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Assignment: PF Revision Lab

Sec: H

Task 1.

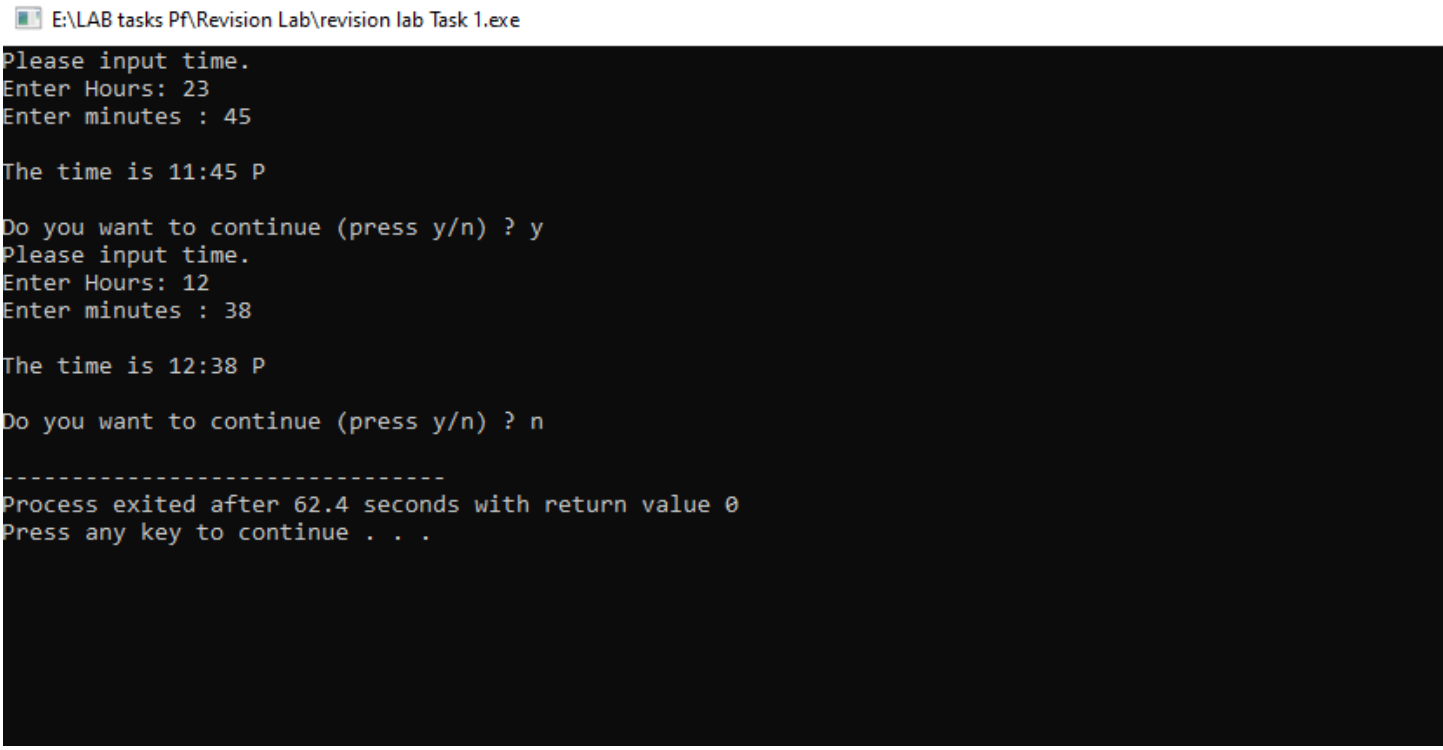
Input

```
#include<iostream>
using namespace std;
char AmORpm(int num1, int num2);
int function_conversion(int num1);

int main()
{
	char ask;
	do
	{
		int num1, num2;
		cout<<"Please input time.\n";
		cout<<"Enter Hours: ";
		cin>>num1;
		cout<<"Enter minutes : ";
		cin>>num2;

		if(num1>0  && num1<=12 && num2>=0 && num2<=59)
		{
			char result=AmORpm(num1, num2);
			cout<<"\nThe time is "<<num1<<":"<<num2<<" "<<result;
		}

		else if(num1>12  && num1<24 && num2>=0 && num2<=59)
		{
			char result=AmORpm(num1, num2);
			int convert=function_conversion(num1);
```

```
                  cout<<"\nThe time is "<<convert<<":"<<num2<<" "<<result;
            }
            else if(num1==0 && num2>=0 && num2<=59)
                  cout<<"\nThe time is "<<12<<":"<<num2<<" A";
            else if(num1>=24 || num1<0)
            cout<<"\nInvalid Entry..\nHours cannot be greater than or equal
to 24 or negative.";
            else if(num2>59 || num2<0)
            cout<<"\nInvalid Entry..\nMinutes cannot be greater than 59 or
negative.";

            cout<<"\n\nDo you want to continue (press y/n) ? ";
            cin>>ask;
      }
      while (ask=='y');

            return 0;
            }

            char AmORpm(int num1, int num2)
            {
                  if(num1>0 && num1<12)
                        {
                              return 'A';
                        }
                  else if(num1>=12 && num1<24)
                        {
                              return 'P';
                        }
                  else if(num1==0)
                        return 'A';

            }
```

```
int function_conversion(int num1)
{
	int convert=num1-12;
	return convert;
}
```

