CS-114 - Fundamental of Programing

Lab Tasks 8

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LAB TASK 1:

1. Write a C++ program to calculate the average of numbers of array.

Code:

```cpp
#include <iostream>

using namespace std;
int main()
{
//        LAB TASK 1
        int l;   //array length
        float sum;      //sum of all elements
        cout<<"Please enter the array length"<<endl;
        cin>>l;
        int a[l];
        cout<<"Please enter array elements"<<endl;
        for(int i=0; i<l; i+=1){cin>>a[i];}
        for(int j=0; j<l; j+=1){sum = sum + a[j];}
        cout<<"The average of all these elements is: "<<sum/l<<endl;


        return 0;

}
```

Result:

```
Please enter the array length
5
Please enter array elements
34
64
34
89
23
The average of all these elements is: 48.8

--------------------------------
Process exited after 6.005 seconds with return value 0
Press any key to continue . . .
```

LAB TASK 2:

2. Implement Bubble sort on an array of 5 integers.

Code:

```cpp
#include <iostream>

using namespace std;
int main()
{
//          LAB TASK 2
            int a[5];
            int bub[5];
            int p = 4;
            cout<<"Input the elements: "<<endl;
            for(int i=0; i<5; i+=1){
            cin>>a[i];}
            cout<<"The given array is: {";
            for(int c=0; c<5; c+=1){
            cout<<a[c]<<' ';}
            cout<<"}";
            for(int z=0; z<5; z+=1){
                    for(int j=0; j<5; j+=1){
                                    if(a[j]>=a[0] && a[j]>=a[1] && a[j]>=a[2] && a[j]>=a[3] && a[j]>=a[4]){
                            bub[p]=a[j]; a[j]=0; p=p-1;}
                    else{continue;}
                    if(a[0]==0 && a[1]==0 && a[2]==0 && a[3]==0 && a[4]==0){break;}
                    }
            }
            cout<<"The bubble sorted array is: {";
            for(int b=0; b<5; b+=1){
            cout<<bub[b]<<' ';}
            cout<<"}";
            return 0;
}
```

Result:

```
Input the elements:
7
24
832
3
90
The given array is: {7 24 832 3 90 }The bubble sorted array is: {3 7 24 90 832 }
-------------------------------
Process exited after 6.146 seconds with return value 0
Press any key to continue . . .
```

LAB TASK 3:

3. Implement Selection Sort on an array of 5 integers.

Code:

```cpp
#include <iostream>

using namespace std;
int main()
{
//          LAB TASK 3
            int u[5];
            int min=0;
            cout<<"Input the elements: "<<endl;
            for(int i=0; i<5; i+=1){cin>>u[i];}
            cout<<"The given array is: {";
            for(int j=0; j<5; j+=1){cout<<u[j]<<' ';}
            cout<<"}"<<endl;;
            min=u[0];

            for(int i=0;i<5;i++){
            min=u[i];
            for(int j=i; j<5; j++){
                    if (min>u[j]){
                            min = u[j];
                            u[j]=u[i];
                            u[i]=min;
                    }
            }
            }
            cout<<"The selection sorted array is: {";
            for(int b=0; b<5; b+=1){cout<<u[b]<<' ';}
            cout<<"}"<<endl;
            return 0;

}
```

Result:

```
Input the elements:
5
39
23
8
32
The given array is: {5 39 23 8 32 }
The selection sorted array is: {5 8 23 32 39 }

--------------------------------
Process exited after 5.538 seconds with return value 0
Press any key to continue . . .
```