

1. General Input and Output

Problem 1:

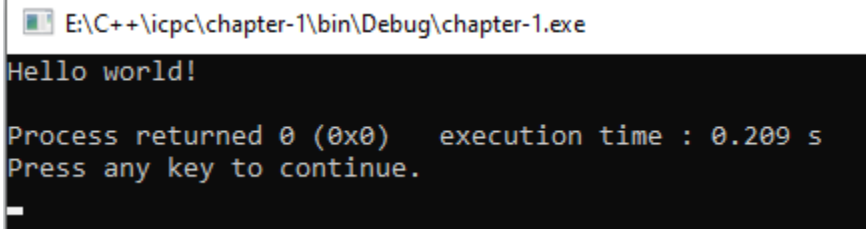
Print 'Hello World!' on the screen.

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

int main(){

    cout<<"Hello world!"<<endl;

    return 0;
}
```



Hello world!

Process returned 0 (0x0) execution time : 0.209 s
Press any key to continue.

Problem 2:

You have to print the following three lines on the screen:

I
Love
CSE

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

int main(){

    cout<<"I"<<endl;
    cout<<"Love"<<endl;
    cout<<"CSE"<<endl;

    return 0;
}
```

A screenshot of a Windows command prompt window. The title bar shows the file path: E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe. The command prompt has a black background with white text. It displays the output of a C++ program: I, Love, and CSE on three separate lines. Below the output, it shows 'Process returned 0 (0x0) execution time : 0.179 s' and 'Press any key to continue.'

Problem 3:

Take an integer (32-bit) as input and print that number.

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

int main(){

    int n;

    cout<<"Enter a number: ";
    cin>>n;

    cout<<"Your entered number: "<<n<<endl;

    return 0;
}
```

Enter a number: 25

Your entered number: 25

Process returned 0 (0x0) execution time : 3.182 s

Press any key to continue.

Problem 4:

Take two integers (32-bit) as input and print their sum.

Sample Input	Output
14 8	22
8 48	56
21 9	30

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

int main(){

    int number_1, number_2;

    cout<<"Enter two numbers: ";
    cin>>number_1>>number_2;

    cout<<"The summation is: "<<number_1+number_2<<endl;

    return 0;
}
```

Problem 5:

Take two integers (32-bit) as input and print their sum, difference (first number minus second number), product, integer division result (i.e., how many times the second number divides the first number), and remainder (the leftover when the first number is divided by the second number).

Sample Input	Output
14 8	22 6 112 1 6
21 9	30 12 189 2 3

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

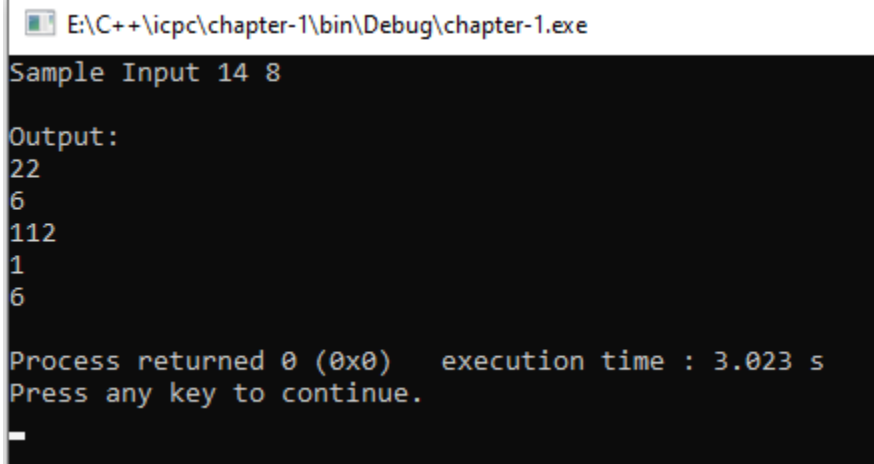
int main(){

    int number_1, number_2;

    cout<<"Sample Input ";
    cin>>number_1>>number_2;

    cout<<"\nOutput: "<<endl;
    cout<<number_1 + number_2<<endl;
    cout<<number_1 - number_2<<endl;
    cout<<number_1 * number_2<<endl;
    cout<<number_1 / number_2<<endl;
    cout<<number_1 % number_2<<endl;
```

