

PROGRAMING FUNDAMENTAL

3rd ASSIGNMENT

Session: 1E

Name:

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Roll no:

BCSM-F19-262

Problem set 1

1. Write a program that stores 10 numbers in an array and find the max no among those ten.

Program:

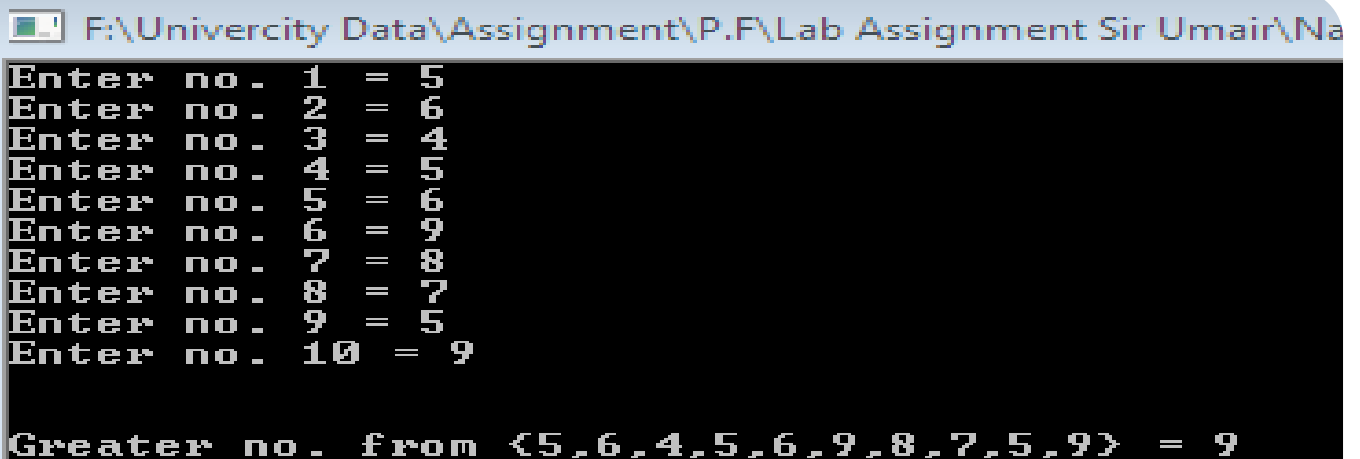
```
#include<iostream>
#include<conio.h>
using namespace std;
int main ()
{
    int array [10], max_no;
    max_no=array [0];
    for (int i=0; i<10; i++)
    {
        cout<<"Enter no. "<<i+1<<" = ";
        cin>>array[i];
        if(array[i]>max_no)
            max_no=array[i];
    }
    cout<<endl<<endl;
    cout<<"Greater no. from {";
    for (int n=0; n<10; n++)
    {
        cout<<array[n];
        if (n!= 9)
            cout<<",";
    }
}
```

```

    cout<<"} = "<<max_no;
    getch ();
    return 0;
}

```

Output console:



```

F:\Univercity Data\Assignment\P.F\Lab Assignment Sir Umair\Na
Enter no. 1 = 5
Enter no. 2 = 6
Enter no. 3 = 4
Enter no. 4 = 5
Enter no. 5 = 6
Enter no. 6 = 9
Enter no. 7 = 8
Enter no. 8 = 7
Enter no. 9 = 5
Enter no. 10 = 9

Greater no. from {5,6,4,5,6,9,8,7,5,9} = 9

```

2. Read the entries of an array of 10 integers from a user. Compute x as the average of the 10 entries and then compute the average of those entries that are greater than or equal to x. Print this final average.