OUTPUT



TASK 2.

Input

```
#include<iostream>
using namespace std;
int main()
{
      char check;
      do

      {
            int c_time1,c_time2, w_time1, w_time2, f_time1, f_time2, r_time1,
r_time2;
            cout<<"Please input time.\n";
            cout<<"Enter current time (Hours): ";
            cin>>c_time1;
            cout<<"Enter current time (minutes) : ";
            cin>>c_time2;

            cout<<"Enter waiting time (Hours): ";
            cin>>w_time1;
            cout<<"Enter waiting time (minutes) : ";
            cin>>w_time2;

            if(c_time1>=0  && c_time1<24 && c_time2>=0 && c_time2<=59 &&
w_time1>=0  && w_time1<24 && w_time2>=0 && w_time2<=59 )
            {
                  if(c_time1==0 && c_time2>=0 && c_time2<=59)
                        c_time1=12;
                  if(w_time1==0 && w_time2>=0 && w_time2<=59)
                        w_time1=12;
```

```
                  f_time1=c_time1+w_time1;
                        if(f_time1>24)
                              f_time1-=24;



                        f_time2=c_time2+w_time2;
                        if(f_time2>59)
                              {

                                    r_time2=f_time2-60;
                                    f_time1+=1;
                                    f_time2=r_time2;

                              }

                                    if(f_time1>24)
                              f_time1-=24;

                        cout<<endl<<"Your Final time will be "<<f_time1<<" :
"<<f_time2;
            }
      else
      cout<<"\nInvalid Entry..... ";

            cout<<"\n\nDo you want to continue if yes input (y): ";
            cin>>check;

      }
while(check=='y');

return 0;
}
```

OUTPUT

E:\LAB tasks Pf\Revision Lab\Revision Lab Task 2.exe

```
Please input time.
Enter current time (Hours): 11
Enter current time (minutes) : 23
Enter waiting time (Hours): 10
Enter waiting time (minutes) : 56

Your Final time will be 22 : 19

Do you want to continue if yes input (y): y
Please input time.
Enter current time (Hours): 23
Enter current time (minutes) : 36
Enter waiting time (Hours): 2
Enter waiting time (minutes) : 40

Your Final time will be 2 : 16

Do you want to continue if yes input (y): n

--------------------------------
Process exited after 36.8 seconds with return value 0
Press any key to continue . . .
```

TASK 3.

