

Experiment 1 – C

```
#include <iostream>

using namespace std;

class Car{
    public:
        string brand;
        string color;
        int year;

        Car(string b , string c , int y )
        {
            brand=b;
            color=c;
            year=y;
        }
        void display()
        {
            cout <<"Brand : "<<brand<<"\nColor"<<color<<"\nYear : "<<year<< endl;
        }
};

int main()
{
    Car car1("Toyota ", "Red", 1925);
    Car car2("Ford", "Blue", 1975);
    cout<<"Car 1 details : "<<endl;
    car1.display();
    cout<<"Car 2 details : "<<endl;
    car2.display();
    return 0;
}
```

Output:-

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input

```
Car 1 details :  
Brand :Toyota  
ColorRed  
Year :1925  
Car 2 details :  
Brand :Ford  
ColorBlue  
Year :1975  
  
...Program finished with exit code 0  
Press ENTER to exit console.█
```

Experiment 2 – A

Code : -

```
#include <iostream>

using namespace std;

float pi = 3.14;

int area (int side)
{
    return side*side;
}

int area(int len , int width)
{
    return len*width;
}

int area(float rad)
{
    return pi*rad*rad;
}

int main()
{
    int sideint;

    cout<<"Enter the side of the square : " << endl;
    cin>>sideint;

    cout<<"The area of the square is : "<<area(sideint)<<endl;

    int length,wid;

    cout<<"Enter the length  of the reactangle : " << endl;
    cin>>length;

    cout<<"Enter the width  of the reactangle : " << endl;
    cin>>wid;

    cout<<"The area of the rectangle is : "<<area(length,wid)<<endl;

    int radius;

    cout<<"enter the radius of the circle is : " <<endl;
```

```
cin>>radius;  
  
cout<<"The area of the square is : "<<area(radius)<<endl;  
  
}
```

Output:-

```
Enter the side of the square :  
4  
The area of the square is : 16  
Enter the length of the reactangle :  
4  
Enter the width of the reactangle :  
3  
The area of the rectangle is : 12  
enter the radius of the circle is :  
6  
The area of the square is : 36  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

Experiment 2 – B1

Code: -

```
#include <iostream>

using namespace std;

void swap (int x , int y)
{
    int temp = x;
    x=y;
    y=temp;
    cout<<"Inside the function "<<endl;
}

int main()
{
    int a,b;
    cout<<"Enter two numbers : "<<endl;
    cin>>a>>b;
    cout<<"Before swapping a & b are : "<<a<<" "<<b<<endl;
    swap(a,b);
    cout<<"After swapping a and b are : "<<a<<" "<<b<<endl;
    return 0;
}
```

Output: -

```
Enter two numbers :
4 2
Before swapping a & b are : 4 2
Inside the function
After swapping a and b are : 4 2

...Program finished with exit code 0
Press ENTER to exit console.
```

Experiment 2 – B2

Code:-

```
#include <iostream>

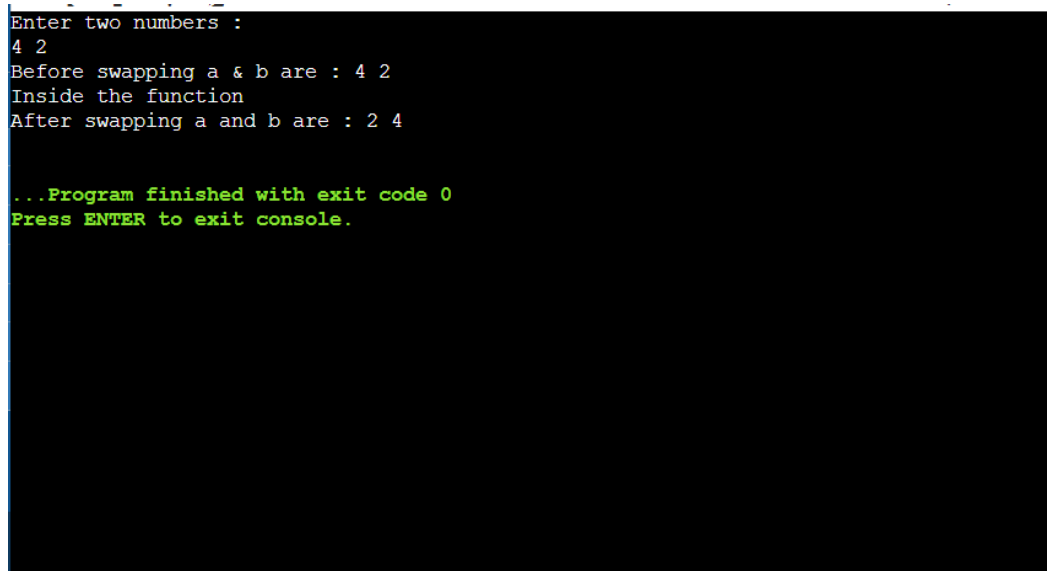
using namespace std;

