	Department of Computer Science and Engineering Faculty of Engineering, South Eastern University of Sri Lanka		
	Subject	**CS53003: Data Structure and Algorithms**	
	Batch	**E18**	**Semester**	**5**

Lab no and title : Lab 01: C++ Basic
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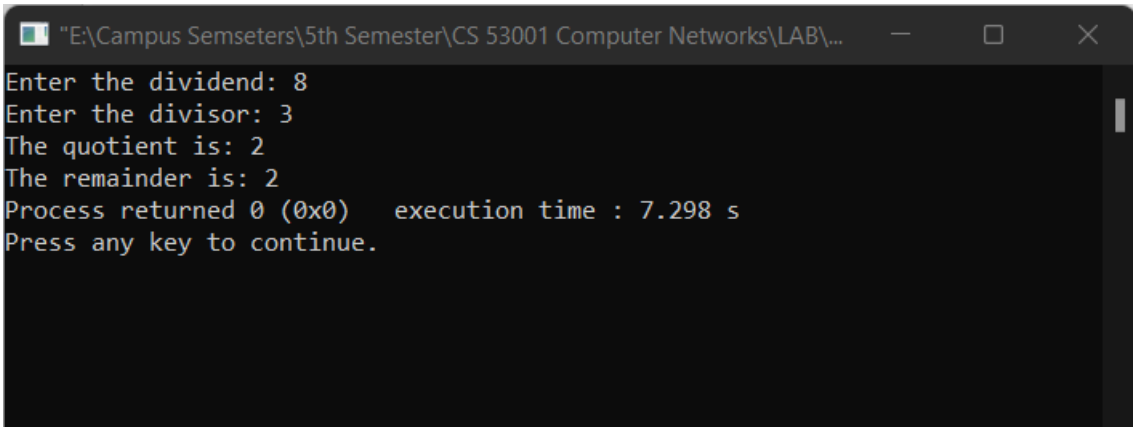
1. Write a C++ program that prints the quotient and remainder of two integers.

Start here | EX01.cpp

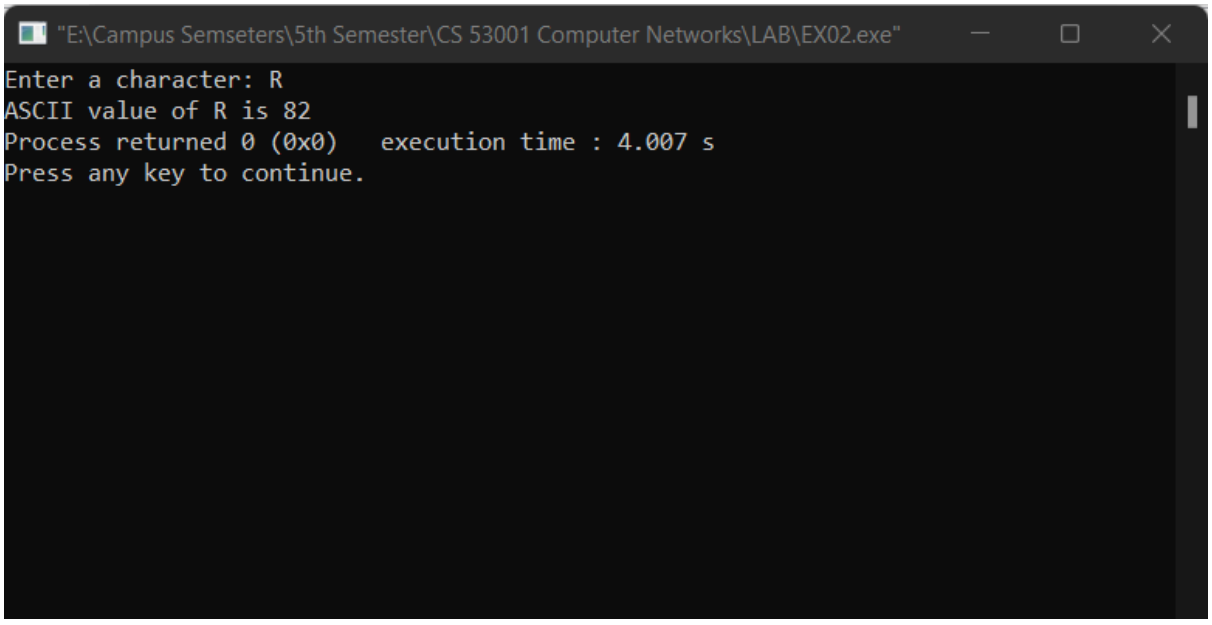
```cpp
#include<iostream>

using namespace std;

int main(){
    int dividend,divisor;
    cout<<"Enter the dividend: ";
    cin>>dividend;

    cout<<"Enter the divisor: ";
    cin>>divisor;

    int quotient = dividend/divisor;
    cout<<"The quotient is: "<<quotient<<endl;

    int remainder = dividend%divisor;
    cout<<"The remainder is: "<<remainder;
}
```