Program:

```

#include<iostream>
#include<conio.h>
using namespace std;
float x;
int main ()
{

```

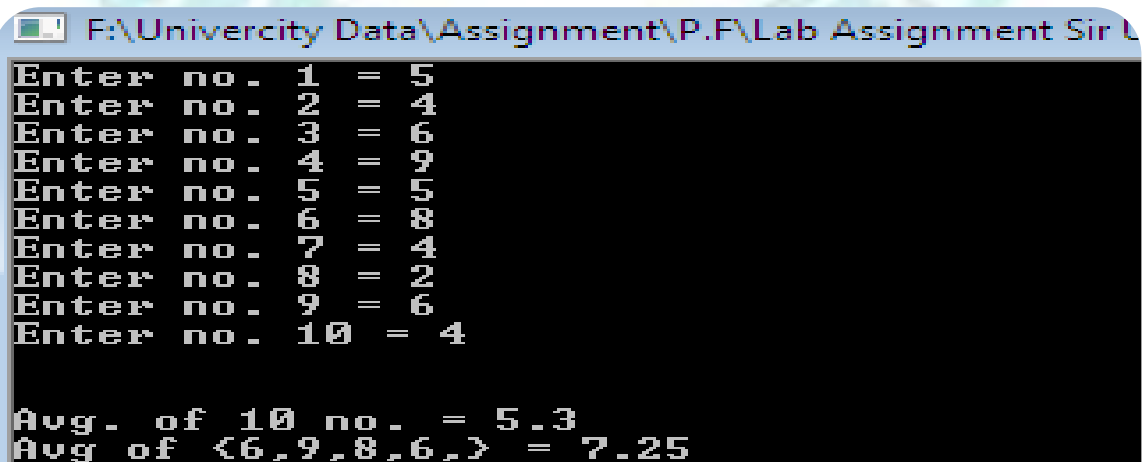
```

float array [10], sum=0;
for (int i=0; i<10; i++)
{
    cout<<"Enter no. "<<i+1<<" = ";
    cin>>array[i];
    sum+=array[i];
}
x=sum/10.0;

cout<<endl<<endl;
cout<<"Avg. of 10 no. = "<<x;
cout<<endl;
float sum1=0, avg, n=0;
cout<<"Avg of {";
for (int j=0; j<10; j++)
{
    if(array[j]>=x)
    {
        n++;
        cout<<array[j];
        cout<<",";
        sum1+=array[j];
    }
}
cout<<"} = "<<(sum1/n);
getch ();
return 0;
}

```

Output console:



```

F:\Univercity Data\Assignment\P.F\Lab Assignment Sir L
Enter no. 1 = 5
Enter no. 2 = 4
Enter no. 3 = 6
Enter no. 4 = 9
Enter no. 5 = 5
Enter no. 6 = 8
Enter no. 7 = 4
Enter no. 8 = 2
Enter no. 9 = 6
Enter no. 10 = 4

Avg. of 10 no. = 5.3
Avg of {6,9,8,6,> = 7.25

