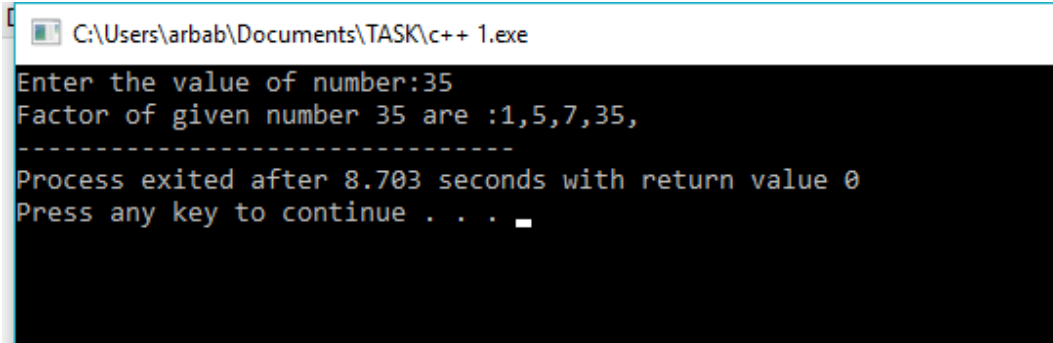


**Fundamental of programming
Assignment 1**

NAME	ARBAB SAGHIR
CLASS	ME-15(A)
REG NO	470382
DATE	28-11-2023

TASK 1

```
#include<iostream>
using namespace std;
int main()
{
    int num,x;
    cout<<"Enter the value of number:";
    cin>>num;
    cout<<"Factor of given number "<<num<<" are :";
    for(x=1;x<=num;x++)
    {
        if(num%x==0)
        {
            cout<<x<<" ";
        }
    }
    return 0;
}
```




The screenshot shows a Windows command prompt window titled "C:\Users\arbab\Documents\TASK\c++ 1.exe". The program has been executed with the input 35. The output displays the factors of 35: 1, 5, 7, and 35. The window also shows the execution time (8.703 seconds) and a prompt to press any key to continue.

```
C:\Users\arbab\Documents\TASK\c++ 1.exe
Enter the value of number:35
Factor of given number 35 are :1,5,7,35,
-----
Process exited after 8.703 seconds with return value 0
Press any key to continue . . .
```

TASK 2

```
#include <iostream>
int main() {
    int x = 5;
    int y = 10;
    if (x == 5)
    if (y == 10)
        std::cout << "x is 5 and y is 10" << std::endl;
    else
        std::cout << "x is not 5" << std::endl;
    return 0;
}
```

 C:\Users\arbab\Documents\TASK\c++ 2.exe

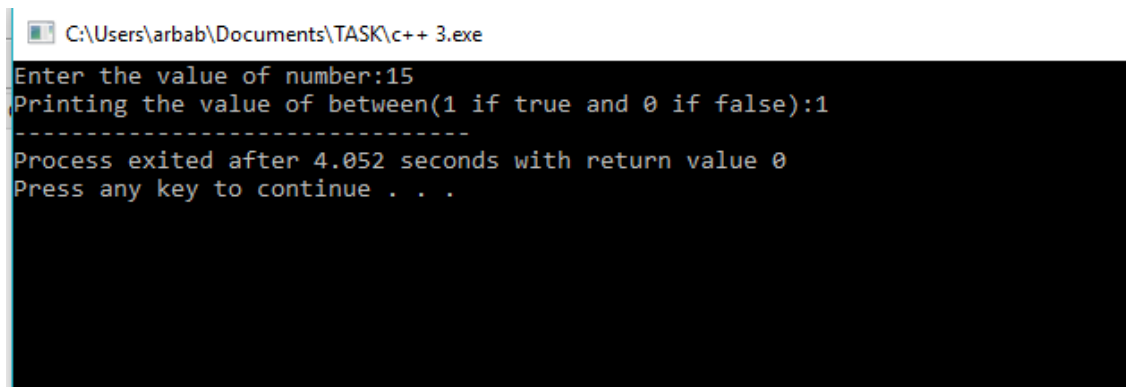
x is 5 and y is 10

Process exited after 0.06009 seconds with return value 0

Press any key to continue . . .