2. Write a C++ program that tells the ASCII value of a character.

Start here | EX01.cpp | EX02.cpp

```cpp
#include<iostream>

using namespace std;

int main(){
    char charater;
    cout<<"Enter a character: ";
    cin>>charater;

    cout<<"ASCII value of "<<charater<<" is "<<int(charater);


}

```



3. Write a C++ program that asks an integer and prints half diamond dollar ($) pattern.

Start here | EX01.cpp | EX02.cpp | EX03.cpp

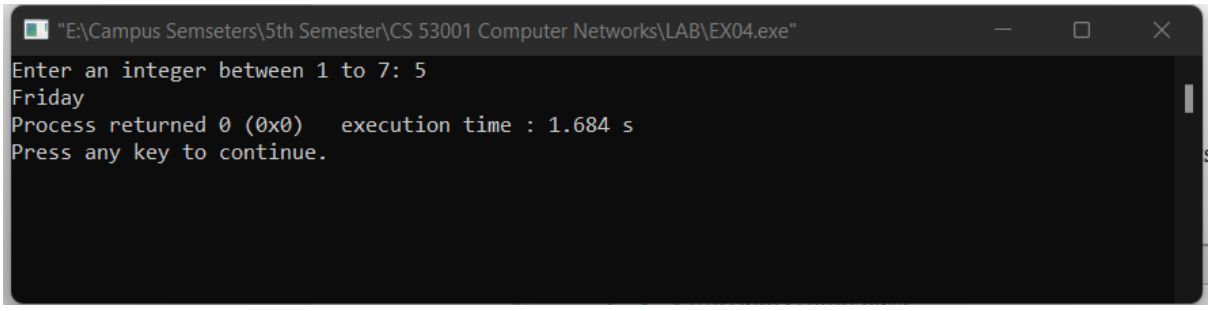
```cpp
#include<iostream>

using namespace std;

int main(){
    int i,j,rows;
    cout<<"Enter a Number: ";
    cin>>rows;

    for(i=1;i<=rows;i++){
        for(j=1;j<=i;j++){
            cout<<"$";
        }
        cout<<endl;
    }

    for(i=rows-1;i>=1;i--){
        for(j=i;j>=1;j--){
            cout<<"$";
        }
        cout<<endl;
    }
}
```

```
"E:\Campus Semseters\5th Semester\CS 53001 Computer Networks\LAB\EX03.exe"
Enter a Number: 5
$
$$
$$$
$$$$
$$$$$
$$$$
$$$
$$
$

Process returned 0 (0x0)   execution time : 2.036 s
Press any key to continue.
```

4. Write a program which asks an integer between 1 to 7 and prints the day of the week cording to the input using switch statement.

Start here | EX01.cpp | EX02.cpp | EX03.cpp | EX04.cpp

```cpp
#include<iostream>

using namespace std;

int main(){
    int day;
    cout<<"Enter an integer between 1 to 7: ";
    cin>>day;

    switch (day){
    case 1:
        cout<<"Monday";
        break;
    case 2:
        cout<<"Tuesday";
        break;
    case 3:
        cout<<"Wednesday";
        break;
    case 4:
        cout<<"Thursday";
        break;
    case 5:
        cout<<"Friday";
        break;
    case 6:
        cout<<"Satursday";
        break;
    case 7:
        cout<<"Sunday";
        break;
    default:
        cout<<"Invalid Input!!!";
    }
}
```



5. Write a program that will take the encoded string. Program should reverse the string, remove any characters that are not a letter or a space, and output the hidden string. For example if you give the message as “ed8&6o@9C) &$i864+H+”, it should print “Hi Code”.