void swap (int &x , int &y)
{
    int temp = x;
    x=y;
    y=temp;
    cout<<"Inside the function "<<endl;
}

int main()
{
    int a,b;
    cout<<"Enter two numbers : "<<endl;
    cin>>a>>b;
    cout<<"Before swapping a & b are : "<<a<<" "<<b<<endl;
    swap(a,b);
    cout<<"After swapping a and b are : "<<a<<" "<<b<<endl;
    return 0;

}
```

Output: -



```
Enter two numbers :
4 2
Before swapping a & b are : 4 2
Inside the function
After swapping a and b are : 2 4

...Program finished with exit code 0
Press ENTER to exit console.
```

Experiment 2 – B3

Code:-

```
#include <iostream>

using namespace std;

int x;

int& retByRef()
{
    return x;
}

void printMaxNumber() {
    int num1, num2;

    cout << "Enter two numbers: ";

    cin >> num1 >> num2;

    if (num1 > num2) {
        cout << "The maximum number is: " << num1 << endl;
    } else {
        cout << "The maximum number is: " << num2 << endl;
    }
}

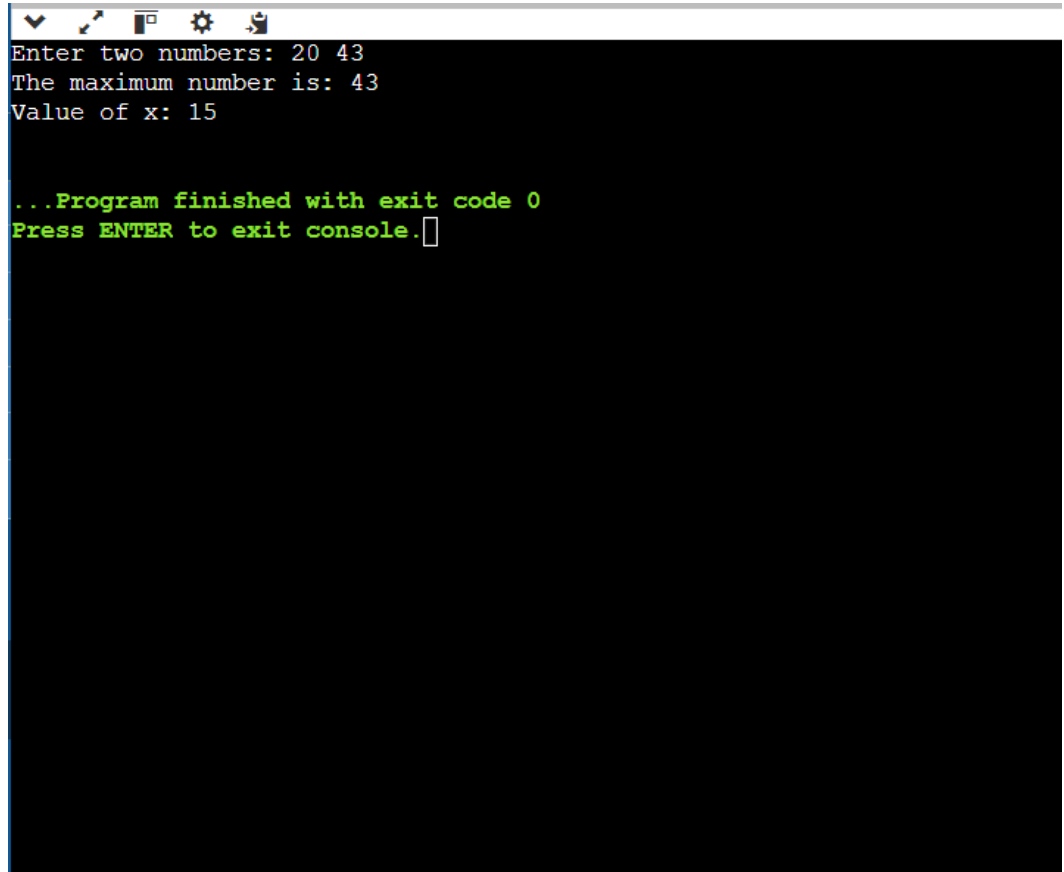
int main()
{
    printMaxNumber();