```

3. Write a C++ program to find second largest element in an array.

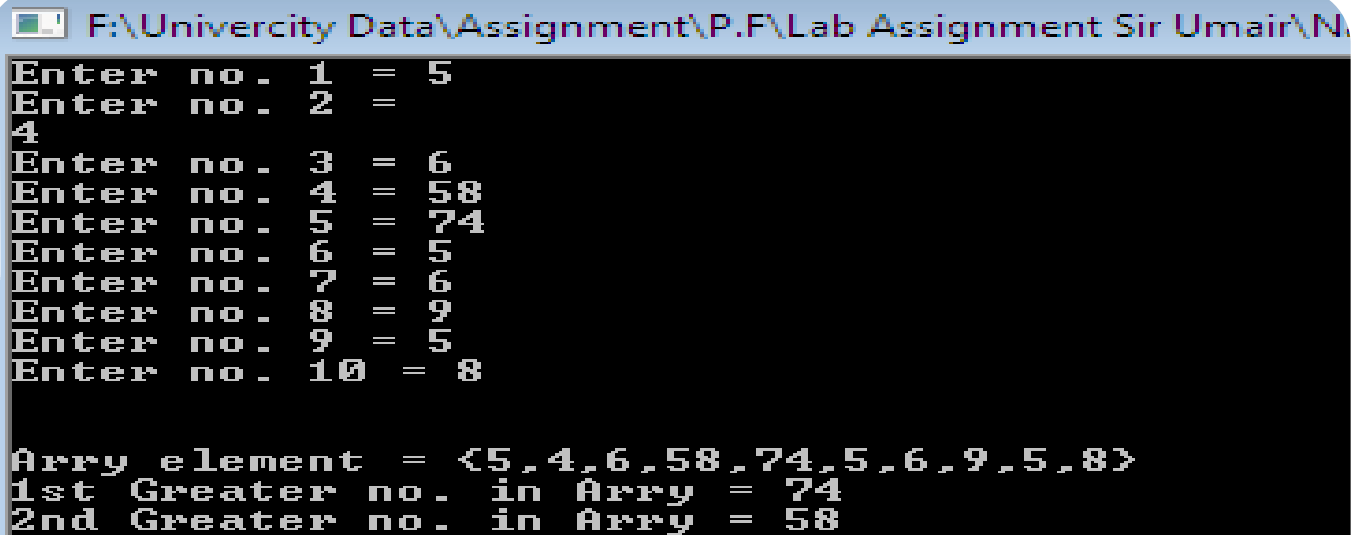
Program:

```
#include<iostream>
#include<conio.h>
using namespace std;
int main ()
{
    int array [10], max_1no, max_2no;
    max_1no=array [0];
    for (int i=0; i<10; i++)
    {
        cout<<"Enter no. "<<i+1<<" = ";
        cin>>array[i];
        if(array[i]>max_1no)
        {
            max_2no=max_1no;
            max_1no=array[i];
        }
    }
    cout<<endl<<endl;
    cout<<"Array element = {";
    for (int n=0; n<10; n++)
    {
        cout<<array[n];
        if (n!= 9)
            cout<<",";
    }
    cout<<"}";
    cout<<endl;
    cout<<"1st Greater no. in Array = "<<max_1no;
    cout<<"\n2nd Greater no. in Array = "<<max_2no;
    getch ();
}
```

```
    return 0;

}
```

Output console:



```
F:\Univercity Data\Assignment\P.F\Lab Assignment Sir Umair\N
Enter no. 1 = 5
Enter no. 2 = 4
Enter no. 3 = 6
Enter no. 4 = 58
Enter no. 5 = 74
Enter no. 6 = 5
Enter no. 7 = 6
Enter no. 8 = 9
Enter no. 9 = 5
Enter no. 10 = 8

Arry element = <5,4,6,58,74,5,6,9,5,8>
1st Greater no. in Arry = 74
2nd Greater no. in Arry = 58
```

Problem set 2

1. Write a C++ program to merge two arrays to third array using user defined function.

Program:

```
#include<iostream>

#include<conio.h>

using namespace std;

void arry_input (int arry []);

void arry_output (int arry []);
```

```

int main ()
{
    int arry1[5], arry 2[5], marge [10];
    cout<<"Enter 5 Elements in 1st Array\n";
    arry_input(arry1);
    cout<<"\n Enter 5 Elements in 2nd Array\n";
    arry_input(arry2);
    for (int i=0; i<5; i++)
    {
        marge[i]=arry1[i];
        marge[i+5] =arry2[i];
    }
    cout<<"\n\n Elements of Array After Merge\n";
    cout<<"Merge Array = {";
    arry_output(marge);
    cout<<"}";
    getch ();
    return 0;
}

void arry_input (int arry [])
{
    for (int i=0; i<5; i++)
    {
        cout<<"Enter element no. "<<i+1<<" = ";
        cin>>arry[i];
    }
}

