	AIR UNIVERSITY
	DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
	EXPERIMENT NO 4

Lab Title: Friend Classes and Friend Functions

Student Name: _____ **Reg. No:** _____

Objective: _____

_____

LAB ASSESSMENT:

Attributes	Excellent (5)	Good (4)	Average (3)	Satisfactory (2)	Unsatisfactory (1)
Ability to Conduct Experiment					
Ability to assimilate the results					
Effective use of lab equipment and follows the lab safety rules					

Total Marks: _____ Obtained Marks: _____

LAB REPORT ASSESSMENT:

Attributes	Excellent (5)	Good (4)	Average (3)	Satisfactory (2)	Unsatisfactory (1)
Data presentation					
Experimental results					
Conclusion					

Total Marks: _____ Obtained Marks: _____

Date: _____ Signature: _____

LAB TASK #2

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

class Magzine;

class Book
{
   string name;
   int num_of_pages,price;
   public:
   Book(string nm,int n_pages,int pr)
   {
      name=nm;
      num_of_pages=n_pages;
      price=pr;
   }
   friend class Libranian;
   friend void compare(Book,Magzine);
};

class Magzine
{
   string name;
   int num_of_pages,price;
   public:
   Magzine(string nm,int n_pages,int pr)
   {
      name=nm;
      num_of_pages=n_pages;
      price=pr;
   }
   friend class Libranian;
   friend void compare(Book,Magzine);
};

class Libranian
{

   int total,price_b,price_m;
   public:
   Libranian(Book b,Magzine mag)
   {
      price_b=b.price;
      price_m=mag.price;
   }
   void result()
   {
      cout<<"\n\nThe price of book: "<<price_b<<endl;
      cout<<"\nThe price of book: "<<price_b<<endl;
```

```
        cout<<"\nThe total cost: "<<price_b + price_m<<endl;
    }


};

void compare(Book b, Magzine m)
{
    if (b.price>m.price)
    {
        cout<<"\nThe price of book is greater then the price of magzine."<<endl;
    }
    else
    {
        cout<<"\nThe price of book is less then the price of magzine."<<endl;
    }
}

int main()
{
    Book b1("Physics",300,500);
    Magzine m1("Reader's Digest",100,150);
    Libranian l1(b1,m1);
    l1.result();
    compare(b1,m1);
}
```

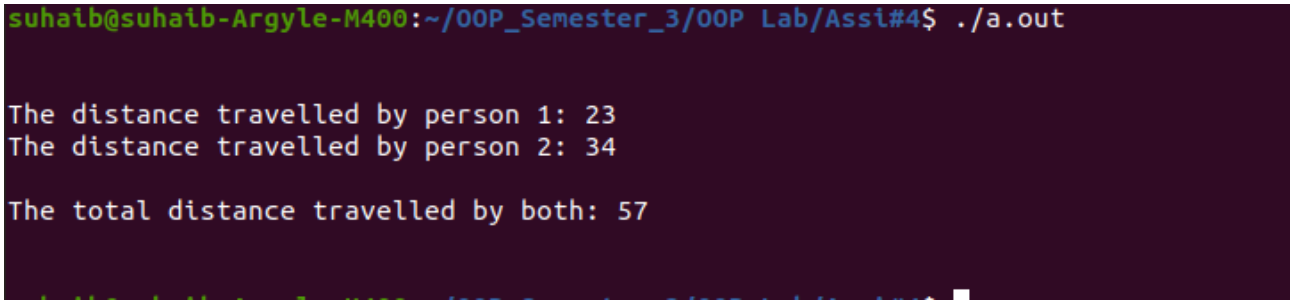
OUTPUT

```
suhaib@suhaib-Argyle-M400:~/OOP_Semester_3/OOP Lab/Assi#4$ ./a.out


The price of book: 500

The price of book: 500

The total cost: 650

The price of book is greater then the price of magzine.
suhaib@suhaib-Argyle-M400:~/OOP_Semester_3/OOP Lab/Assi#4$
```

LAB TASK#3

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

class person2;

class person1
{
   int distance;
   public:
   person1(int dis)
   {
      distance=dis;
   }
   friend void total_distance(person1,person2);
};

class person2
{
   int distance;
   public:
   person2(int dis)
   {
      distance=dis;
   }
   friend void total_distance(person1,person2);
};

void total_distance(person1 p1,person2 p2)
{
   cout<<"\n\nThe distance travelled by person 1: "<<p1.distance<<endl;
   cout<<"The distance travelled by person 2: "<<p2.distance<<endl;
   cout<<"\nThe total distance travelled by both: "<<p1.distance+p2.distance<<"\n\n\n";
}

int main()
{
   person1 p1(23);
   person2 p2(34);
   total_distance(p1,p2);
}
```

OUTPUT



Q1: Why do we make friend functions?
We make friend function to access the private variables of a class.

Q2: Are friend function part of the class?
A friend function is written outside the class. However, a friend function can be declared private or public because it does not matter.

Q3: Does friendship affects the privacy of the class?
No friendship does not affect the privacy of the class. Because even when friend functions are used they don't compromise the privacy of the class.

Conclusion:

I learned how to create and use friend classes and friend functions. We use friend functions to access the private variables of a class and friend classes are also used in a similar way.