    retByRef() = 15;

    cout << "Value of x: " << x << endl;

    return 0;
}
```

Output: -



A screenshot of a terminal window with a dark background and light-colored text. The window has a title bar at the top with standard icons. The text inside the terminal shows the execution of a program that takes two numbers as input, finds the maximum, and prints a value for x. The program has finished successfully.

```
Enter two numbers: 20 43
The maximum number is: 43
Value of x: 15

...Program finished with exit code 0
Press ENTER to exit console.
```


Experiment 2 – C1

Code:-

```
#include <iostream>

using namespace std;

float SI (int p, int n, float r=5.4) {

    return ( p*n*r/100);

}

int main() {

    int p, n;

    cout << "Enter principle amount (p):" ;

    cin >> p;

    cout << "Enter number of days (n):";

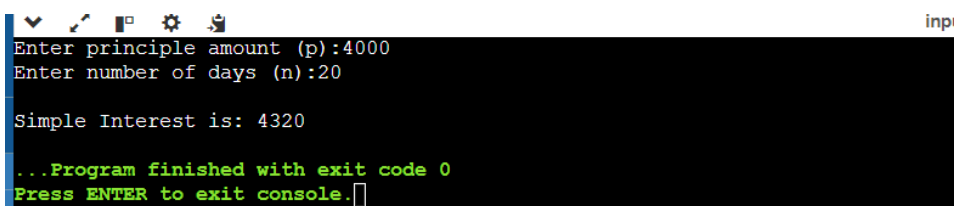
    cin >> n;

    cout << "\nSimple Interest is: " << SI(p,n);

    return 0;

}
```

Output: -

A screenshot of a console window with a black background and white text. The window title bar shows standard icons and the text 'inpr'. The output text is as follows:

```
Enter principle amount (p):4000
Enter number of days (n):20

Simple Interest is: 4320

...Program finished with exit code 0
Press ENTER to exit console.
```

Experiment 2 – C1

Code:-

```
#include <iostream>

using namespace std;

inline int sum (int a, int b) { return (a+b);}

inline int diff (int a, int b) { return (a-b); }

inline int prod (int a, int b) { return (a*b); }

inline float divi (float a, float b) { return (a/b); }

int main() {

    int p, n;

    cout << "Enter first number:" ;

    cin >> p;

    cout << "Enter second number";

    cin >> n;

    cout<<"The Sum is: " << sum(p,n)<<endl ;

    cout<< "The Difference is: " << diff(p,n)<<endl;