```



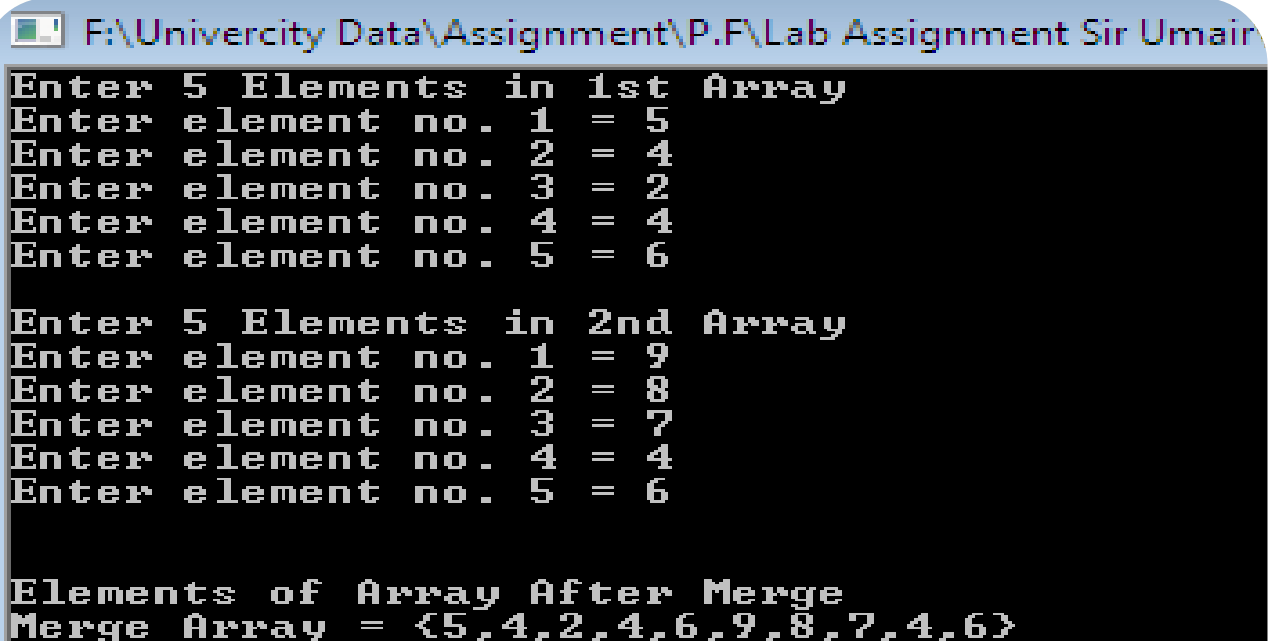
```

    }

    void array_output (int array [])
    {
        For (int i=0; i<10; i++)
        {
            cout<<array[i];
            if(i !=9)
            {
                cout<<" ";
            }
        }
    }
}

```

Output console:



```

F:\Univercity Data\Assignment\P.F\Lab Assignment Sir Umair
Enter 5 Elements in 1st Array
Enter element no. 1 = 5
Enter element no. 2 = 4
Enter element no. 3 = 2
Enter element no. 4 = 4
Enter element no. 5 = 6

Enter 5 Elements in 2nd Array
Enter element no. 1 = 9
Enter element no. 2 = 8
Enter element no. 3 = 7
Enter element no. 4 = 4
Enter element no. 5 = 6

Elements of Array After Merge
Merge Array = {5,4,2,4,6,9,8,7,4,6}

