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Diary Number: 11908/2019-CO/SW

Z_{jaid} Sort

1. ABSTRACT

Every Element in the Set provided have their own unique property or relation between key and other elements from Set of Data , this property defines the unique position in between the Set of Elements provided.

Sorting is based on Questioning the elements on their own properties/characteristic comparative to all the set of elements provided.

Exact and accurate answers to these questions gives the unique property to hold its location that where it must be present in provided set of values/elements.

Set of Questions to sort in Ascending fashion are as follows :-
1.Given Elements is Big than how many Elements in the sets?
2.Given Elements is Equal to how many Elements in the sets?
Answer to above questions gives exact location where it must be present in ascending order.

Set of Questions to sort in Descending fashion are as follows :-
1.Given Elements is Small than how many Elements in the sets?
2.Given Elements is Equal to how many Elements in the sets?
Answer to above questions gives exact location where it must be present in descending order

2. PROGRAMMING LANGUAGE (Implemented Working)

Since sorting technique is independent of language it is just a concept that is needed to test implementation if works properly.

C++ programming language is chosen to implement for testing and analysis of working of "Z-jaid Sort" Sorting technique.

3. CHART AND DIAGRAM

3.1 VARIABLE CHART

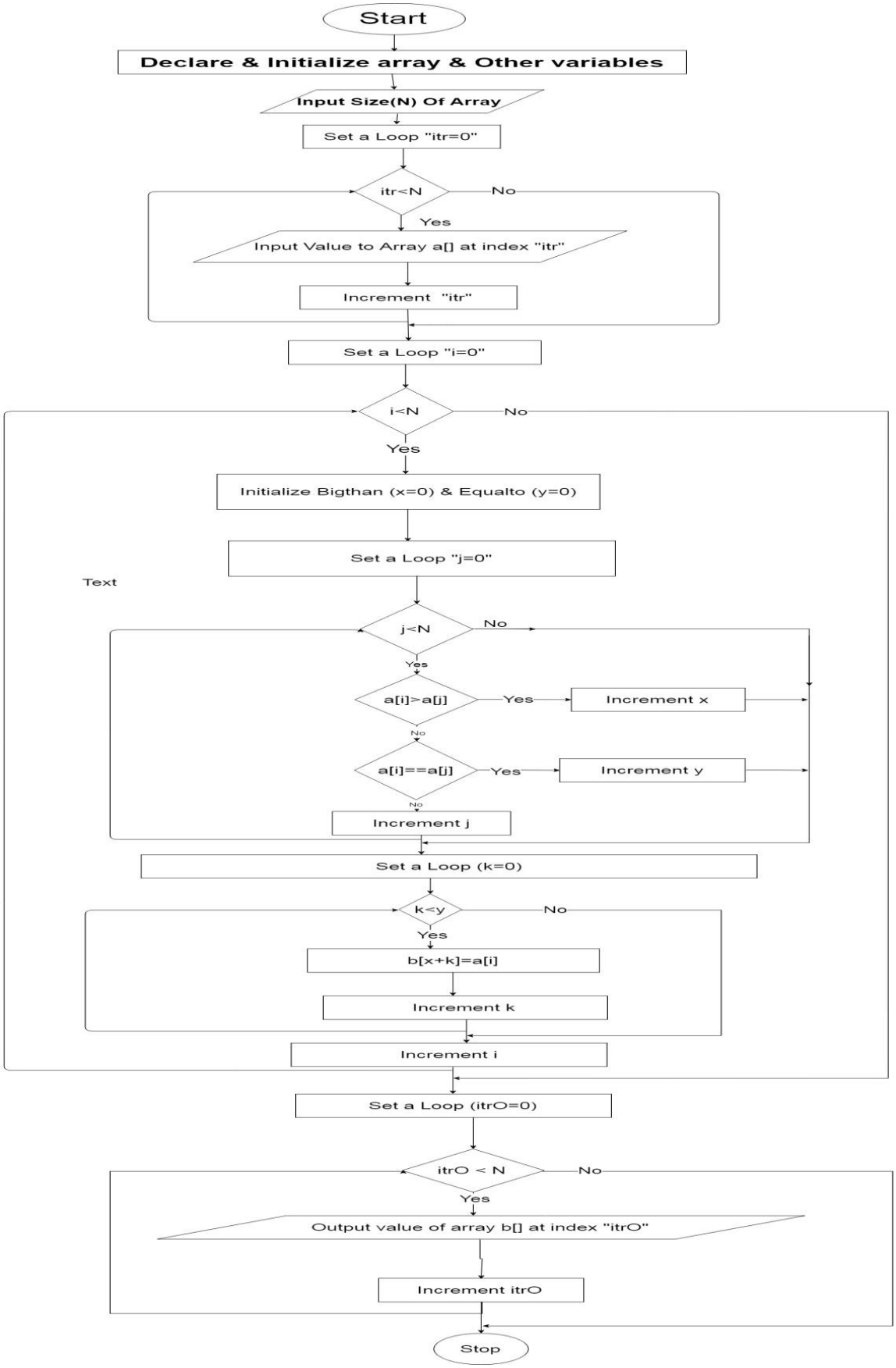
Variables needed are listed below in the "Variables Table".