INPUT

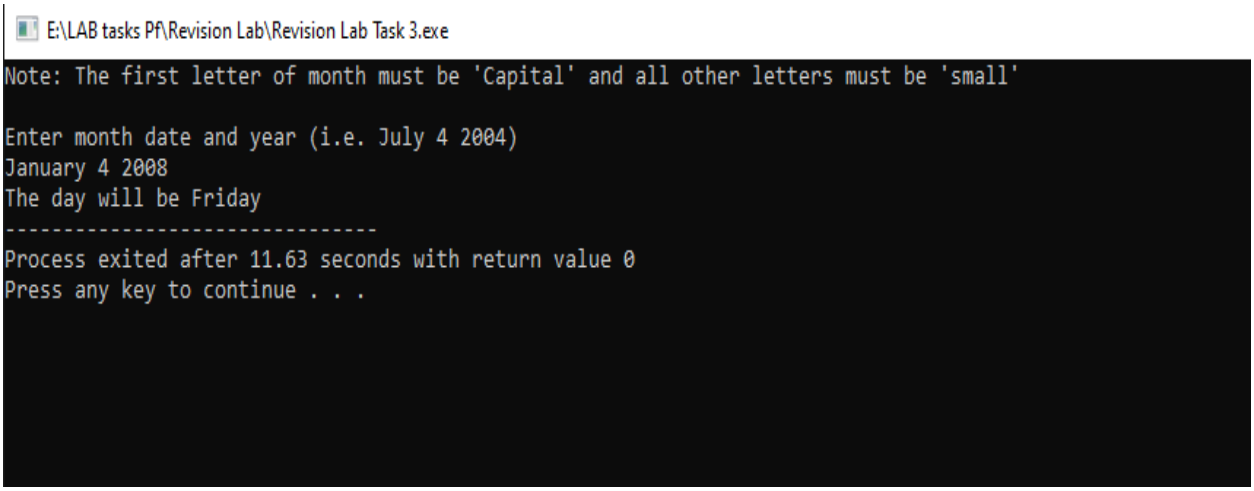
```
#include <iostream>

using namespace std;

bool isLeapYear(int year);

int getCenturyValue(int year);

int getYearValue(int year);

int getMonthValue(string month, int year);

int main ()

{

      int day, year, sum , rem;

      string month;

      cout<<"Note: The first letter of month must be 'Capital' and all other
letters must be 'small'\n\n";

      cout<<"Enter month date and year (i.e. July 4 2004) \n";

      cin>>month>>day>>year;

      bool check=isLeapYear(year);

      if((month=="April" ||month=="June" ||month=="September"
||month=="November") && day>30)

            cout<<"\n"<<month<<" has maximum 30 days\nInvalid Entry";

      else if(month=="February" && day>28 && check==false)

            cout<<"\n"<<month<<" has maximum 28 days because Year is not a
leap year \nInvalid Entry";

      else if(month=="February" && day>29 && check==true)

            cout<<"\n"<<month<<" has has maximum 29 days in a leap
year\nInvalid Entry";
```

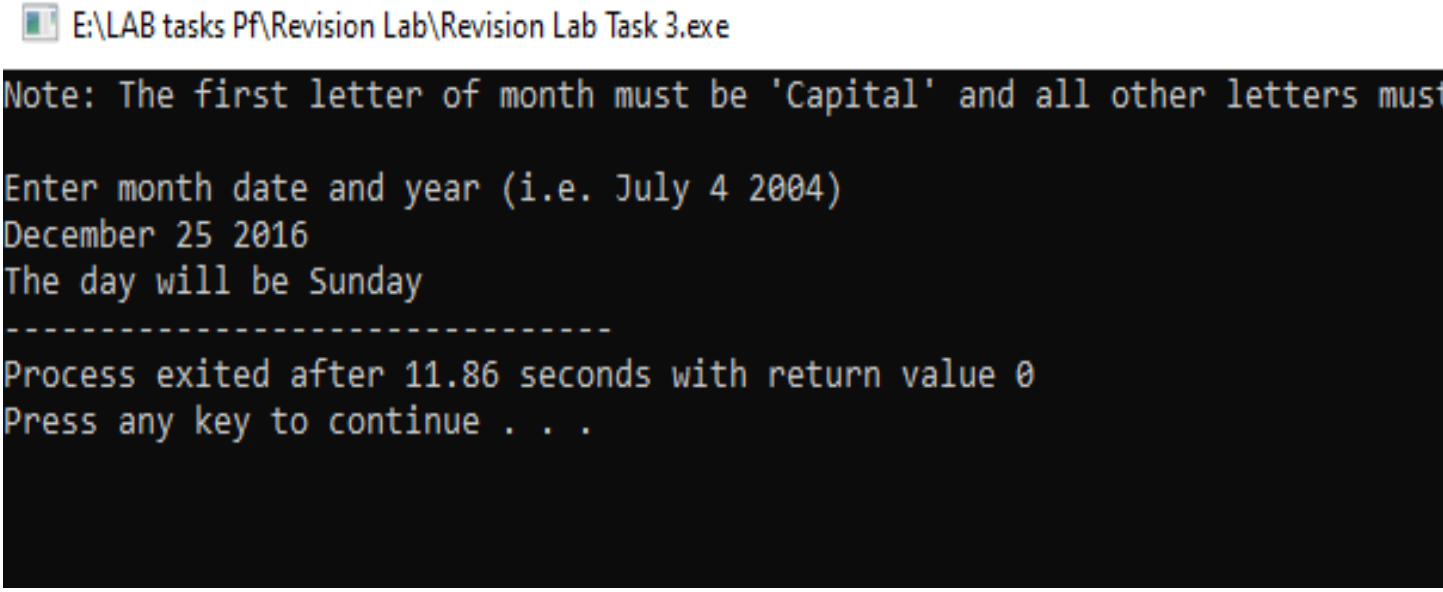
```
      else if((month=="January" ||month=="March" ||month=="May"
||month=="July" ||month=="August" ||month=="October" || month=="December")&&
day>31)
                  cout<<"\n"<<month<<" has has maximum 31 days \nInvalid
Entry";
      else if(month=="January" || month=="February" ||month=="March"
||month=="April" ||month=="May" ||month=="June" ||month=="July"
||month=="August" ||month=="September" ||month=="October" ||month=="November"
||month=="December")
      {
             int MonthValue=getMonthValue(month,year);
             int YearValue=getYearValue(year);
             int CenturyValue=getCenturyValue(year);
             if(day>=1 && day<=31 && MonthValue!=100 )
             {
                         sum=day + MonthValue + YearValue + CenturyValue ;
                  rem=sum%7;
                  if(rem==0)
                        cout<<"The day will be Sunday ";
                  else if(rem==1)
                        cout<<"The day will be Monday ";
                  else if(rem==2)
                        cout<<"The day will be Tuesday ";
                  else if(rem==3)
                        cout<<"The day will be Wednesday ";
                  else if(rem==4)
                        cout<<"The day will be Thursady";
                  else if(rem==5)
                        cout<<"The day will be Friday ";
                  else if(rem==6)
                        cout<<"The day will be Saturday ";
            }
      }
      else
      cout<<"\nInvalid Entry";
return 0;
```