```

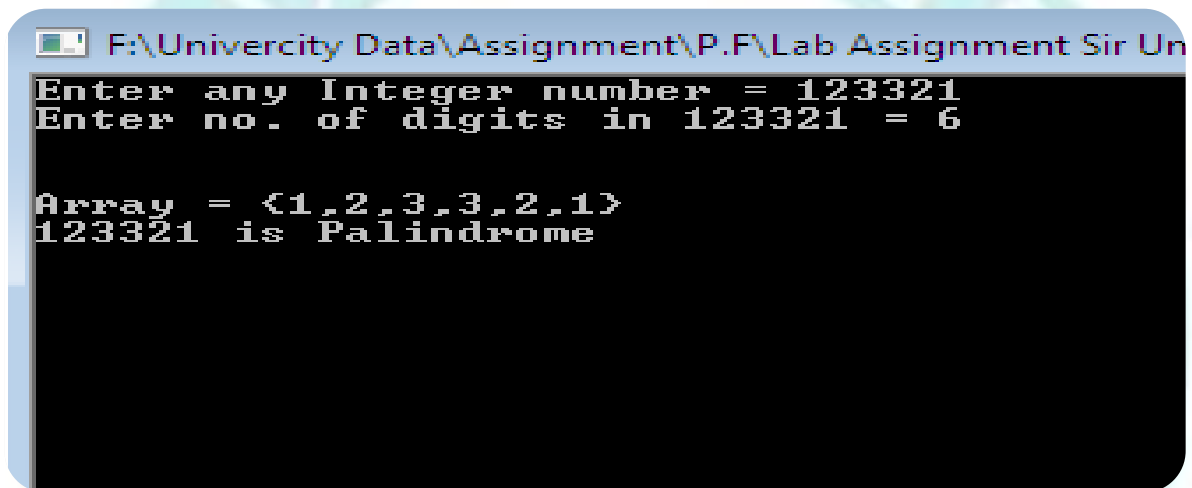

2. Write a program that asks the user to enter an integer. Convert the integer to individual digits and store them to an array i.e. one digit on one index position and prints that. And then checks whether that number is a palindrome or not. Palindrome is a number that is read same from L to R and R to L. For e.g. 2345432 is palindrome so is 123321 where as 1234567 is not.

Program:

```
#include<iostream>
#include<conio.h>
using namespace std;
int main ()
{
    int num, d, digit, rev=0;
    cout<<"Enter any Integer number = ";
    cin>>num;
    cout<<"Enter no. of digits in "<<num<<" = ";
    cin>>d;
    int loop=d, n=num;
    int array[d];
    while(num>0)
    {
        digit=num%10;
        rev= (rev* 10) +digit;
        array[d-1] =digit;
        num/=10;
        d--;
    }
    cout<<"\n\n Array = {";
    for (int i=0; i<loop; i++)
    {
        cout<<array[i];
        if(i !=loop-1)
        {
            cout<<",";
        }
    }
}
```

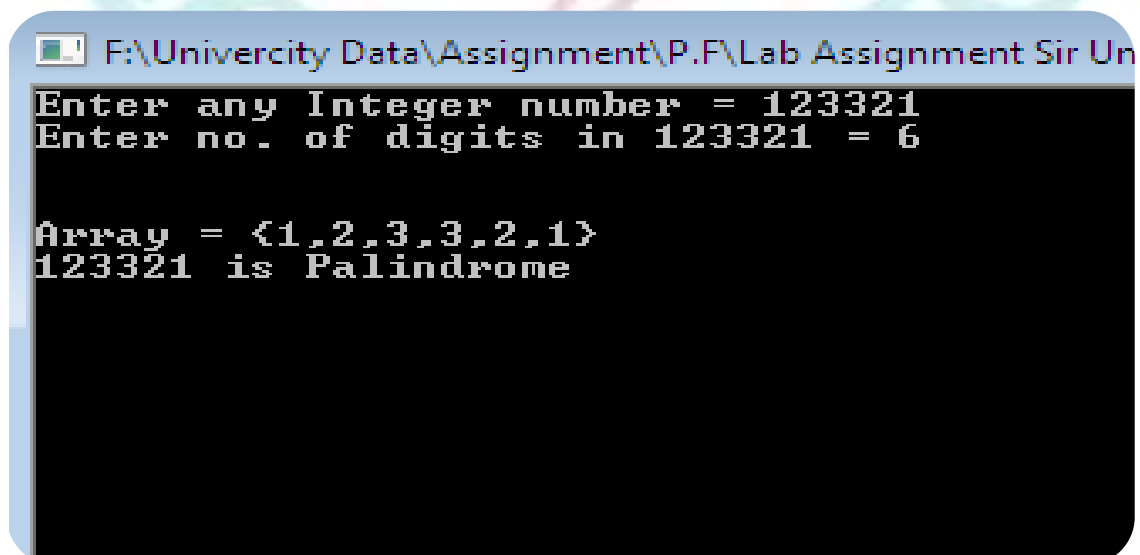
```
cout<<"}";  
if(n==rev)  
    cout<<endl<<n<<" is Palindrome";  
else  
    cout<<endl<<n<<" is not Palindrome";  
getch ();  
return 0;  
}
```