Start here | EX06.cpp

```cpp
#include<iostream>

using namespace std;

void reverse(string x){
    char y;
    int z;
    for(int i=x.length()-1;i>=0;i--){
        char y=x[i];
        z=int(y);
        if ((z>=65 && z<=90) || (z>=97 && z) || z==32){
            cout<<x[i];
        }

    }
}

int main(){
    string s;
    getline(cin,s);
    reverse(s);
    cout<<endl;
    return(0);
}
```

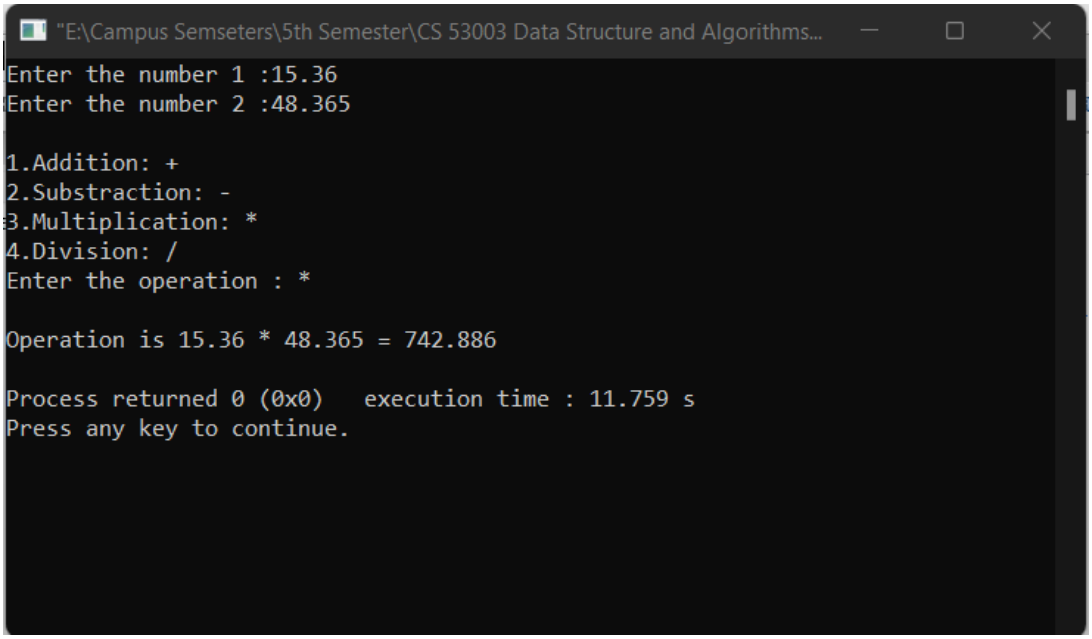
```
"E:\Campus Semseters\5th Semester\CS 53003 Data Structure and Algorithms\Lab\01\EX06.exe"
ed86o@9C) &$i864+H+
Hi Code

Process returned 0 (0x0)   execution time : 39.422 s
Press any key to continue.
```

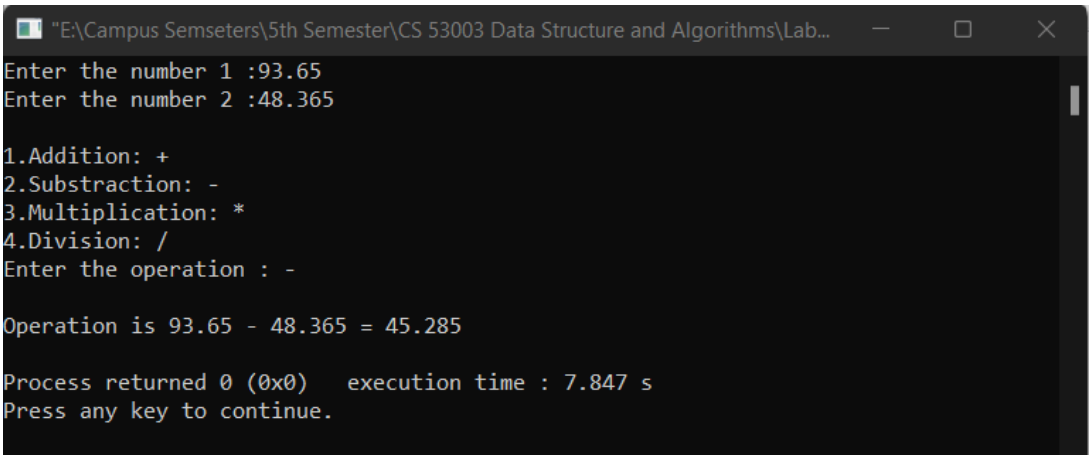
6. Make a calculator using functions in C++ (Hint: create functions for basic operations such as add, subtract, divide and multiplication)

