# CSE 215: Programming Language II Lab

## Lab – 8: Inheritance

**Objective:**
- To understand inheritance and its usage
- To to utilize inheritance to ensure reusability of existing code

Inheritance has two purposes - reuse existing code, reduce code duplication.

When common traits are found among two classes, define one as general/base/parent class and the other as specific/child class. Child class inherits the properties of parent class and adds its own properties.

```
class A{
    private String name;
    public A(String name){....}
    public String getName(){....}
}
```

```
class B extends A{
    private int value;
    public B(String name, int value){
      super(name);
       this.value = value;
      }
      public int getValue(){....}
}
```

```
class Main{
    public static void main (String []
      args){ B b = new B("Thomas", 100);
      System.out.print(b.getName());
    }
}
```

super( ) is used to call parent constructor to pass the attributes of parent class.

super keyword itself indicates parent object.

Java doesn't support multiple inheritance. It supports multi level inheritance.

When child redefines a method from parent class, it's called method overriding. Ex: toString( )

**Task:**

1. Implement the following classes and test toString() for each child object.
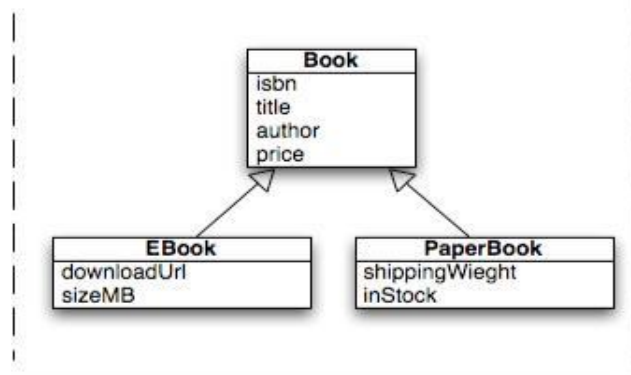
2. Implement the following classes. Then create a Square object and print its area and perimeter.

| Shape |
| --- |
| - name: String |
| /*constructor, setter-getter*/ |

| Rectangle |
| --- |
| - side1: double<br>-side2: double |
| /*constructor, setter-getter*/<br>+ area(): double<br>+ perimeter(): double |

| Square |
| --- |
| /* constructor */ |