Data Type	Variable Meaning	Variable Name	Initialized value Default / by User
Int	Size	N	0 / User
Int Array []	Input data	a[]	0 / User
Int Array []	Output data	b[]	0
Int	Bigthan counter	x	0
Int	Equalto counter	y	0
Int	Offset counter	k	0
Int	Iterator	itr	0
Int	Iterator	itrO	0
Int	Index Iterator	i	0
Int	Index Iterator	j	0

VARIABLE TABLE

Two integer type array (a[] & b[]) used of size (N) all these input variables
Three Variables (x ,y ,k) used as counters integer variables
Two Variables (itr , itrO) used Iterators variables

3.2 FLOWCHART



4. ALGORITHM

For Ascending order…following algorithm & flowchart provided.

1: Start the Program.
2: Declare & initialize Array & other variables.
3: Enter the Input size varible of Array “N”.
4: Set a Loop “itr=0”.
    4.1: Check if “itr<N” results false then go to step (5) else continue .
    4.2: Enter value of Array “a[]” at index “itr”.
    4.3: Increment “itr” value.
    4.4: Go to Step (4.1).
5: Set a Loop “i=0”.
    5.1: Check if “i<N” results false then go to step (6) else continue.
    5.2: Initialize Bigthan “x” variable with “0” value & Initialize Equalto “y” variable with “0” value.
    5.3: Set a Loop “j=0”.
        5.3.1: Check if “j<N” results false Go to step (5.4) else continue.
        5.3.2: Check if “a[i]>a[j]” results true Increment “x” value.
        5.3.3: Check if “a[i]=a[j]” results true Increment “y” value.
        5.3.4: Increment “j” value.
        5.3.5: Go to Step (5.3.1).
    5.4: Set a Loop “k=0”.
        5.4.1: Check if “k<y” results false go to step (5.5) else continue.
        5.4.2: Put value of “a[i]” into Array “b[]” at index “x+k”.
        5.4.3: Increment “k” value.
        5.4.4: Go to step (5.4.1).
    5.5: Increment “i” value.
    5.6: Go to step (5.1).
6: Set a Loop “itrO=0”.
    6.1: Check if “itrO<N” results false go to step (7) else continue.
    6.2: Display value of Array “b[]” at index “itrO”.
    6.3: Increment “itrO” value.
    6.4: Go to step (6.1).
7: Stop the Program.

5. SOURCE CODE

```
#include<iostream>
using namespace std;
#define MAX 20
int main(){

int a[MAX],b[MAX];
int N,x,y,k,i,j;
char choice;
cout<<"WELCOME USER TO SORTING PROGRAM 'Z-jaidSort' "<<endl;
do{
	//ip
	cout<<"Enter the total number of elements you need to sort"<<endl;
	cin>>N;
	cout<<"Enter elements"<<endl;
	for(int h=0;h<N;h++){
		cin>>a[h];
	}
	//ip display
	cout<<"You entered elements are:"<<endl;
	for(int o=0;o<N;o++){
		cout<<a[o]<<"\t";
	}
	//sort
	for(i=0;i<N;i++){
		x=0,y=0;
		for(j=0;j<N;j++){
			if(a[i]>a[j]){
				x++;
				}
			if(a[i]==a[j]){
				y++;
				}
		}

		for(k=0;k<y;k++){
			b[x+k]=a[i];
		}
	}
	//op display
	cout<<"\nSorted elements in ascending order are:"<<endl;
	for(int e=0;e<N;e++){
	cout<<b[e]<<"\t";
	}
	cout<<endl;
	cout<<"Want to Continue...press(y) \n Want to Exit...press(n or any key) "<<endl;
	cin>>choice;
}while(choice=='y');
cout<<"Thank you!!! \n Have a nice day"<<endl;
}
```

6. NO OBJECTION CERTIFICATE

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Ref. No.: PCCOER/NOC/2019-20/445 Date : 26/09/2019

In the matter of Diary No-11908/2019-CO/SW

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I, **Dr. Harish Tiwari**(Principal) whose address is Pimpri Chinchwad College of Engineering and Research, Plot No-B,Sector No.-11,Gate No-1,Laxminagar, Ravet, Haveli, Pune-412101.I do hereby state that Mohammad Jaid Mulani is the author of the Computer Software Work titled "Z-Jaid Sort" and have assigned all my rights in the said Computer Software Work fully to Mohammad Jaid Mulani, whose address is Pimpri Chinchwad College of Engineering and Research, Plot No-B, Sector No.-11,Gate No-1, Laxminagar, Ravet, Haveli, Pune-412101. I have received full and final consideration in lieu of my services.