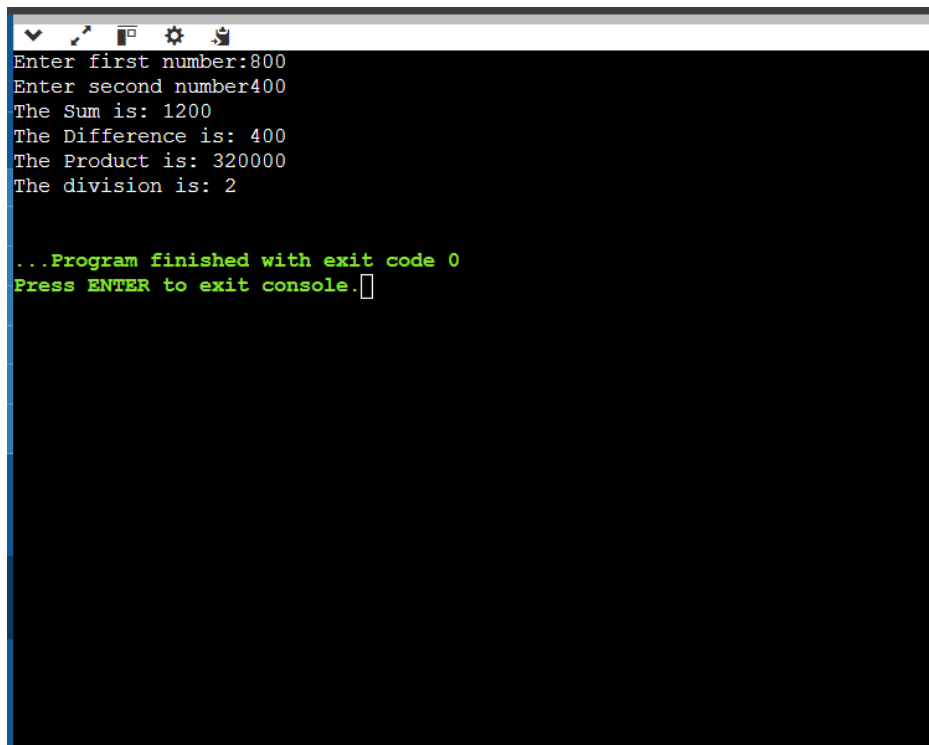
    cout<< "The Product is: " << prod(p,n)<<endl ;

    cout<< "The division is: " << divi(p,n)<<endl;

    return 0;

}
```

Output: -

A screenshot of a console window with a dark background and a light gray title bar. The title bar contains standard window controls (minimize, maximize, close) and a gear icon. The console displays the following text in a monospaced font: 'Enter first number:800', 'Enter second number400', 'The Sum is: 1200', 'The Difference is: 400', 'The Product is: 320000', 'The division is: 2', followed by a blank line, then '...Program finished with exit code 0' and 'Press ENTER to exit console.' with a cursor. The text is white except for the final two lines which are green.

```
Enter first number:800
Enter second number400
The Sum is: 1200
The Difference is: 400
The Product is: 320000
The division is: 2

...Program finished with exit code 0
Press ENTER to exit console.
```

Experiment 3 – A

Code:-

```
#include <iostream>

#include <string>

using namespace std;

class student
{
    private:

    int roll_no;

    int marks;

    string name;


    public:

    friend class college;

};

class college
{
    public:

    void display(student&s)
    {

        cout<<"Enter Student Roll Number : "<<endl;

        cin>>s.roll_no;

        cout<<"Enter Student Marks : "<<endl;

        cin>>s.marks;

        cout<<"Enter Student Name : "<<endl;

        cin>>s.name;

        cout<<"The student information \n Roll no is "<<s.roll_no<<endl;
```

```
        cout<<"Marks Obtained : "<<s.marks<<"\n"<<"Name : "<<s.name<<endl;

    }

};

int main()

{

    student s1;

    college c1;

    c1.display(s1);

    return 0;

}
```

Output:-

```
Enter Student Roll Number :
45
Enter Student Marks :
85
Enter Student Name :
Diya
The student information
Roll no is 45
Marks Obtained :85
Name : Diya

...Program finished with exit code 0
Press ENTER to exit console.
```

Experiment 3 – B

Code:-

```
#include <iostream>

using namespace std;

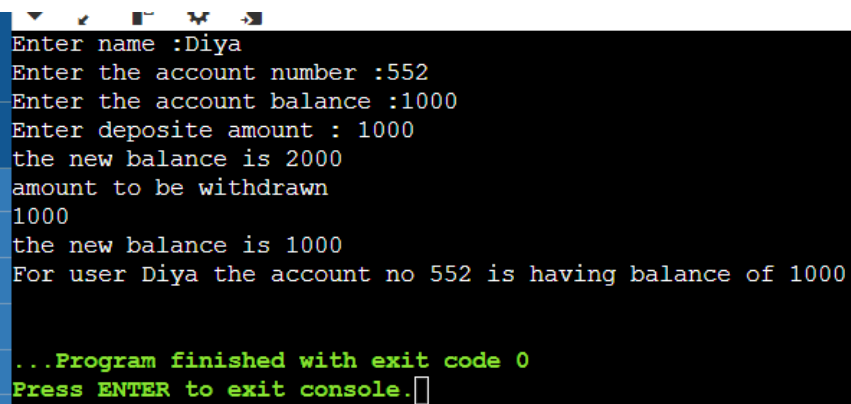
class bank{
    int acc_no;
    char name[50];
    double bal;
public:
    void deposit();
    void withdraw();
    void display();
};