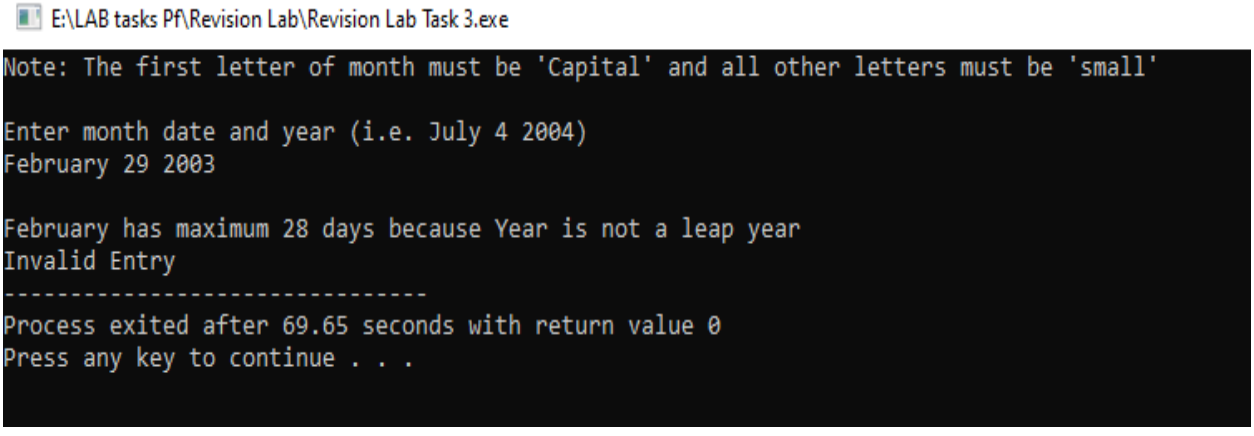
```
}
bool isLeapYear(int year)
{
      if(year%4==0 && year%100!=0)
      return true ;
      else
      return false;
}
int getCenturyValue(int year)
{
      int first2Digits , rem, result;
      first2Digits=year%10000/100;
      rem=first2Digits%4;
      result=(3-rem)*2;
      return result;
}
int getYearValue(int year)
{
      int last2Digits , rem, result;
      last2Digits=year%100;
      result=(last2Digits/4) + last2Digits;

      return result;

}

int getMonthValue(string month, int year)
{
      if((month=="January" && year%4!=0) || month=="October" )
            {
                  return 0;
            }
      if((month=="January" && (year%4==0 && year%100!=0) ) || month=="April"
|| month=="July")
```

```
            {
                  return 6;
            }
      if((month=="February" && year%4!=0) || month=="March" ||
month=="November" )
            {
                  return 3;
            }
      if((month=="February" &&  (year%4==0 && year%100!=0)) ||
month=="August")
            {
                  return 2;
            }
      if(month=="May")
            {
                  return 1;
            }
      if(month=="June" )
            {
                  return 4;
            }
      if(month=="September" || month=="December" )
            {
                  return 5;
            }
      else
            {
                  return 100;    // here 100 is any temporary value and shows
that month is invalid
            }


}
```