```
    return 0;  
}
```



The screenshot shows a Windows command prompt window with the title bar "E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe". The window has a black background with white text. The text inside the window is as follows:

```
Sample Input 14 8  
  
Output:  
22  
6  
112  
1  
6  
  
Process returned 0 (0x0)   execution time : 3.023 s  
Press any key to continue.  
_
```

Problem 6:

Suppose you walk to school from home every day. From your home to the school, you take s number of steps, and with each step you cover d centimeters of distance. The values of s and d will be given as input (both are 32-bit integers). Print the total distance from your home to the school in centimeters.

Sample Input	Output
1000 15	15000 cm
2297 14	32158 cm

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

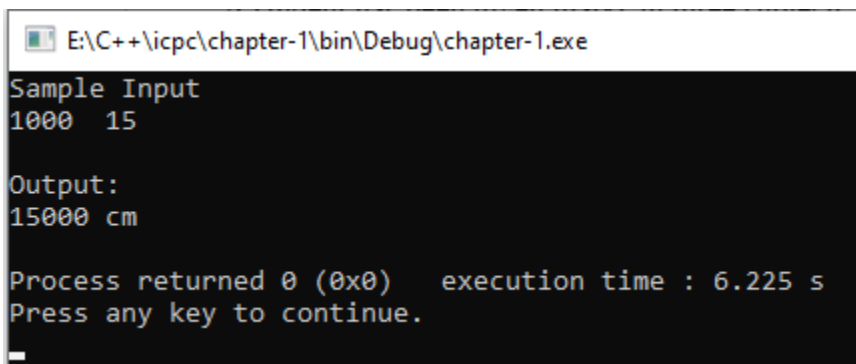
int main(){

    int s, d;

    cout<<"Sample Input "<<endl;
    cin>>s>>d;

    cout<<"\nOutput: "<<endl;
    cout<<s * d<<" cm"<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
Sample Input
1000 15

Output:
15000 cm

Process returned 0 (0x0)   execution time : 6.225 s
Press any key to continue.
```

Problem 7

A student has been given marks in three subjects. Print the total marks obtained in the three subjects.

Sample Input	Output
75 86 61	222

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

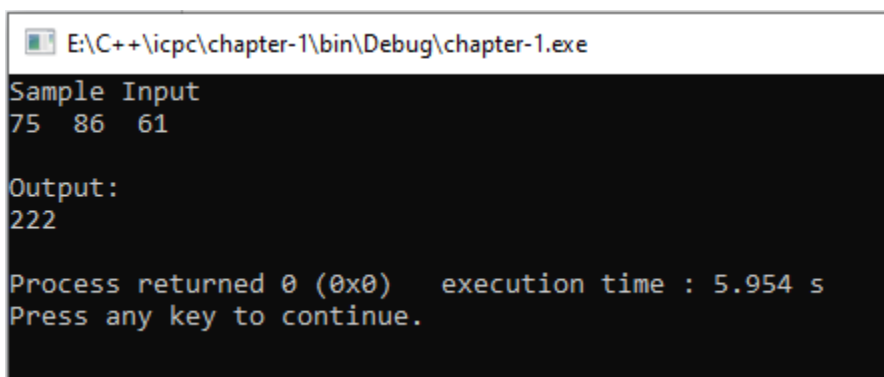
int main(){

    int subject_1, subject_2, subject_3;

    cout<<"Sample Input "<<endl;
    cin>>subject_1>>subject_2>>subject_3;

    cout<<"\nOutput: "<<endl;
    cout<<subject_1 + subject_2 + subject_3<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
Sample Input
75 86 61

