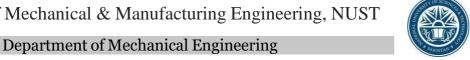
School Of Mechanical & Manufacturing Engineering, NUST



CS-114 - Fundamental of **Programing**

Lab Tasks 8

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Department of Mechanical Engineering

LAB TASK 1:

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

Code:

```
#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;</pre>
         cin>>l;
         int a[1];
         cout<<"Please enter array elements"<<endl;</pre>
         for(int i=0; i<1; i+=1){cin>>a[i];}
         for(int j=0; j<1; j+=1){sum = sum + a[j];}
         cout<<"The average of all these elements is: "<<sum/l<<endl;</pre>
         return 0;
}
```

Result:

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LAB TASK 2:

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

Code:

```
#include <iostream>
using namespace std;
int main()
{
//
          LAB TASK 2
           int a[5];
          int bub[5];
           int p = 4;
           cout<<"Input the elements: "<<endl;</pre>
           for(int i=0; i<5; i+=1){
           cin>>a[i];}
           cout<<"The given array is: {";</pre>
           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: {";</pre>
           for(int b=0; b<5; b+=1){
           cout<<bub[b]<<' ';}
           cout<<"}";
           return 0;
}
```

Result:

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LAB TASK 3:

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

Code:

```
#include <iostream>
using namespace std;
int main()
{
//
          LAB TASK 3
          int u[5];
          int min=0;
          cout<<"Input the elements: "<<endl;</pre>
          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: {";</pre>
          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 . . .
```