OUTPUT


E:\LAB tasks Pf\Revision Lab\Revision Lab Task 3.exe
Note: The first letter of month must be 'Capital' and all other letters must be 'small'
Enter month date and year (i.e. July 4 2004)
January 4 2008
The day will be Friday
Process exited after 11.63 seconds with return value 0
Press any key to continue . . .


E:\LAB tasks Pf\Revision Lab\Revision Lab Task 3.exe
Note: The first letter of month must be 'Capital' and all other letters must
Enter month date and year (i.e. July 4 2004)
December 25 2016
The day will be Sunday
Process exited after 11.86 seconds with return value 0
Press any key to continue . . .


E:\LAB tasks Pf\Revision Lab\Revision Lab Task 3.exe
Note: The first letter of month must be 'Capital' and all other letters must be 'small'
Enter month date and year (i.e. July 4 2004)
February 29 2003
February has maximum 28 days because Year is not a leap year
Invalid Entry
Process exited after 69.65 seconds with return value 0
Press any key to continue . . .

TASK 4

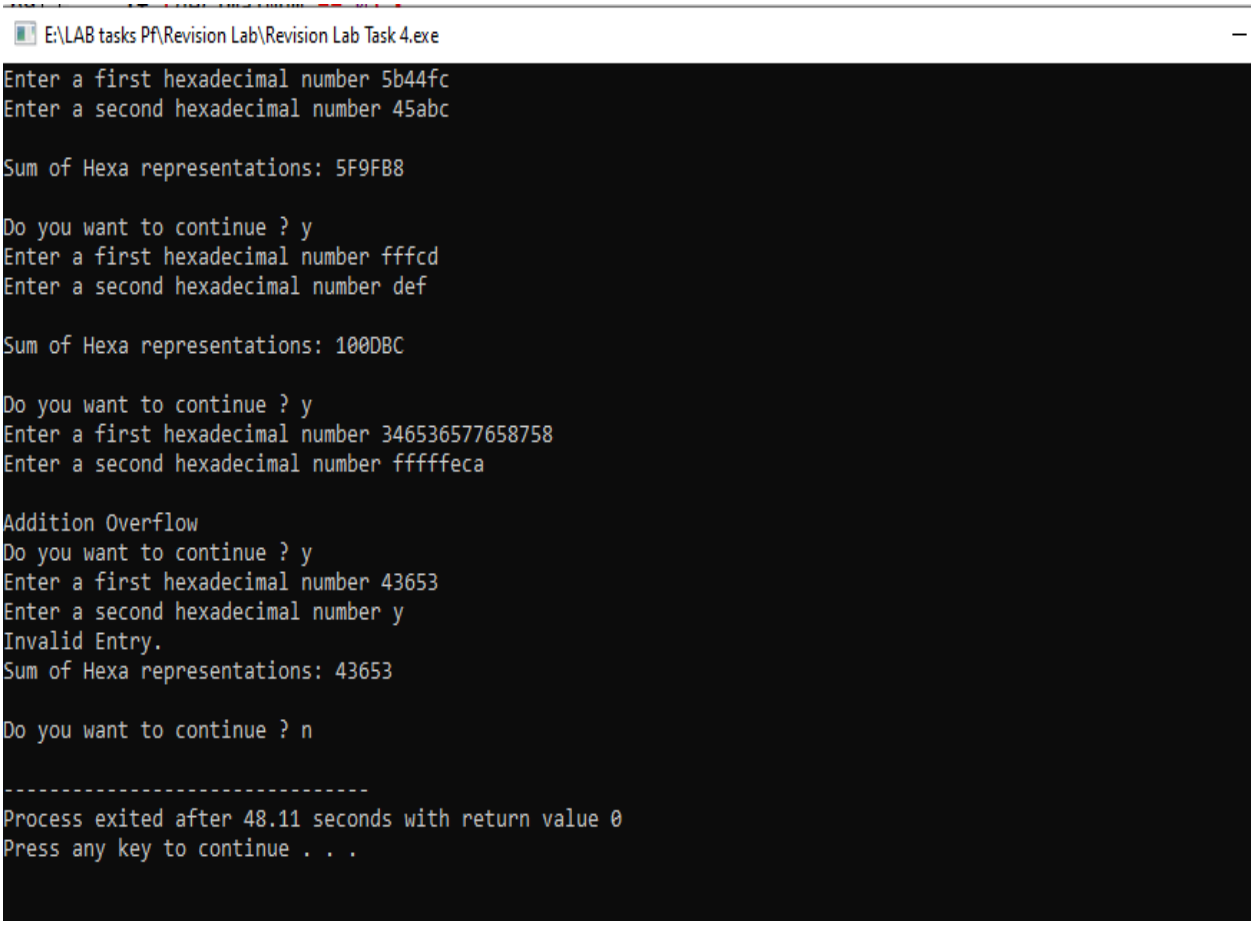
INPUT

```
#include <iostream>
using namespace std;
#include <string>
#include <cmath>
int hexaTodecimal1(string);
string decimalToHexadecimal(int decimalNum);
int main()
{
      char ask;
do
{
    string num1, num2;
    cout << "Enter a first hexadecimal number ";
    cin >> num1;
    cout << "Enter a second hexadecimal number ";
    cin >> num2;

            long Num1Decimal=hexaTodecimal1(num1);
            long Num2Decimal=hexaTodecimal1(num2);

      long decimalNum = Num1Decimal + Num2Decimal;

      if(decimalNum<99999999 && decimalNum>0)
      {
      string hexNum = decimalToHexadecimal(decimalNum);
      cout << endl << "Sum of Hexa representations: " << hexNum << endl;
      }
```

```
      else
      cout<<"\nAddition Overflow ";
cout<<"\nDo you want to continue ? ";
cin>>ask;
}while(ask=='y');
    return 0;
}
int hexaTodecimal1(string num1)
{
