i <= 9; i++) {
            if (count[i] > maxCount) {
                maxCount = count[i];
                maxDigit = i;
            }else if(count[i] == maxCount){
                maxDigit = Math.min(maxDigit,i);
            }
        }
        System.out.println(maxDigit);
        scan.close();
    }
}
```