TASK 3

```
#include<iostream>
using namespace std;
int main()
{
    int num;
    bool btw;
    cout<<"Enter the value of number:";
    cin>>num;
    if(num>10 && num<=20)
    {
        btw=1;
    }
    else
    {
        btw=0;
    }
}
```

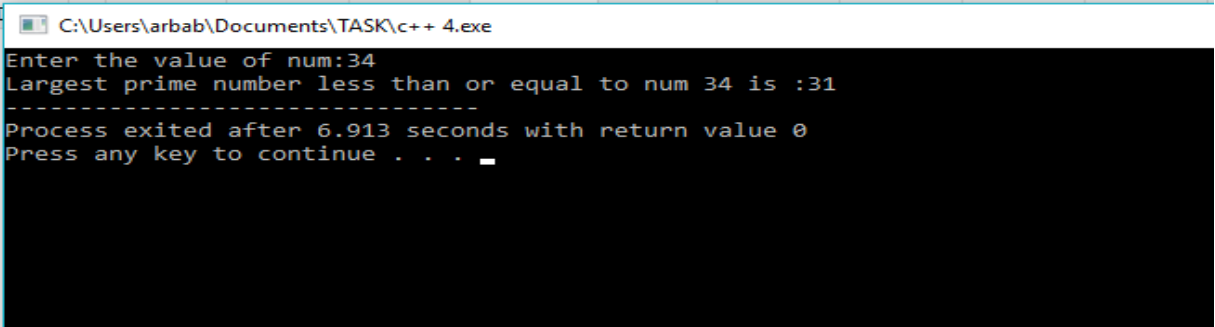


```
C:\Users\arbab\Documents\TASK\c++ 3.exe
Enter the value of number:15
Printing the value of between(1 if true and 0 if false):1
-----
Process exited after 4.052 seconds with return value 0
Press any key to continue . . .
```

```
cout<<"Printing the value of between(1 if true and 0 if false):"<<btw;
}
```

TASK 4

```
#include<iostream>
using namespace std;
int main()
{
    int num,rem,y;
    bool prime=true;
    cout<<"Enter the value of num:";
    cin>>num;
    for(int i=2;i<=num;i++)
    {
        for(int j=2;j<num;j++)
        {
            if(i!=j)
            {
                rem=i%j;
                if(rem!=0)
                {
                    prime=true;
                    continue;
                }
                else
                {prime=false;
                break;
                }
            }
        }
        if(prime)
        {y=i;
        }
    }
    cout<<"Largest prime number less than or equal to num "<<num<<" is : "<<y;
    return 0;
}
```




The screenshot shows a Windows command prompt window titled "C:\Users\arbab\Documents\TASK\c++ 4.exe". The program has been executed with the input 34. The output is as follows:

```
Enter the value of num:34
Largest prime number less than or equal to num 34 is :31
-----
Process exited after 6.913 seconds with return value 0
Press any key to continue . . .
```

TASK 5


```
#include<iostream>
#include<string>
using namespace std;
int main()
{
    string a;
    string b;
    cout<<"Enter the value for string1:";
    cin>>a;
    cout<<"Enter the value for string2:";
    cin>>b;
    int i,j,k,n;
    bool equal=true;
    n=a.length();
    if(a.length()!=b.length() || a!=b)
    {
        equal=false;
        cout<<"Strings are unequal";
    }
    if(a==b)
    {
        equal=true;
    }
    if(equal)
    {
        for(i=0;i<n;i++)
        {
            j=b[i];
            b[i]=b[n-i-1];
            b[n-i-1]=j;
            if(n%2!=0 && n-i-1==i)
            {
                break;
            }
            else if(n%2==0 && n-i==i)
            {
                break;
            }
        }
        cout<<"String 2 after rotation is : "<<b;
    }
}
```

 C:\Users\arbab\Documents\TASK\c++ 5.exe

```
Enter the value for string1:HEL00
Enter the value for string2:HEL00
String 2 after rotation is : 00LEH
-----
Process exited after 10.34 seconds with return value 0
Press any key to continue . . .
```

TASK 6

```
#include<iostream>
using namespace std;
int main()
{
    int i,dividend,divisor,quotient,num,remainder;
    cout<<"Enter the value of dividend:";
    cin>>dividend;
    cout<<"Enter the value of divisor:";
    cin>>divisor;
    num=dividend;
    for(i=0;i<=50;i++)
    {
        if(num>=divisor)
        {
            num=num-divisor;}
        else
        {
            break;
        }
    }
    quotient=i;
    remainder=num;
    cout<<dividend<<"/"<<divisor<<"="<<quotient<<endl;
    cout<<"Remainder is :"<<remainder;
}
```