    int decimalnum1 = 0, temp1 = 0;
    for (int i=0;i<num1.length();i++)
    {
        if (num1[i]>='a' && num1[i]<='f')
            temp1=num1[i] - 'a' +10;
        else if (num1[i]>= 'A' && num1[i] <= 'F')
            temp1 = num1[i] - 'A' + 10;
        else if (num1[i] >= '0' && num1[i] <= '9')
            temp1 = num1[i] - '0';
        else
        {
            cout << "Invalid Entry.";
            return 0;
        }
        decimalnum1 += temp1 * pow(16, num1.length() - 1 - i);
    }
return decimalnum1;
}
string decimalToHexadecimal(int decimalNum)
 {
    string hexNum;

    // Special case for 0
    if (decimalNum == 0) {
```

```
        hexNum = "0";
    } else {
        int digits = 0;
        while (decimalNum > 0)
             {
            int remainder = decimalNum % 16;

            // Convert remainder to hexadecimal digit
            char hexDigit;
            if (remainder < 10)
                  {
                hexDigit = remainder + '0';
            }
                   else
                  {
                hexDigit = remainder - 10 + 'A';
            }
            hexNum = hexDigit + hexNum;
            decimalNum /= 16;
        }
    }
    return hexNum;
}
```

OUTPUT


E:\LAB tasks Pf\Revision Lab\Revision Lab Task 4.exe
Enter a first hexadecimal number 5b44fc
Enter a second hexadecimal number 45abc
Sum of Hexa representations: 5F9FB8
Do you want to continue ? y
Enter a first hexadecimal number fffcd
Enter a second hexadecimal number def
Sum of Hexa representations: 100DBC
Do you want to continue ? y
Enter a first hexadecimal number 346536577658758
Enter a second hexadecimal number fffffeca
Addition Overflow
Do you want to continue ? y
Enter a first hexadecimal number 43653
Enter a second hexadecimal number y
Invalid Entry.
Sum of Hexa representations: 43653
Do you want to continue ? n
Process exited after 48.11 seconds with return value 0
Press any key to continue . . .

