

OBJECT ORIENTED PROGRAMMING

C++ DSA0179.

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1. Write a program to read in two integers and perform the following operations on them: addition, subtraction, multiplication, division, and modulo.

Program:

```
#include<iostream>
using namespace std;
int main(){
    int x,y;
    cout<<"Enter two numbers"<<endl;
    cin>>x;
    cin>>y;
    int sum=x+y;
    int diff=x-y;
    int mul=x*y;
    int div=x%y;
    cout<<"The sum is "<<sum<<endl;
    cout<<"The difference is "<<diff<<endl;
    cout<<"The product is "<<mul<<endl;
    cout<<"The modulo is "<<div<<endl;
    return 0;
}
```

Output:

```
Enter two numbers
5
4
The sum is 9
The difference is 1
The product is 20
The modulo is 1

-----
Process exited after 3.515 seconds with return value 0
Press any key to continue . . . |
```

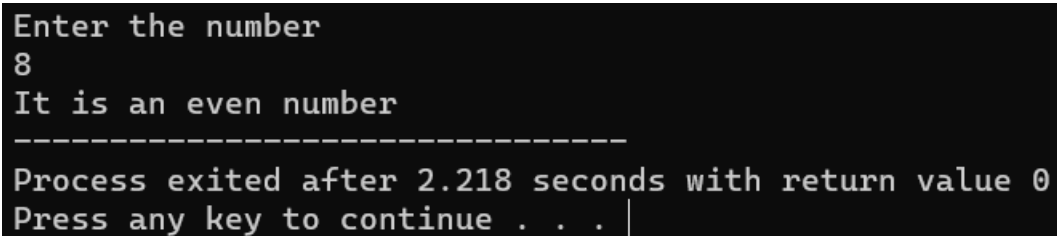
2. Program to determine the integer is odd or even

Program:

```
#include<iostream>
using namespace std;
int main(){
    int n;
    cout<<"Enter the number "<<endl;
    cin>>n;
    if(n%2==0){
        cout<<"It is an even number";

    }
    else{
        cout<<"It is an odd number";
    }
}
```

Output:

A screenshot of a terminal window showing the output of the program. The text is as follows:

```
Enter the number
8
It is an even number
-----
Process exited after 2.218 seconds with return value 0
Press any key to continue . . . |
```

3. Program to compute the average of three integers

Program:

```
#include<iostream>
using namespace std;
int main(){
    int x,y,z;
    cout<<"Enter three numbers"<<endl;
    cin>>x;
    cin>>y;
    cin>>z;
```

```

        int avg=(x+y+z)/3;
        cout<<"The averaage is "<<avg;
        return 0;
    }

```

Output:

```

Enter three numbers
45
48
50
The averaage is 47
-----
Process exited after 7.455 seconds with return value 0
Press any key to continue . . . |

```

4. Program to check two numbers are equal or not

Program:

```

#include<iostream>
using namespace std;
int main(){
    int x,y;
    cout<<"Enter the two numbers"<<endl;
    cin>>x;
    cin>>y;
    if(x==y){
        cout<<"They are equal";
    }
    else{
        cout<<"They are not equal";
    }
}

```

Output:

```
Enter the two numbers
5
9
They are not equal
-----
Process exited after 3.396 seconds with return value 0
Press any key to continue . . . |
```

5. Write a program to read in two Floating numbers and perform the following operations on them: addition, subtraction, multiplication, division, and modulo.

Program:

```
#include<iostream>
using namespace std;
int main(){
    float x,y;
    cout<<"Enter two numbers"<<endl;
    cin>>x;
    cin>>y;
    float sum=x+y;
    float diff=x-y;
    float mul=x*y;
    float div=x/y;
    cout<<"The sum is "<<sum<<endl;
    cout<<"The difference is "<<diff<<endl;
    cout<<"The product is "<<mul<<endl;
    cout<<"The modulo is "<<div<<endl;
    return 0;
}
```

Output:

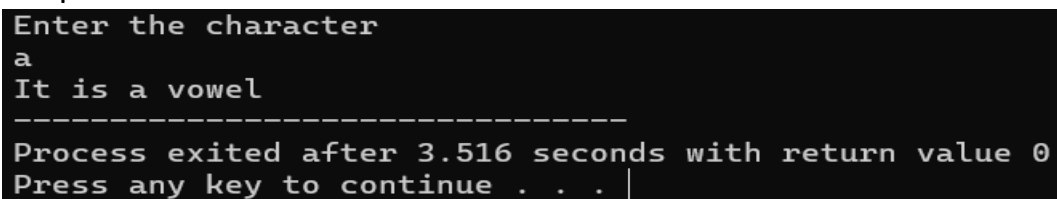
```
Enter two numbers
5.23
10.85
The sum is 16.08
The difference is -5.62
The product is 56.7455
The modulo is 0.482028
-----
Process exited after 6.478 seconds with return value 0
Press any key to continue . . . |
```

6. Program to check the character is a vowel or consonant

Program:

```
#include<cctype>
#include<iostream>
using namespace std;
int main(){
    char x;
    cout<<"Enter the character"<<endl;
    cin>>x;
    char y=tolower(x);
    if(y=='a' || y=='e' || y=='i' || y=='o' || y=='u'){
        cout<<"It is a vowel";
    }
    else{
        cout<<"It is a consonant";
    }
}
```

Output:

A screenshot of a terminal window with a black background and white text. The output shows the program's execution: it prompts 'Enter the character', the user enters 'a', and the program outputs 'It is a vowel'. Below this, a separator line of dashes is shown, followed by the system message 'Process exited after 3.516 seconds with return value 0' and 'Press any key to continue . . . |'.

7. Program to check the number is positive, negative or zero

Program:

```
#include<iostream>
using namespace std;
int main(){
    int x;
    cout<<"Enter the number";
    cin>>x;
```

```

        if(x>0){
            cout<<"Positive number";
        }
        else if(x<0){
            cout<<"Negative number";
        }
        else{
            cout<<"Zero";
        }
    }
}

```

Output:

```

Enter the number-5
Negative number
-----
Process exited after 4.526 seconds with return value 0
Press any key to continue . . . |

```

8. Program to determine which number is greater among two integers

Program:

```

#include<iostream>
using namespace std;
int main(){
    int x,y;
    cout<<"Enter the two numbers"<<endl;
    cin>>x;
    cin>>y;
    if(x>y){
        cout<<"First number is greater";
    }
    else{
        cout<<"Second number is greater";
    }
}

```

Output:

```

Enter the two numbers
8
5
First number is greater
-----
Process exited after 4.374 seconds with return value 0
Press any key to continue . . . |

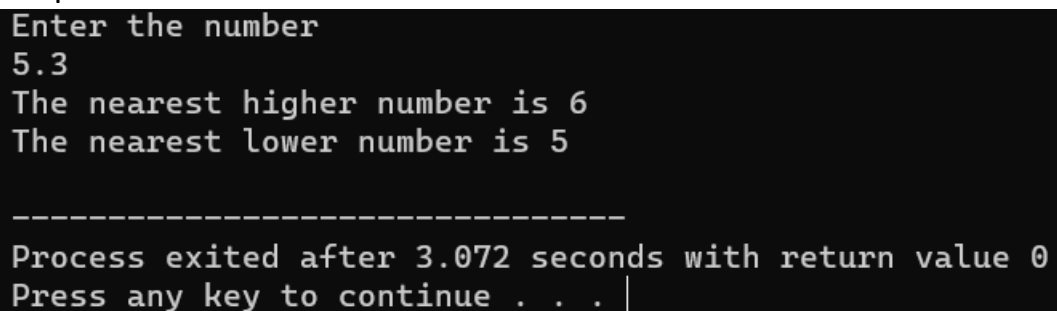
```

9. Program to read a floating-number and round it to the nearest integer using the floor and ceil functions.

Program:

```
#include<iostream>
#include<cmath>
using namespace std;
int main(){
    float x;
    cout<<"Enter the number"<<endl;
    cin>>x;
    cout<<"The nearest higher number is "<<ceil(x)<<endl;
    cout<<"The nearest lower number is "<<floor(x)<<endl;
}
```

Output:

A screenshot of a terminal window showing the output of the C++ program. The text is as follows:
Enter the number
5.3
The nearest higher number is 6
The nearest lower number is 5

Process exited after 3.072 seconds with return value 0
Press any key to continue . . . |