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Acknowledgement

I also acknowledge the receipt of the application filed by the applicant for registration of this work in Form – XIV along with Statement of Particulars & Further Particulars.

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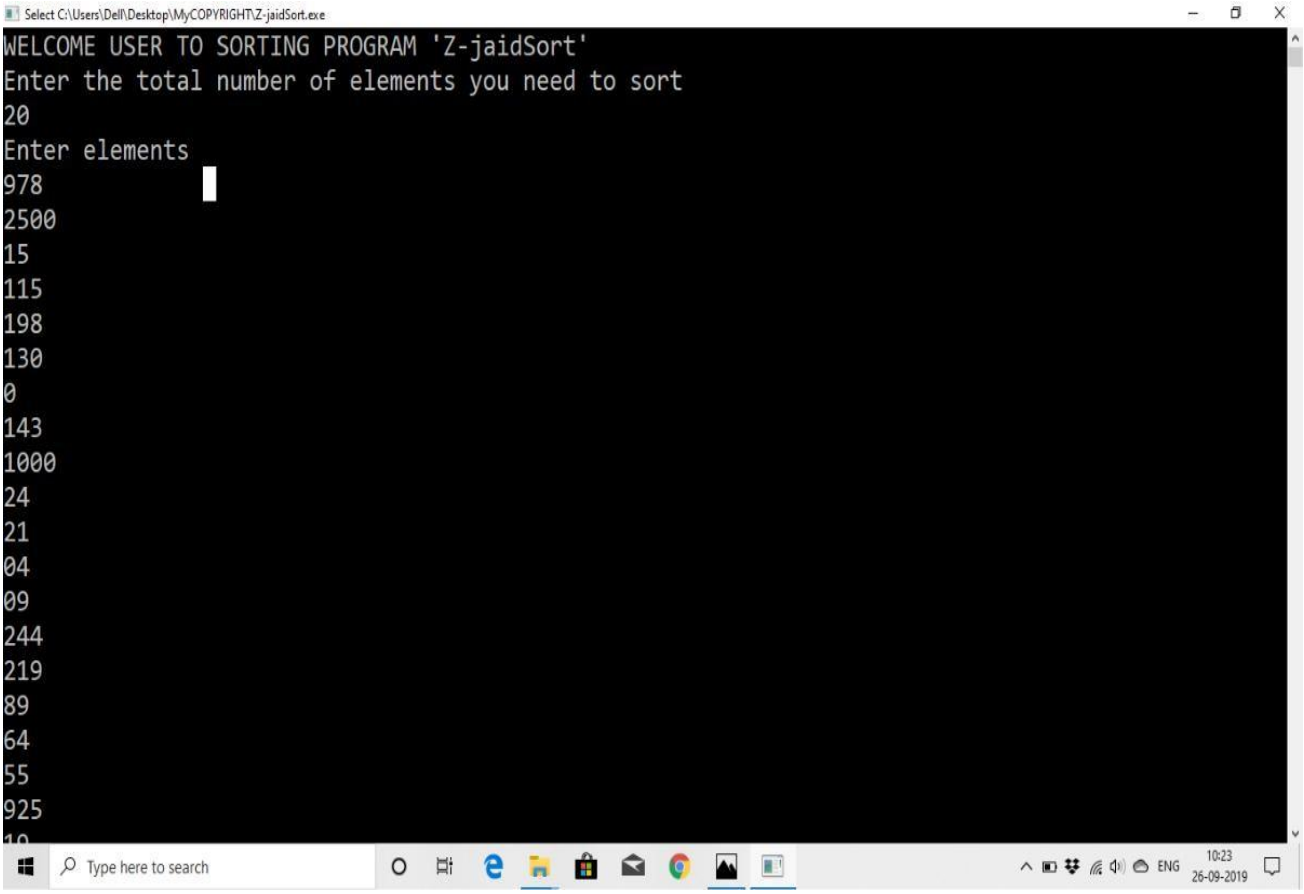
7. OUTPUT SCREENSHOT

7.1: WELCOME SCREEN AND INPUT EXAMPLE



7.2: OUTPUT RESULT FOR WORKING EXAMPLE