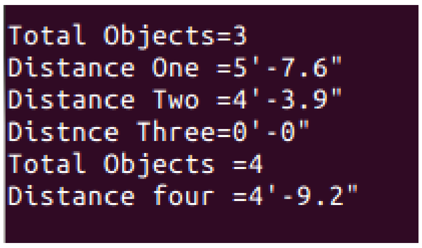
```
/* THIS C++ PROGRAM ILLUSTRATES THE CONCEPT OF
 * STATIC DATA MEMBERS (STATIC DATA CLASS) */

 /*NAME : SAGAR GIRI, SECTION: A, ROLL NO. 205 */

 #include <iostream>
 using namespace std;
 class Distance
 {
          private:
                  int feet; float inches;

         public:
                  static int count; //static data member
                  Distance()
                  {
                           feet = 0;inches = 0.0;
                           count++; //increments count for every object created
                  }
                  Distance (int ft, float in)
                  {
                           feet = ft;inches = in;
                           count++; //increments count for every object created
                  }
                  void display()
                  {
                           cout<<feet<<"\'-"<<inches<<"\"";
                  }
}; //end class Distance

int Distance::count = 0; //definition of static variable count
int main()
{
         Distance d1(5,7.6),d2(4,3.9),d3;
         cout<<endl<<"Total Objects="<<Distance::count;
         cout<<endl<<"Distance One =";d1.display();
         cout<<endl<<"Distance Two =";d2.display();
         cout<<endl<<"Distnce Three=";d3.display();
         Distance d4(4,9.2);
         cout<<endl<<"Total Objects ="<<Distance::count;
         cout<<endl<<"Distance four =";d4.display();
}
```

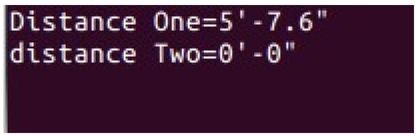
OUTPUT:



```
Total Objects=3
Distance One =5'-7.6"
Distance Two =4'-3.9"
Distnce Three=0'-0"
Total Objects =4
Distance four =4'-9.2"
```

```
/* THIS PROGRAM ILLUSTRATES THE CONCEPT OF "CONST" QUALIFIER
 * "CONST" IS A KEYWORD IN C++ */

/*NAME : SAGAR GIRI, SECTION: A, ROLL NO. 205 */

#include <iostream>
using namespace std;
class Distance
{
	private:
		int feet; float inches;
	public:
		Distance()
		{
			feet = 0;inches=0.00;
		}
		Distance (int ft, float in)
		{
			feet = ft; inches = in;
		}
		void display() const //constant display member function
		{
			cout<<feet<<"\'-"<<inches<<"\""<<endl;
			//here we cannot do feet++ or inches++ but can change the
			//the value of feet and inches of the other objects
		}
}; //end class Distance
int main()
{
	Distance d1(5,7.6),d2;
	cout<<"Distance One=";d1.display();
	cout<<"distance Two=";d2.display();
}
```

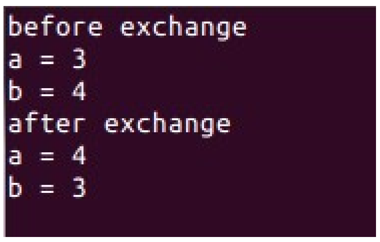
OUTPUT:



```
Distance One=5'-7.6"
distance Two=0'-0"
```

```
/* THIS PROGRAM ILLUSTRATES THE CONCEPT OF
 * PASSING ARGUMENTS BY REFERENCE IN A MEMBER FUNCTION */

 /* NAME : SAGAR GIRI, ROLL : 205, SECTION : A*/

#include <iostream>
using namespace std;
class exchange
{
        private:
                int a;
                int b;
        public:
                exchange(int x, int y) //two argument constructor
                {
                        a = x;
                        b = y;
                }
                void exch(exchange& c1) //swap the value of a and b
                {
                        int temp=0;
                        temp = c1.a;
                        c1.a = c1.b;
                        c1.b = temp;
                }
                void display1()
                {
                         cout<<"after exchange"<<endl;
                         cout<<"a = "<<a<<endl<<"b = "<<b<<endl;
                }
                void display2()
                {
                        cout<<"after exchange"<<endl;
                        cout<<"a = "<<a<<endl<<"b = "<<b;
                }
}; //end class exchange

int main()
 {
         exchange c1(3,4);
         c1.display1();
         c1.exch(c1);
         c1.display2();
return 0;
}
```

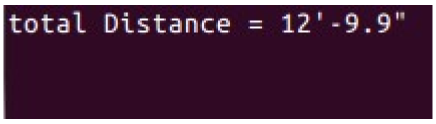
OUTPUT:



```
before exchange
a = 3
b = 4
after exchange
a = 4
b = 3
```

```
/* THIS PROGRAM ILLUSTRATES THE CONCEPT OF
 * INLINE MEMBER FUNCTION */

 /* NAME : SAGAR GIRI, ROLL : 205, SECTION : A*/
#include <iostream>
using namespace std;
class Distance
{
	private:
		int feet;float inches;
	public:
		Distance()
		{
			feet = 0;
			inches = 0.0;
		}

		Distance(int ft, float in)
		{
			feet = ft;
			inches = in;
		}

		inline Distance addDistance(Distance dd1) //defining inline function
		{
			Distance temp;
			temp.feet = feet + dd1.feet;
			temp.inches = inches + dd1.inches;
			if(inches >= 12.0)
			{
				inches -= 12.0;
				feet++;
			}
			return temp;
		}

		void display()
		{
			cout << feet << "\'-" << inches << "\"" << endl;
		}
};
int main()
{
	Distance d1(5, 6.7), d2(7, 3.2), d3;
	d3 = d1.addDistance(d2);
	d3.display();
}
```

OUTPUT:



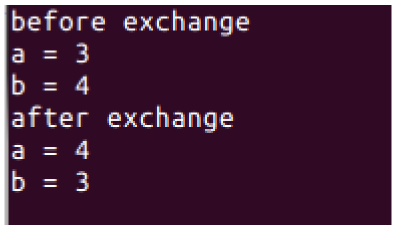
```
total Distance = 12'-9.9"
```

/* THIS PROGRAM ILLUSTRATES THE CONCEPT OF
 *** PASSING AS POINTER IN A MEMBER FUNCTION */**

 /* NAME : SAGAR GIRI, ROLL : 205, SECTION : A*/

```
#include <iostream>
using namespace std;
class exchange
{
        private:
                int a;
                int b;
        public:
                exchange(int x, int y) //two argument constructors
                {
                        a = x;
                        b = y;
                }
                void exch(exchange* c1) //swap the value of a and b
                {
                        int temp=0;
                        temp = c1->a;
                        c1->a = c1->b;
                        c1->b = temp;
                }
                void display1()
                {
                         cout<<"before exchange"<<endl;
                         cout<<"a = "<<a<<endl<<"b = "<<b<<endl;
                }
                void display2()
                {
                        cout<<"after exchange"<<endl;
                        cout<<"a = "<<a<<endl<<"b = "<<b;
                }
}; //end class exchange

int main()
 {
         exchange c1(3,4);
         c1.display1();
         c1.exch(&c1); //passing address of the object
         c1.display2();
return 0;
}
```

OUTPUT:



```
before exchange
a = 3
b = 4
after exchange
a = 4
b = 3
```