 C:\Users\arbab\Documents\TASK\c++ 6.exe

Enter the value of dividend:95

Enter the value of divisor:5

95/5=19

Remainder is :0

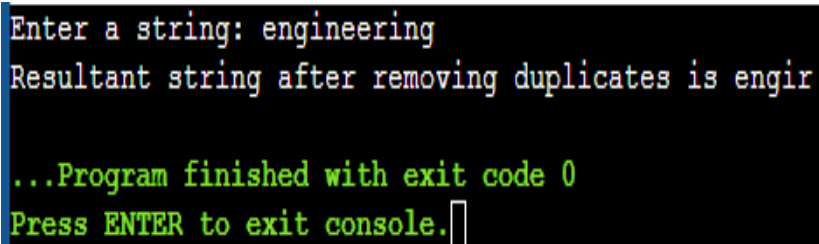
Process exited after 5.417 seconds with return value 0

Press any key to continue . . . ■

TASK 7

```
#include <iostream>
#include <string>
using namespace std;

int main() {
    string x;
    cout << "Enter a string: ";
    cin >> x;
    int z[256] = {0};
    for(char ch:x)
    {
        z[tolower(ch)]++;
    }
    string y = "";
    for (char ch:x)
    {
        if (z[tolower(ch)]!=0)
        {
            y = y+ch;
            z[tolower(ch)]=0;
        }
    }
    cout << "Resultant string after removing duplicates is " << y;
    return 0;
}
```



```
Enter a string: engineering
Resultant string after removing duplicates is engir

...Program finished with exit code 0
Press ENTER to exit console.
```


TASK 8

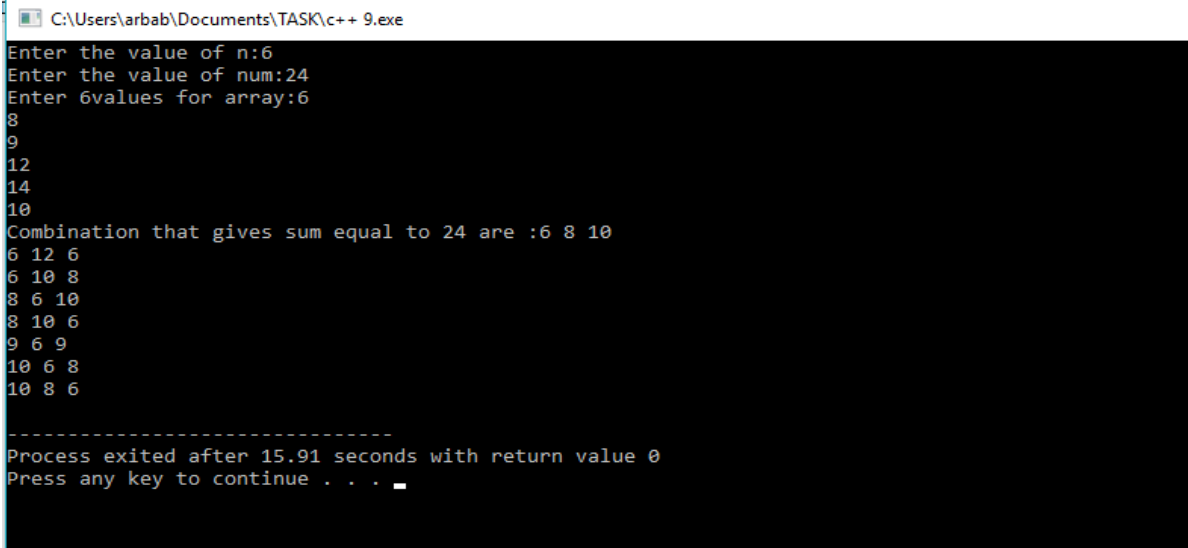
```
#include<iostream>
using namespace std;
int main()
{
    int a[5]={1,2,3,4,5};
    int num;
    cout<<"Enter the value of 5 numbers:";
    for(int i=0;i<5;i++)
    {
        cin>>num;
        a[i]=a[i]+num;
    }
    cout<<"Value after addition of num in array are:";
    for(int i=0;i<5;i++)
    {
        cout<<a[i]<<" ";
    }
}
```

C:\Users\arbab\Documents\TASK\c++ 8.exe

```
Enter the value of 5 numbers:4
3
7
8
2
Value after addition of num in array are:5 5 10 12 7
-----
Process exited after 6.775 seconds with return value 0
Press any key to continue . . .
```

