

## TASK 01

**Compile all sample programs.**

Sample 1:

Code:

```
#include<iostream>

using namespace std;

void duplicate (int& a, int& b, int& c)
{
    a=a*2;

    b=b*2;

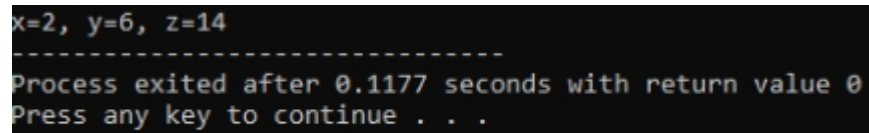
    c=c*2;
}

int main()
{
    int x=1, y=3, z=7;

    duplicate (x, y, z);
```

```
    cout << "x=" << x << ", y=" << y << ", z=" << z;\n";\n\n    return 0;\n}
```

### Output:



A terminal window with a black background and light green text. The first line shows the output 'x=2, y=6, z=14'. The second line is a dashed line. The third line shows 'Process exited after 0.1177 seconds with return value 0'. The fourth line shows 'Press any key to continue . . .'.

```
x=2, y=6, z=14\n-----\nProcess exited after 0.1177 seconds with return value 0\nPress any key to continue . . .
```

### Sample 2:

#### Code:

```
#include "stdafx.h"\n\n#include<iostream>\n\nusing namespace std;\n\nvoid prevnext (int x, int& prev, int& next)\n{\n    prev = x-1;\n    next = x+1;\n}
```

```

int _tmain(int argc, _TCHAR* argv[])
{
    int x=100, y, z;

    prevnext (x, y, z);

    cout << "Previous=" << y << ", Next=" << z;

    system("pause");

    return 0;
}

```

### Output:

```

Previous=99, Next=101
-----
Process exited after 0.1084 seconds with return value 0
Press any key to continue . . .

```

### Sample 3:

### Code:

```

#include<iostream>

using namespace std;

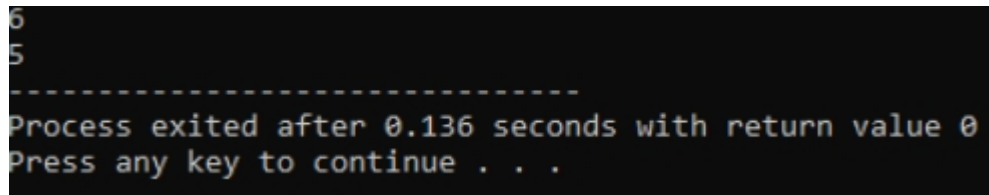
int divide (int a, int b=2)
{
    int r;

```

```
r=a/b;  
return r;  
}
```

```
int main()  
{  
    cout << divide (12);  
    cout << endl;  
    cout << divide (20,4);  
    return 0;  
}
```

Output:



```
5  
5  
-----  
Process exited after 0.136 seconds with return value 0  
Press any key to continue . . .
```

Sample 4:

Code:

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

```
int operate (int a, int b)
```

```
{
```

```
    return a*b;
```

```
}
```

```
float operate (float a, float b)
```

```
{
```

```
    return a/b;
```

```
}
```

```
int main()
```

```
{
```

```
    int x=5,y=2;
```

```
    float n=5.0,m=2.0;
```

```
    cout << operate (x,y);
```

```
    cout << "\n";
```

```
    cout << operate (n,m);
```

```
    cout << "\n";
```

```
    return 0;
```

```
}
```

Output:

-

```
10
2.5
-----
Process exited after 0.1379 seconds with return value 0
Press any key to continue . . .
```

-

### Sample 5:

#### Code:

-

```
#include<iostream>

using namespace std;

int fact (int a)
{
    if (a==0)
        return 1;
    else
        return a*fact(a-1);
}

int main()
{
    int n;

    cout << "Please type a number: ";

    cin >> n;

    cout << n << "! = " << fact (n);
```

```
return 0;  
}
```

Output:

```
Please type a number: 6  
6! = 720  
-----  
Process exited after 2.748 seconds with return value 0  
Press any key to continue . . .
```

## TASK 02

**Create a program with a function which calculate the square of both the values entered by user. (Using call by reference)**

Code:

```
#include<iostream>  
  
using namespace std;  
  
void func (int &a, int &b)  
{  
    cout<<"Square of first value is "<<a*a<<endl;  
    cout<<"Square of second value is "<<b*b<<endl;  
}
```

```

int main()
{
    int a,b;

    cout<<"Enter two values: \n";

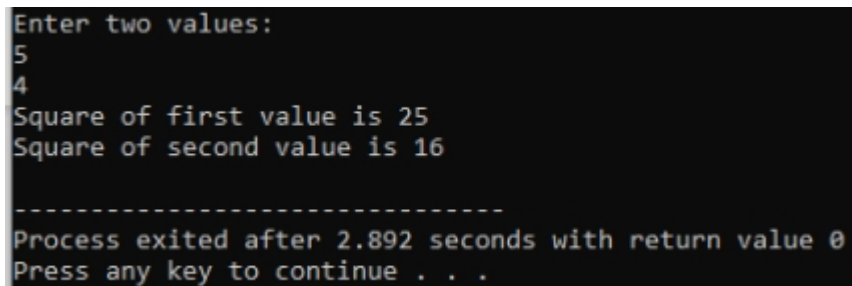
    cin>>a>>b;

    func(a,b);

    return 0;
}

```

Output:



```

Enter two values:
5
4
Square of first value is 25
Square of second value is 16

-----
Process exited after 2.892 seconds with return value 0
Press any key to continue . . .

