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Aim-Implement Sorting Algorithms on Strings-Bubble Sort & Selection Sort

CODE:

```
#include<iostream>
#include<string.h>
using namespace std;
void printStrings(char** arr,int size){
    for(int i=0;i<size;i++){
        cout<<arr[i]<<"\t";
    }cout<<endl;
}
void selectionSort(char** arr,int size,bool ascendingOrder){
    char *temp=NULL;int i,j,maxElementIndex;
    for(i=size-1;i>0;i--){
        maxElementIndex=0;
        for(j=1;j<=i;j++){
            if(ascendingOrder){
                if(strcmp(arr[maxElementIndex],arr[j])<0){ //here maxElementIndex
should be j
                    maxElementIndex=j;
                }
            }else{
                if(strcmp(arr[maxElementIndex],arr[j])>0){
                    maxElementIndex=j; //here maxElementIndex is
actually minElementIndex
                }
            }
        }
        temp=arr[maxElementIndex]; //shift element to the end of unsorted array
        arr[maxElementIndex]=arr[i];
        arr[i]=temp;
        cout<<"Iteration"<<size-i<<" ";printStrings(arr,size);
    }
}
void bubbleSort(char **arr,int size,bool ascendingOrder){
    char *temp=NULL;int i,j;
    int swapped=1;
    for(i=0;i<size-1 && swapped==1;i++){
        swapped=0;
        for(j=0;j<size-i-1;j++){
            if(ascendingOrder){ //ascending order
                if(strcmp(arr[j],arr[j+1])>0){ //first string greater
                    swapped=1;
                    temp=arr[j];
                    arr[j]=arr[j+1];
                    arr[j+1]=temp;
                }
            }else{ //descending order
                if(strcmp(arr[j],arr[j+1])<0){ //first string smaller
                    swapped=1;
                    temp=arr[j];
                    arr[j]=arr[j+1];
                    arr[j+1]=temp;
                }
            }
        }
    }
}
```

```

        cout<<"Iteration"<<i+1<<" ";printStrings(arr,size);
    }
}
int main(){
    char *names[6]={ "New Zealand","India","Australia","Raj","Shreya","Jugal"};
    selectionSort(names,6,true);cout<<endl;
    bubbleSort(names,6,true);cout<<endl;
    /*for(int i=0;i<6;i++)cout<<names[i]<<"\t";
    cout<<endl;*/
    bubbleSort(names,6,false);cout<<endl;
    /*for(int i=0;i<6;i++)cout<<names[i]<<"\t";
    cout<<endl;*/selectionSort(names,6,true);cout<<endl;
    selectionSort(names,6,false);cout<<endl;
    return 0;
}

```

Output:

```

rajrahane@visraj-lenovo-g500: ~/Desktop/c++/Lab1/FDS
rajrahane@visraj-lenovo-g500:~/Desktop/c++/Lab1/FDS$ ./sd1_ass8_sortingAlgos
Iteration1 New Zealand India Australia Raj Jugal Shreya
Iteration2 New Zealand India Australia Jugal Raj Shreya
Iteration3 Jugal India Australia New Zealand Raj Shreya Shreya
Iteration4 Australia India Jugal New Zealand Raj Shreya
Iteration5 Australia India Jugal New Zealand Raj Shreya

Iteration1 Australia India Jugal New Zealand Raj Shreya
Iteration1 India Jugal New Zealand Raj Shreya Australia
Iteration2 Jugal New Zealand Raj Shreya India Australia
Iteration3 New Zealand Raj Shreya Jugal India Australia
Iteration4 Raj Shreya New Zealand Jugal India Australia
Iteration5 Shreya Raj New Zealand Jugal India Australia

Iteration1 Australia Raj New Zealand Jugal India Shreya
Iteration2 Australia India New Zealand Jugal Raj Shreya
Iteration3 Australia India Jugal New Zealand Raj Shreya
Iteration4 Australia India Jugal New Zealand Raj Shreya
Iteration5 Australia India Jugal New Zealand Raj Shreya

Iteration1 Shreya India Jugal New Zealand Raj Australia
Iteration2 Shreya Raj Jugal New Zealand India Australia
Iteration3 Shreya Raj New Zealand Jugal India Australia
Iteration4 Shreya Raj New Zealand Jugal India Australia
Iteration5 Shreya Raj New Zealand Jugal India Australia
rajrahane@visraj-lenovo-g500:~/Desktop/c++/Lab1/FDS$

```