TASK 9

```
#include<iostream>
using namespace std;
int main()
{
    int n,a[n],num(6);
    cout<<"Enter the value of n:";
    cin>>n;
    cout<<"Enter the value of num:";
    cin>>num;
    cout<<"Enter "<<n<<"values for array:";
    for(int i=0;i<n;i++)
    {
        cin>>a[i];
    }
    cout<<"Combination that gives sum equal to "<<num<<" are :";
    for(int i=0;i<n;i++)
    {
        for(int j=0;j<n;j++)
        {
            for(int k=0;k<n;k++)
            {
                if(a[i]+a[j]+a[k]==num&& a[i]!=a[j]&& a[j]!=a[k])
                {
                    cout<<a[i]<<" "<<a[j]<<" "<<a[k]<<" "<<endl;
                }
            }
        }
    }
}
```



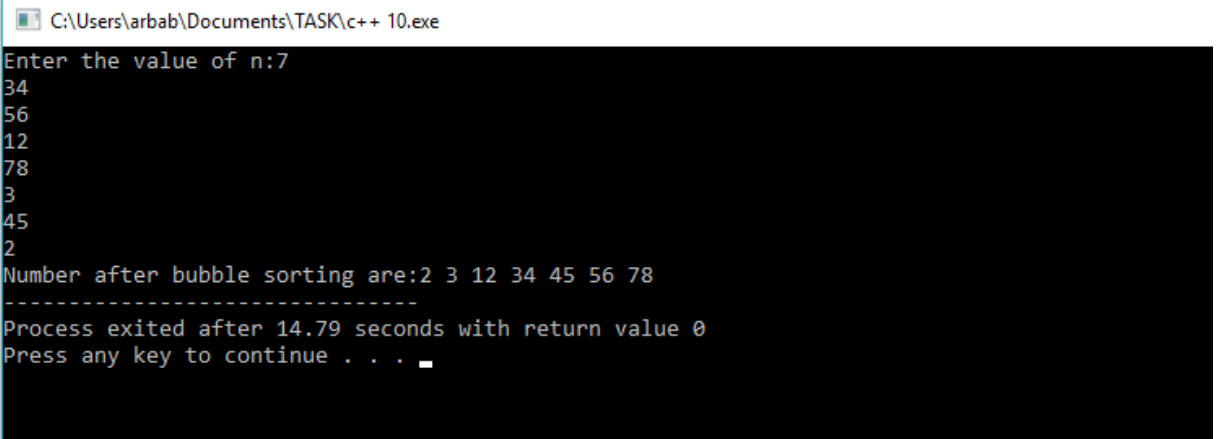
The screenshot shows a Windows command prompt window titled "C:\Users\arbab\Documents\TASK\c++ 9.exe". The program prompts the user for the number of elements (n) and the target sum (num). The user enters 6 for n and 24 for num. Then, the user enters 6 values for the array: 6, 8, 12, 14, 10, and 6. The program then displays all combinations of three distinct elements from the array that sum up to 24. The combinations are: 6 12 6, 6 10 8, 8 6 10, 8 10 6, 9 6 9, 10 6 8, and 10 8 6. At the bottom, it shows the process exited after 15.91 seconds with a return value of 0, and a prompt to press any key to continue.

```
C:\Users\arbab\Documents\TASK\c++ 9.exe
Enter the value of n:6
Enter the value of num:24
Enter 6values for array:6
8
9
12
14
10
Combination that gives sum equal to 24 are :6 8 10
6 12 6
6 10 8
8 6 10
8 10 6
9 6 9
10 6 8
10 8 6

-----
Process exited after 15.91 seconds with return value 0
Press any key to continue . . .
```

TASK 10

```
#include<iostream>
using namespace std;
int main()
{
    int n,a[n];
    cout<<"Enter the value of n:";
    cin>>n;
    int i,j,k,d;
    for(i=0;i<n;i++)
    {
        cin>>a[i];
    }
    for(i=0;i<n;i++)
    {
        for(j=0;j<n-1;j++)
        {
            for(k=j;k<=j+1;k++)
            {
                if(a[j]>a[k])
                {
                    d=a[j];
                    a[j]=a[k];
                    a[k]=d;
                }
            }
        }
    }
    cout<<"Number after bubble sorting are:";
    for(int m=0;m<n;m++)
    {
        cout<<a[m]<<" ";
    }
    return 0;
}
```



```
C:\Users\arbab\Documents\TASK\c++ 10.exe
Enter the value of n:7
34
56
12
78
3
45
2
Number after bubble sorting are:2 3 12 34 45 56 78
-----
Process exited after 14.79 seconds with return value 0
Press any key to continue . . .
```