```

### TASK 03

**Write a program with a function volume( ) to calculate the volume of a cube. Use Function Overloading concept .Call this function with zero, one, two and three arguments and display the volume returned in the main( ). Use length of side =1 for definition with no arguments.**

**$v = s^3$ ,  $s$  = length of side**



## Code:

```
#include<iostream>

using namespace std;

int volume ()

{

    int a=1;

    return a*a*a;

}

int volume (int a)

{

    return a*a*a;

}

int volume (int a, int b)

{

    int c=1;

    return a*b*c;

}

int volume (int a, int b,int c)

{

    return a*b*c;

}

int main()

{

    int a,b,c;
```

```

cout<<"We will calculate the volume of a cube in different ways by function overloading: \n";

cout<<"Please enter three values: \n";

cin>>a>>b>>c;

cout<<"By using 1 as lenght, height and width, the volume is "<<volume()<<endl;

cout<<"By using the first value you have entered, as lenght, height and width, the volume is
"<<volume(a)<<endl;

cout<<"By using the first and second value you have entered, as lenght and height and 1 as width, the
volume is "<<volume(a,b)<<endl;

cout<<"By using the first,second and third value you have entered, as lenght height and width, the
volume is "<<volume(a,b,c);

return 0;

}

```

### Output:

```

We will calculate the volume of a cube in different ways by function overloading:
Please enter three values:
5
6
7
By using 1 as lenght, height and width, the volume is 1
By using the first value you have entered, as lenght, height and width, the volume is 125
By using the first and second value you have entered, as lenght and height and 1 as width, the volume is 30
By using the first,second and third value you have entered, as lenght height and width, the volume is 210
.....
Process exited after 3.373 seconds with return value 0
Press any key to continue . . .

```

## TASK 04

**Perform Task # 03 by using Default value concept call the function with 0,1, 2 and 3 Arguments.**

### Code:

```
#include<iostream>

using namespace std;

int vol(int s=5){

    int c=s*s*s;

    return c;

}

int main(){

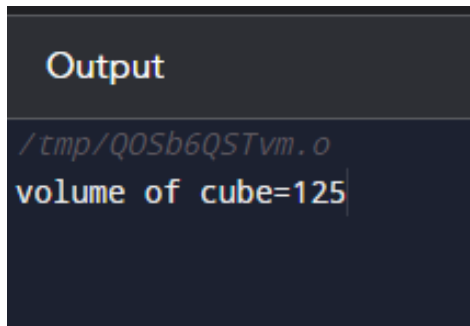
    int s;

    cout<<"volume of cube="<<vol();/*we are not passing any value so it will take the default value to
perform function.*/

    return 0;

}
```

Output:

A screenshot of a terminal window with a dark background. The title bar at the top says "Output". Below the title bar, the text "/tmp/Q0Sb6QSTvm.o" is visible. The main output of the program is "volume of cube=125", followed by a cursor.

```
Output
/tmp/Q0Sb6QSTvm.o
volume of cube=125
```

### TASK 05

**Create a program with a function which calculate the power of a number, both number and power should be entered by user at run time. (Note : Use Recursion for this program)**

Code:

```
#include<iostream>
```

```
using namespace std;
```

```
int power(){
```

```
    int a,b,mul=1;char yn;
```

```
    cout<<"Enter a number: \n";
```

```
    cin>>a;
```

```
    cout<<"Enter the power: \n";
```

```
    cin>>b;
```

```
    for(int i=1;i<=b;i++){
```

```
        mul*=a;
```

```
    }
```

```
    cout<<"Power = "<<mul<<endl<<endl;
```

```
    cout<<"Do you want to calculate the power of any other number?\n";
```

```
    cout<<"If 'yes' type 'y' , if 'no' type 'n' \n";
```

```
    cin>>yn;
```

```
    if(yn=='y'){
```

```
        cout<<endl;
```

```
        power();
```

```
    }
```

```
    else if (yn=='n'){
```

```
        cout<<"\nThank you! \n";
```

```
    }
```

```
    else
```

```
        cout<<"\nInvalid";
```

```
}
```

```
main(){
```

```
power();  
}
```

### Output:

```
Enter a number:  
5  
Enter the power:  
4  
Power = 625  
  
Do you want to calculate the power of any other number?  
If 'yes' type 'y' , if 'no' type 'n'  
y  
  
Enter a number:  
8  
Enter the power:  
3  
Power = 512  
  
Do you want to calculate the power of any other number?  
If 'yes' type 'y' , if 'no' type 'n'  
n  
  
Thank you!  
  
-----  
Process exited after 11.49 seconds with return value 0  
Press any key to continue . . .
```