Output:
222

Process returned 0 (0x0)   execution time : 5.954 s
Press any key to continue.
```


Problem 8

You have decided to help a poor student by collecting money from your friends. You and your friends together donated as much money as you could. Print the total amount of money collected.

Sample Input	Output
9 10 16 12 26 10 18 7 15 20	143

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

int main(){

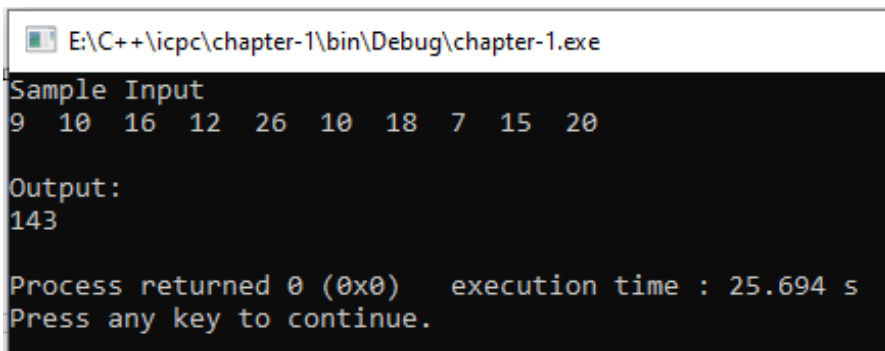
    int friend_1, friend_2, friend_3, friend_4, friend_5, friend_6,
    friend_7, friend_8, friend_9, friend_10;

    cout<<"Sample Input "<<endl;

    cin>>friend_1>>friend_2>>friend_3>>friend_4>>friend_5>>friend_6>>friend_7>
>friend_8>>friend_9>>friend_10;

    cout<<"\nOutput: "<<endl;
    cout<<friend_1 + friend_2 + friend_3 + friend_4 + friend_5 + friend_6
+ friend_7 + friend_8 + friend_9 + friend_10<<endl;

    return 0;
}
```



The screenshot shows a Windows command prompt window titled "E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe". The program prompts for "Sample Input" and receives the values "9 10 16 12 26 10 18 7 15 20". It then prompts for "Output:" and displays the result "143". At the bottom, it shows "Process returned 0 (0x0) execution time : 25.694 s" and "Press any key to continue."

Problem 9

Input a positive number and print its hexadecimal form.

Sample Input	Output
4	4
210	d2
1722	6ba

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

int main(){

    int number;

    cout<<"Sample Input "<<endl;
    cin>>number;

    cout<<"\nOutput: "<<endl;
    cout<<hex<<number<<endl;

    return 0;

}
```

Exercise 1.1

1. Print the names of the seven days of the week in English, each on a separate line.

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

int main(){

    int number;

    cout<<"Names of the seven days of the week:"<<endl;
    cout<<"Saturday"<<endl;
    cout<<"Sunday"<<endl;
    cout<<"Monday"<<endl;
    cout<<"Tuesday"<<endl;
    cout<<"Wednesday"<<endl;
    cout<<"Thursday"<<endl;
    cout<<"Friday"<<endl;

    return 0;
}
```

```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
Names of the seven days of the week:
Saturday
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday

Process returned 0 (0x0)   execution time : 0.045 s
Press any key to continue.
```

2. Print the names of the twelve months of the year in English, each on a separate line.

```
#include<iostream>

using namespace std;

int main(){

    int number;

    cout<<"Names of the twelve months of the year:"<<endl;
    cout<<"January"<<endl;
    cout<<"February"<<endl;
    cout<<"March"<<endl;
    cout<<"April"<<endl;
    cout<<"May"<<endl;
    cout<<"June"<<endl;
    cout<<"July"<<endl;
    cout<<"August"<<endl;
    cout<<"September"<<endl;
    cout<<"October"<<endl;
    cout<<"November"<<endl;
    cout<<"December"<<endl;

    return 0;
}
```

```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
Names of the twelve months of the year:
January
February
March
April
May
June
July
August
September
October
November
December

Process returned 0 (0x0)   execution time : 0.047 s
Press any key to continue.
```