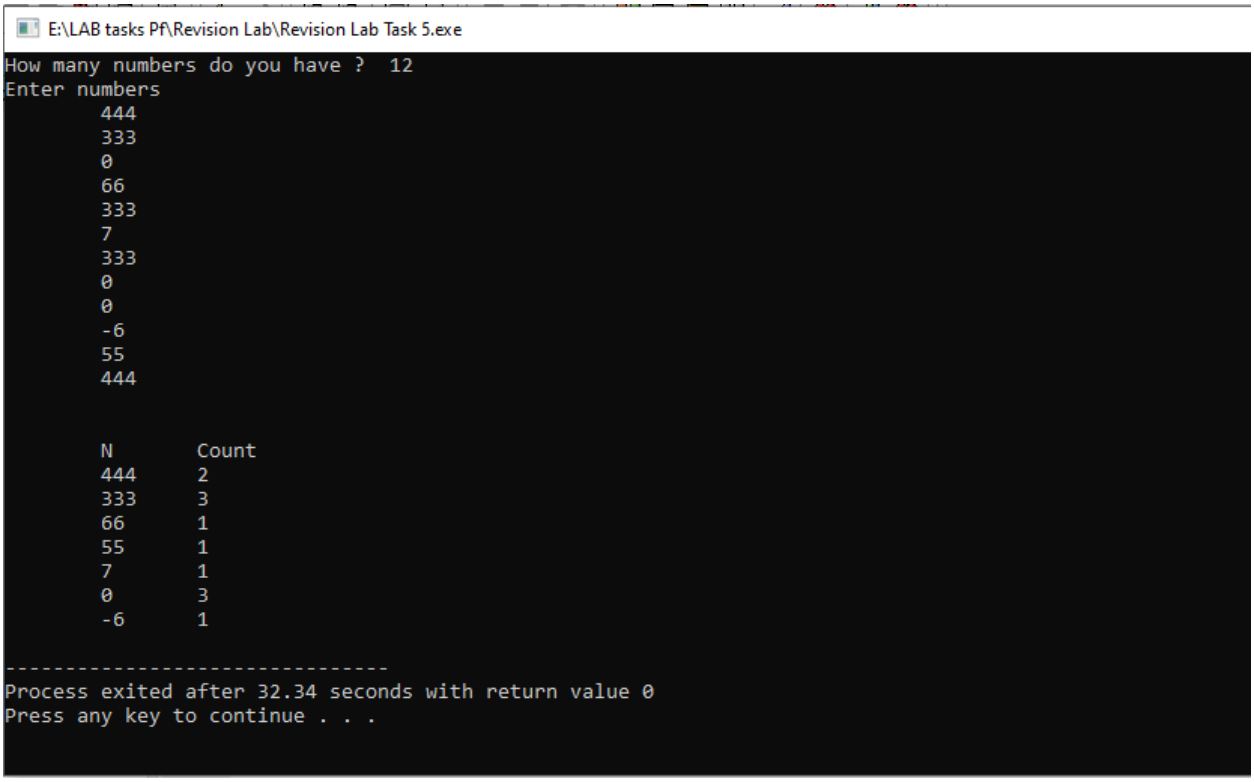
TASK 5

INPUT

```
#include <iostream>
using namespace std;
int main ()
{
              int ask;
              cout<<"How many numbers do you have ?  ";
              cin>>ask;

              int numbers[ask], check[ask] ;

              cout<<"Enter numbers \n";

for(int h=0; h<ask; h++)
{
              cout<<"\t";
              cin>>numbers[h];
}

                    for(int i=0; i<ask; i++)
                    {
                          for(int j=0; j<ask; j++)
                          {
                                if(numbers[j]<=numbers[i])
                                {
```

```
                                    int temp=numbers[j];
                                    numbers[j]=numbers[i];
                                    numbers[i]=temp;
                              }
                        }
                  }


for(int i=0; i<ask; i++)
{
            check[i]=0;
            for(int j=0; j<ask; j++)
            {
                  if(numbers[i]==numbers[j])
                  {
                        check[i]+=1;
                  }
            }
}


cout<<"\n\n";
cout<<"\tN\tCount\n";
for(int i=0; i<ask; i++ )
            if(numbers[i]!=numbers[i+1])
                  cout<<"\t"<<numbers[i]<<"\t"<<check[i]<<endl;

return 0;
}
```

OUTPUT



The End