

Ex.no:02

Sorting algorithm using Arrays

Date:09.07.24

Aim:

Program:

- 1.) Given a string s, sort it in decreasing order based on the frequency of the characters. The frequency of character is the number of times it appears in the string. Return the sorted string. If there are multiple answers, return any of them.
- 2.) You are given an integer array(arr). You can choose an array of integers and remove all the occurrences of these integers in the array.
- 3.)C++ program to sort the student's grades or names in a small class using selection sort.
- 4.)C++ Program to sort the employees and their salary in ascending order of the salary using bubble sort.

Algorithm:



Code:**1.)**

```
#include<iostream>
using namespace std;
int main(){
    string s;
    cout<<"Enter the string:";
    cin>>s;
    int n=s.length();
    int arr[n];int count1=0,i,j;
    char stf[n];int freq[n];int minx;
    for (i=0;i<n;i++){
        stf[i]=s[i]; }
    for(i=0;i<n;i++){
        for(j=0;j<n;j++){
            if(stf[i]==stf[j]){
                count1++;}}
        freq[i]=count1;
        count1=0;}
    for(i=0;i<n-1;i++){
        minx=i;
        for(j=i+1;j<n;j++){
            if(freq[minx]<freq[j]){
                minx=j;}}
        if(minx!=i){
            swap(freq[i],freq[minx]);
            swap(stf[i],stf[minx]);}}
    for(i=0;i<n;i++){
        cout<<stf[i];}}
```

Output:

```
Enter the string:tree
eetr
Process returned 0 (0x0)   execution time : 3.511 s
Press any key to continue.
|
```

2.)

```
#include<iostream>
using namespace std;
int main()
{
    int arr[]={3,5,1,7,4,9,12};
    int ct=0;
    int targ=9;
    int n=7;
    for(int i=0;i<n;++i)
    {
        for( int j=i+1;j<n;++j){
            for(int k=j+1;k<n;++k)
            {
                if(arr[i]+arr[j]+arr[k]==targ){
                    ct++;
                }
            }
        }
    }
    cout<<ct;}
```

Output:

```
1
Process returned 0 (0x0)   execution time : 0.090 s
Press any key to continue.
```

3.)

```
#include<iostream>

using namespace std;

struct class1{
    int grade;
    string name;};

int main(){int n,min1;
    cout<<"Enter number of students:";
    cin>>n;
    struct class1 student[n];
    for(int i=0;i<n;i++){
        cout<<"enter student name:";
        cin>>student[i].name;
        cout<<"Enter student grade:";
        cin>>student[i].grade;}
    for(int i=0;i<n-1;i++){ min1=i;
        for(int j=i+1;j<n;j++){
            if(student[j].grade<student[min1].grade){
                min1=j;}}
        swap(student[i],student[min1]);}
    for(int i=0;i<n;i++){
        cout<<"\n"<<student[i].grade;}}
```

Output:

```
Enter number of students:2
enter student name:arun
Enter student grade:90
enter student name:sriram
Enter student grade:91

90
91
Process returned 0 (0x0)   execution time : 8.517 s
Press any key to continue.
```

4.)

```
#include<iostream>
using namespace std;
struct employee{
    int salary;
    string name;};
int main(){
    int n,min1;
    cout<<"Enter how many elements:";
    cin>>n;
    struct employee emp[n];
    for(int i=0;i<n;i++){
        cout<<"enter emp name:";
        cin>>emp[i].name;
        cout<<"Enter emp salary:";
        cin>>emp[i].salary;}
    for(int i=0;i<n-1;i++){
        for(int j=0;j<n-i-1;j++){
            if(emp[j].salary>emp[j+1].salary){
                swap(emp[j],emp[j+1]);}}}
    for(int i=0;i<n;i++){
        cout<<emp[i].salary<<" ";}}
```

Output:

```
Enter how many elements:2
enter emp name:arun
Enter emp salary:50000
enter emp name:sriram
Enter emp salary:51000
50000 51000
Process returned 0 (0x0)   execution time : 16.235 s
Press any key to continue.
```

Result:

The above programs are executed successfully.