3. Print your full name, your mother's name, and your father's name in English on separate lines.

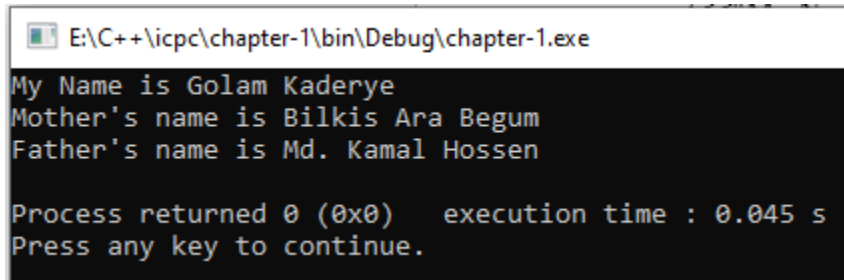
```
#include<iostream>
using namespace std;

int main(){

    int number;

    cout<<"My Name is Golam Kaderye"<<endl;
    cout<<"Mother's name is Bilkis Ara Begum"<<endl;
    cout<<"Father's name is Md. Kamal Hossen"<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
My Name is Golam Kaderye
Mother's name is Bilkis Ara Begum
Father's name is Md. Kamal Hossen
Process returned 0 (0x0)   execution time : 0.045 s
Press any key to continue.
```

4. Before every exam in your friend's annual examination, he/she uses a new pen. Input the total number of exams and print how many pens your friend used.

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

int main(){

    int pen=1, exams;

    cout<<"Number of pen: "<<pen<<endl;

    cout<<"Total number of exams: ";
    cin>>exams;

    cout<<"Total number of pens: "<<pen*exams<<endl;

    return 0;
}
```

5. Input the price of one pen and the total number of pens, and print the total cost of the pens.

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

int main(){

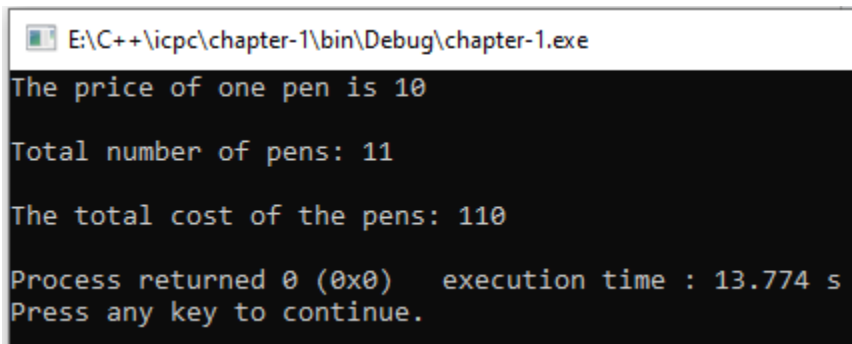
    int price, pen_number;

    cout<<"The price of one pen is ";
    cin>>price;

    cout<<"\nTotal number of pens: ";
    cin>>pen_number;

    cout<<"\nThe total cost of the pens: "<<price*pen_number<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
The price of one pen is 10
Total number of pens: 11
The total cost of the pens: 110
Process returned 0 (0x0)   execution time : 13.774 s
Press any key to continue.
```

6. You bought c eggs from the market. On the way home, b eggs were broken. Print how many eggs are still unbroken.

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

int main(){

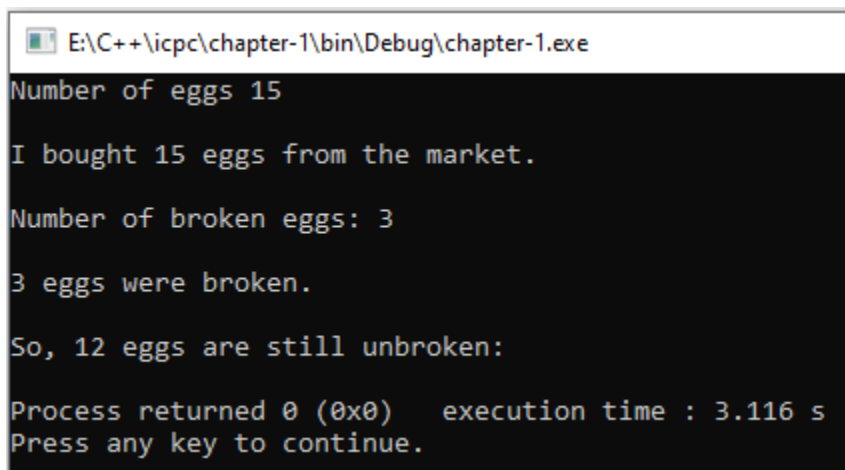
    int egg_number, broken;