void bank::deposit(){
    int dep;
    cout << "Enter name :";
    cin>>name;
    cout << "Enter the account number :";
    cin>>acc_no;
    cout << "Enter the account balance :";
    cin>>bal;
    cout << "Enter deposite amount : ";
    cin>>dep;
    bal+=dep;
    cout<<"the new balance is "<<bal<<endl;
}

void bank::withdraw(){
    double amo;
    cout<<"amount to be withdrawn "<<endl;
    cin>>amo;
    bal-=amo;
    cout<<"the new balance is "<<bal<<endl;
}
```

```
void bank::display(){  
    cout<<"For user "<<name<<" the account no "<<acc_no<<" is having balance of "<<bal<<endl;  
}  
  
int main() {  
    bank b;  
  
    b.deposit();  
  
    b.withdraw();  
  
    b.display();  
  
    return 0;  
}
```

Output:-



```
Enter name :Diya  
Enter the account number :552  
Enter the account balance :1000  
Enter deposit amount : 1000  
the new balance is 2000  
amount to be withdrawn  
1000  
the new balance is 1000  
For user Diya the account no 552 is having balance of 1000  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

Experiment 3 – C1

Code:-

```
#include <iostream>

using namespace std;

class test{
    private:
        int a=10;
    protected :
        int b=20;
    public :
        int c=30;
};

int main(){
    test t;

    t.a;

    t.b;

    t.c;

    return 0;
}
```

Output:-

Compilation failed due to following error(s).

```
main.cpp: In function 'int main()':
main.cpp:14:7: error: 'int test::a' is private within this context
 14 |     t.a;
    |     ^
main.cpp:5:9: note: declared private here
   5 |     int a=10;
     |     ^
main.cpp:15:7: error: 'int test::b' is protected within this context
 15 |     t.b;
    |     ^
main.cpp:7:9: note: declared protected here
   7 |     int b=20;
     |     ^
```


Experiment 3 – C2

Code:-

```
#include <iostream>

using namespace std;

class test {
private:
    int a = 10;
protected:
    int b = 20;
public:
    int c = 30;

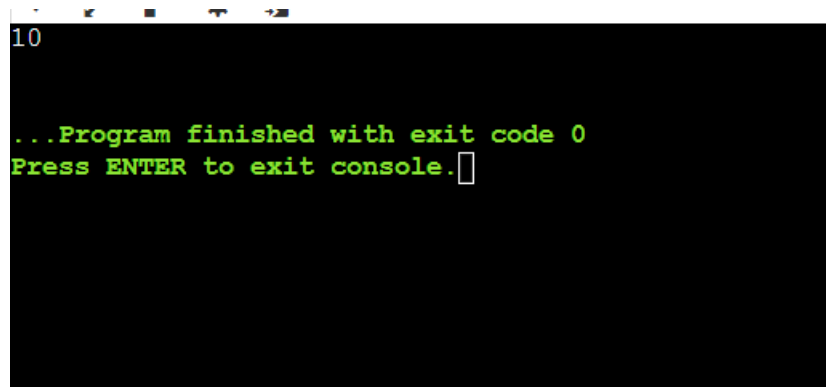
    int getA() {
        return a;
    }
};

int main() {
    test t;

    cout << t.getA() << endl;

    return 0;
}
```

Output:-

A screenshot of a terminal window with a black background and green text. The output shows the number '10' on the first line, followed by a blank line. The second line reads '...Program finished with exit code 0'. The third line reads 'Press ENTER to exit console.' followed by a small square cursor icon.

```
10

...Program finished with exit code 0
Press ENTER to exit console.█
```