10. Program to swap two numbers using bitwise XOR operator

Program:

```
#include<iostream>
using namespace std;
int main(){
    int x,y;
    cout<<"Enter the numbers "<<endl;
    cin>>x;
    cin>>y;
    cout<<"Before swapping x = "<<x<<" y = "<<y<<endl;
    x=x^y;
    y=x^y;
    x=x^y;
    cout<<"After swapping, x = "<<x<<" y = "<<y;
}
```

Output:

```

Enter the numbers
5
6
Before swapping x = 5 y = 6
After swapping, x = 6 y = 5
-----
Process exited after 8.663 seconds with return value 0
Press any key to continue . . . |

```

11. Largest among
three numbers using ternary conditional operator

Program:

```

#include<iostream>
using namespace std;
int main(){
    int x,y,z,l;
    cout<<"Enter the three numbers"<<endl;
    cin>>x;
    cin>>y;
    cin>>z;
    l=x;
    if(y>l){
        l=y;
    }
    if(z>l){
        l=z;
    }
    cout<<"The greatest of three numbers is "<<l;
}

```

Output:

```

Enter the three numbers
5
6
7
The greatest of three numbers is 7
-----
Process exited after 4.732 seconds with return value 0
Press any key to continue . . .

```

12. Program to
check two numbers are equal or not using ternary conditional operator

Program:

```

#include<iostream>
#include<string>
using namespace std;
int main(){

```



```

        int x,y;
        string result;
        cout<<"Enter the two numbers "<<endl;
        cin>>x;
        cin>>y;
        result=(x==y) ? "They are equal" : "They are not equal";
        cout<<result;

    }

```

Output:

```

Enter the two numbers
6
3
They are not equal
-----
Process exited after 3.357 seconds with return value 0
Press any key to continue . . . |

```

13. Program to check the integer is divisible by 3 or not using ternary conditional operator

Program:

```

#include<iostream>
#include<string>
using namespace std;
int main(){
    int x;
    string result;
    cout<<"Enter the number"<<endl;
    cin>>x;
    result=(x%3==0) ? "Divisible by three" : "Not divisible by three";
    cout<<result;

}

```

Output:

```

Enter the number
9
Divisible by three
-----
Process exited after 2.084 seconds with return value 0
Press any key to continue . . . |

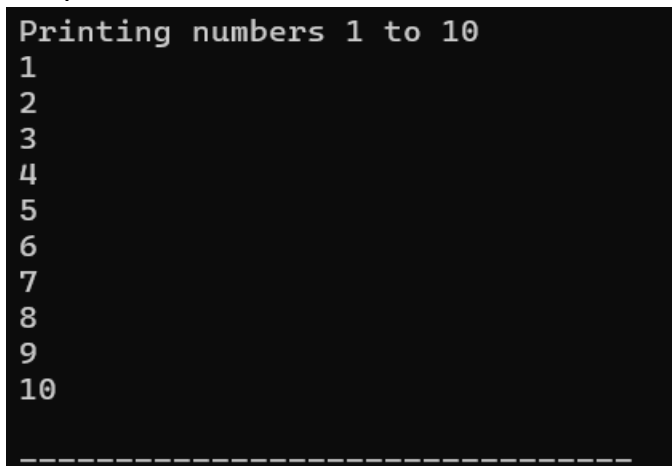
```

14. Program to
print numbers from 1 to 10 using for loop

Program:

```
#include<iostream>
using namespace std;
int main(){
    cout<<"Printing numbers 1 to 10"<<endl;
    for(int i=1;i<11;i++){
        cout<<i<<endl;
    }
}
```

Output:

A screenshot of a terminal window with a black background and white text. The output of the program is displayed as follows: "Printing numbers 1 to 10" followed by a line of 10 dashes. Below this, the numbers 1 through 10 are printed on separate lines. The text is left-aligned.

```
Printing numbers 1 to 10
-----
1
2
3
4
5
6
7
8
9
10
```

15. Factorial of
a number using for loop

Program:

```
#include<iostream>
using namespace std;
int main(){
    int x,fact=1;
    cout<<"Enter the number"<<endl;
    cin>>x;
    for(int i=1;i<x+1;i++){
        fact=fact*i;
    }
    cout<<"The factorial is "<<fact;
```

```
}
```

Output:

```
Enter the number
5
The factorial is 120
-----
Process exited after 2.349 seconds with return value 0
Press any key to continue . . . |
```