    cout<<"Number of eggs ";
    cin>>egg_number;
    cout<<"\nI bought "<<egg_number<<" eggs from the market."<<endl;

    cout<<"\nNumber of broken eggs: ";
    cin>>broken;
    cout<<"\n"<<broken<<" eggs were broken."<<endl;

    cout<<"\nSo,"<<egg_number - broken<<" eggs are still unbroken:
"<<endl;

    return 0;
}
```



The screenshot shows a Windows command prompt window titled "E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe". The output of the program is displayed in a black terminal window with green text. The output matches the expected behavior of the code: it prompts for the number of eggs (15), then the number of broken eggs (3), and finally displays the result that 12 eggs are still unbroken. The window also shows the process return code (0) and execution time (3.116 s).

```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
Number of eggs 15
I bought 15 eggs from the market.
Number of broken eggs: 3
3 eggs were broken.
So, 12 eggs are still unbroken:
Process returned 0 (0x0)   execution time : 3.116 s
Press any key to continue.
```


7. Input the value of N and print how many complete weeks are in N days.

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

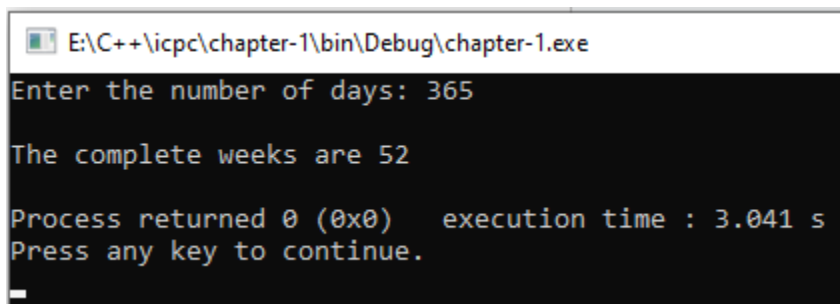
int main(){

    int N;

    cout<<"Enter the number of days: ";
    cin>>N;

    cout<<"\nThe complete weeks are "<<N/7<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
Enter the number of days: 365
The complete weeks are 52
Process returned 0 (0x0)   execution time : 3.041 s
Press any key to continue.
_
```

8. In one week, a drama named "Amader Gram" is shown in 3 episodes. Input the number of weeks W and print how many episodes will be shown in W weeks.

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

int main(){

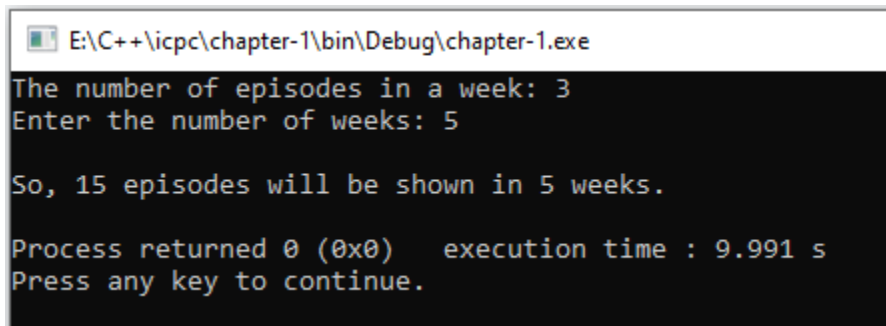
    int episodes=3, weeks;

    cout<<"The number of episodes in a week: "<<episodes<<endl;

    cout<<"Enter the number of weeks: ";
    cin>>weeks;

    cout<<"\nSo, "<<episodes*weeks<<" episodes will be shown in
"<<weeks<<" weeks."<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
The number of episodes in a week: 3
Enter the number of weeks: 5

So, 15 episodes will be shown in 5 weeks.