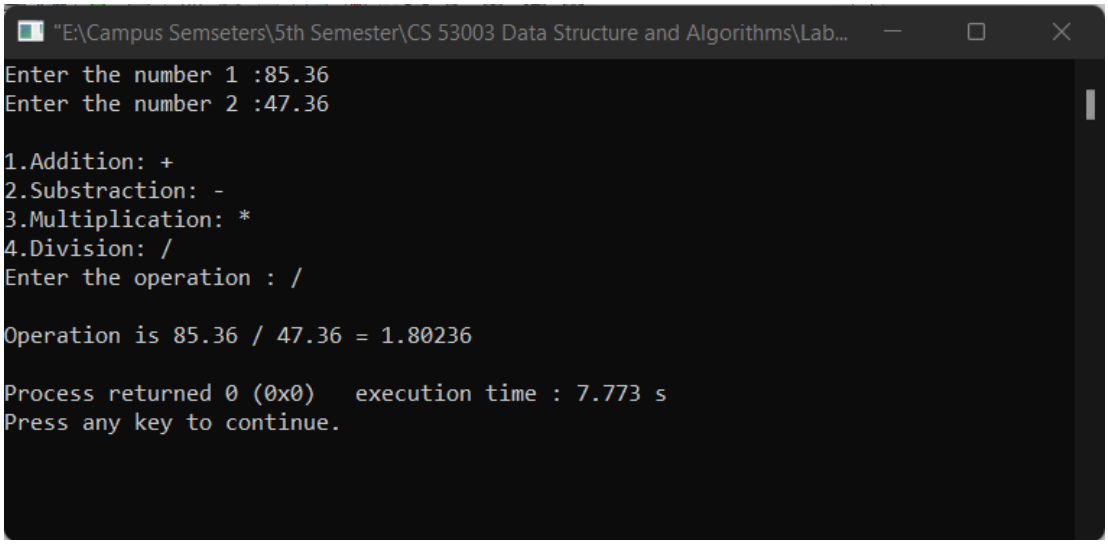
t here EX06.cpp

```cpp
#include<iostream>

using namespace std;
float x,y,z;

void Addition(){
    z=x+y;
}
void Substraction(){
    z=x-y;
}
void Multiplication(){
    z=x*y;
}
void Division(){
    z=x/y;
}

int main(){
    cout<<"Enter the number 1 :";
    cin>>x;
    cout<<"Enter the number 2 :";
    cin>>y;

    cout<<"\n1.Addition: +\n2.Substraction: -\n3.Multiplication: *\n4.Division: /\n";
    char a;
    cout<<"Enter the operation : ";
    cin>>a;
    int b = int(a);

    if (b==43){
        Addition();
    }
    else if (b==45){
        Substraction();
    }
    else if (b==42){
        Multiplication();
    }
    else if(b==47){
        Division();
    }
    else{
        cout<<"Invalid Inputs !!!";
    }
    cout<<"\nOperation is "<<x<<" "<<a<<" "<<y<<" = "<<z<<endl;
    return 0;
}
```

```
"E:\Campus Semseters\5th Semester\CS 53003 Data Structure and Algorithms\Lab\01\E...
Enter the number 1 :15.36
Enter the number 2 :47.695

1.Addition: +
2.Substraction: -
3.Multiplication: *
4.Division: /
Enter the operation : +

Operation is 15.36 + 47.695 = 63.055

Process returned 0 (0x0)   execution time : 6.801 s
Press any key to continue.
```


"E:\Campus Semseters\5th Semester\CS 53003 Data Structure and Algorithms...
Enter the number 1 :15.36
Enter the number 2 :48.365
1.Addition: +
2.Substraction: -
3.Multiplication: *
4.Division: /
Enter the operation : *
Operation is 15.36 * 48.365 = 742.886
Process returned 0 (0x0) execution time : 11.759 s
Press any key to continue.


"E:\Campus Semseters\5th Semester\CS 53003 Data Structure and Algorithms\Lab...
Enter the number 1 :93.65
Enter the number 2 :48.365
1.Addition: +
2.Substraction: -
3.Multiplication: *
4.Division: /
Enter the operation : -
Operation is 93.65 - 48.365 = 45.285
Process returned 0 (0x0) execution time : 7.847 s
Press any key to continue.


"E:\Campus Semseters\5th Semester\CS 53003 Data Structure and Algorithms\Lab...
Enter the number 1 :85.36
Enter the number 2 :47.36
1.Addition: +
2.Substraction: -
3.Multiplication: *
4.Division: /
Enter the operation : /
Operation is 85.36 / 47.36 = 1.80236
Process returned 0 (0x0) execution time : 7.773 s
Press any key to continue.

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