Output console 1:



```
F:\Univercity Data\Assignment\P.F\Lab Assignment Sir Un  
Enter any Integer number = 123321  
Enter no. of digits in 123321 = 6  
  
Array = <1,2,3,3,2,1>  
123321 is Palindrome
```

Output console 2:



```
F:\Univercity Data\Assignment\P.F\Lab Assignment Sir Un  
Enter any Integer number = 123321  
Enter no. of digits in 123321 = 6  
  
Array = <1,2,3,3,2,1>  
123321 is Palindrome
```

3. Write a C+ program to search an element in an array using user defined function.

Program:

```
#include<iostream>
#include<conio.h>
using namespace std;
int main ()
{
    int array [] = {2,3,5,7,9,10,15,20,25,27,30,35};
    int num, loc=-1;
    cout<<"Enter any number to find = ";
    cin>>num;
    for (int i=0; i<12; i++)
    {
        if(array[i]==num)
        loc=i;
    }

    if(loc==-1)
        cout<<"\n value not found in the arry";
    else
    {
        cout<<"\n value found in the arry"<<endl;
        cout<<"At Index "<<loc;
        int index;
        cout<<"\n To check value enter same index = ";
        cin>>index;
        cout<<array[index];

    }

    getch ();
    return 0;
}
```

Output console:



F:\Univercity Data\Assignment\P.F\Lab Assignment Sir Umai

```
Enter any number to find = 25
```

```
value found in the array
```

```
At Index 8
```

```
To check value enter same index = 8
```

```
25
```

4. Write a C++ program to sort array elements in ascending or descending order.

Program:

```
#include<iostream>
#include<conio.h>
using namespace std;
void output (int array []);
void dis_sort (int array []);
int main ()
{
    int array [5];
    for (int i=0; i<5; i++)
    {
        cout<<"Enter Element no."<<i+1<<" = ";
        cin>>array[i];
    }
    cout<<"Value before sorting\n ";
    output(array);
```

```
dis_sort(array);
```

```
cout<<"\n\n The Descending sorted array\n";
```

```
output(array);
```

```
getch ();
```

```
return 0;
```

```
}
```

```
void output (int array [])
```

```
{
```

```
    for (int i=0;i<5;i++)
```

```
    {
```

```
        cout<<array[i];
```

```
        cout<<" ";
```

```
    }
```

```
}
```

```
void dis_sort (int array [])
```

```
{
```

```
    int min, temp;
```

```
    for (int i=0; i<4; i++)
```

```
    {
```

```
        min=i;
```

```
        for (int j=i+1; j<5; j++)
```

```
        {
```

```
            if(array[j]>array[min])
```

```
            min=j;
```

```
        }
```

```
        if (min!=i)
```

```
        {
```

```
            temp=array[i];
```

```
            array[i]=array[min];
```

```
            array[min]=temp;
```

```
        }
```

```
    }
```

```
}
```

Output console:

F:\Univercity Data\Assignment\P.F\Lab Assignn

```
Enter Element no.1 = 2
Enter Element no.2 = 5
Enter Element no.3 = 7
Enter Element no.4 = 8
Enter Element no.5 = 6
Value before sorting
  2 5 7 8 6
```

```
The Descending sorted array
8 7 6 5 2
```