Process returned 0 (0x0)   execution time : 9.991 s
Press any key to continue.
```

9. You have a basket of apples. Input the total number of apples and the average weight of each apple (in grams). Print the total weight of all apples (in kilograms).

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

int main(){

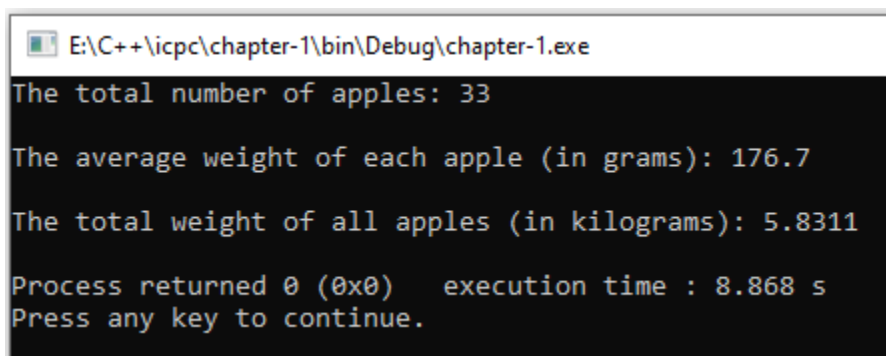
    int apple_number;
    float weight;

    cout<<"The total number of apples: ";
    cin>>apple_number;

    cout<<"\nThe average weight of each apple (in grams): ";
    cin>>weight;

    cout<<"\nThe total weight of all apples (in kilograms):
"<<(apple_number*weight)/1000<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
The total number of apples: 33
The average weight of each apple (in grams): 176.7
The total weight of all apples (in kilograms): 5.8311
Process returned 0 (0x0)   execution time : 8.868 s
Press any key to continue.
```

10. Suppose on your birthday you bought a big cake for your classmates. After giving equal pieces to everyone, some cake was left. Input the total number of classmates and the total number of pieces. Print how many pieces are left over.

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

int main(){

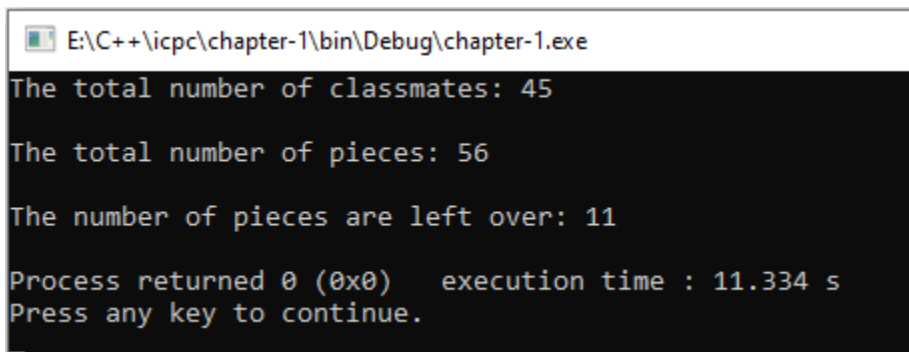
    int classmates, pieces;

    cout<<"The total number of classmates: ";
    cin>>classmates;

    cout<<"\nThe total number of pieces: ";
    cin>>pieces;

    cout<<"\nThe number of pieces are left over: "<<pieces %
classmates<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
The total number of classmates: 45
The total number of pieces: 56
The number of pieces are left over: 11
Process returned 0 (0x0) execution time : 11.334 s
Press any key to continue.
```

11. From the above example, print how many people received cake.

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

int main(){

    int classmates, pieces;

    cout<<"The total number of classmates: ";
    cin>>classmates;

    cout<<"\nThe total number of pieces: ";
    cin>>pieces;

    int perPerson=pieces / classmates;
    int peopleReceived;

    if(perPerson >= 1){
        peopleReceived=classmates;
    }else{
        peopleReceived=0;
    }

    cout<<"\nSo all "<<peopleReceived<<" classmates received
cake."<<endl;

    return 0;
}
```

```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
The total number of classmates: 45
The total number of pieces: 56
So all 45 classmates received cake.
Process returned 0 (0x0) execution time : 14.813 s
Press any key to continue.
```

