Friend function programs discussed in class

1.

```
#include <iostream>

using namespace std;
class Box;
 class Box1
 {double height;
 public:
  friend void printWidth( Box1,Box );
      void setWidth( double wid );
      };
      void Box1::setWidth( double wid ) {
   height = wid;
}




class Box {
   double width;

   public:
      friend void printWidth( Box1,Box );
      void setWidth( double wid );
};

// Member function definition
void Box::setWidth( double wid ) {
   width = wid;
}
```

```
// Note: printWidth() is not a member function of any class.
void printWidth( Box1 box1,Box box ) {
  /* Because printWidth() is a friend of Box, it can
  directly access any member of this class */
  cout << "Width of box : " << box.width <<endl;
   cout << "height of box : " << box1.height <<endl;
}

// Main function for the program
int main() {
  Box box;

  // set box width without member function
  box.setWidth(10.0);
  Box1 box1;

  // set box width without member function
  box1.setWidth(20.0);

  // Use friend function to print the wdith.
  printWidth( box1,box );



  // Use friend function to print the wdith.
  //printWidth( box1 );



  return 0;
}
```

Output:

/tmp/Q7YQKc6RWq.o

Width of box : 10

height of box : 20

2.

```
#include <iostream>
using namespace std;
class A;
class B
{  int y;
friend class A;
  public:
  B(){ y =60;}
  void display(A a);
  /*  void print_mul_by_ten(A a)
    {cout<<"\n value after multiplication by 10 is "<<10*a.x;}*/
};
class A
{  int x;
    public:
    A(){ x=5;}
    void show_A_fun(B b);
    //friend void B::display(A a);
    friend class B;
    };

    void B::display(A a)
    {  a.x = 20;
    y = y+10;
```

```
        cout<<"values of x and y are : "<<a.x<<"  "<<y;  }
        void A::show_A_fun(B b)
        {cout<<" this is A's function which can access B's data "<<b.y<<"     "<<x;}

int main()
{     A a;   B b;
    b.display(a);
   // b.print_mul_by_ten(a);
   a.show_A_fun(b);
    return 0;
}
```

Result:

```
values of x and y are : 20  70 this is A's function which can access B's data 70     5
```