12. Input a positive number and print its octal form.

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

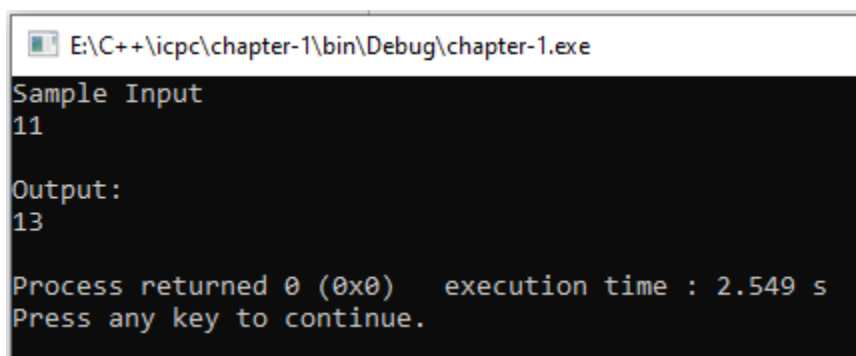
int main(){

    int number;

    cout<<"Sample Input "<<endl;
    cin>>number;

    cout<<"\nOutput: "<<endl;
    cout<<oct<<number<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
Sample Input
11
Output:
13
Process returned 0 (0x0)   execution time : 2.549 s
Press any key to continue.
```

13. Input a positive number and print its binary form.

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

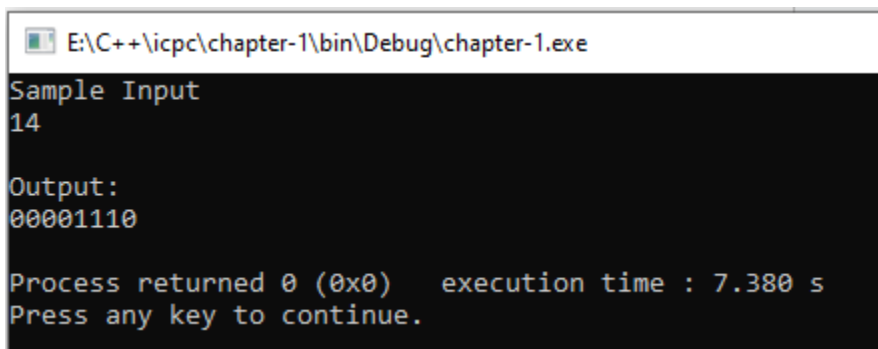
int main(){

    int number;

    cout<<"Sample Input "<<endl;
    cin>>number;

    cout<<"\nOutput: "<<endl;
    cout<<bitset<8>(number)<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
Sample Input
14
Output:
00001110
Process returned 0 (0x0)   execution time : 7.380 s
Press any key to continue.
```

14. Input a three-digit number and print the sum of its digits.

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

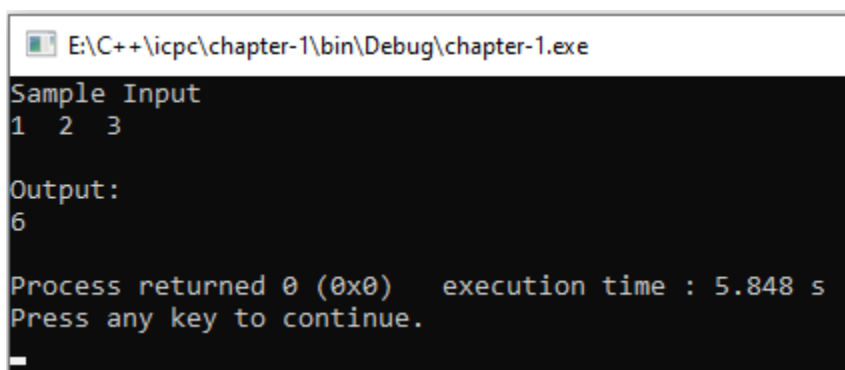
int main(){

    int digit_1, digit_2, digit_3;

    cout<<"Sample Input "<<endl;
    cin>>digit_1>>digit_2>>digit_3;

    cout<<"\nOutput: "<<endl;
    cout<<digit_1 + digit_2 + digit_3<<endl;

    return 0;
}
```



```
E:\C++\icpc\chapter-1\bin\Debug\chapter-1.exe
Sample Input
1 2 3

Output:
6

Process returned 0 (0x0)   execution time : 5.848 s
Press any key to continue.
_
```