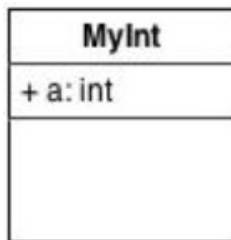## Exercise 1:

Write and run the following code:

```
int a = 5;
int b = a;
System.out.println("a is " + a + " and b is " + b);
a = a + 1;// or a++;
System.out.println("a is " + a + " and b is " + b);
```

> Notice here that the value of the variable a is copied to the variable b, and each variable has its own independent value.

Now, write the following class:

```
public class MyInt
{
      public int a;
}
```

MyInt
+ a: int

After writing the class, run the code below in a separate program:

```
MyInt x = new MyInt();
x.a = 5;
MyInt y = x;
System.out.println("x.a is " + x.a + " and y.a is " + y.a);
x.a = x.a + 1;
System.out.println("x.a is " + x.a + " and y.a is " + y.a);
```

> Now, can you find the difference between the 1st scenario and the 2nd one? OK. In the first scenario, the values were independent due to the fact that the value was copied to the other variable so that each has its own value. However, in the second scenario, the reference is copied and both variables are referencing the same object in the memory.

Exercise 2:

Car
+ model: String + make: int + price: float

Create a class Car that has the **model** of the car (String), the **make** year (int), and the **price** (float).

Now, after creating the class, write the following lines of code in a separate program. However, you should add some code to it where marked, so that you can modify the object referenced by c **without** using the reference variable c:

```
Car c = new Car();
c.model = "GM";
c.make = 2011;
c.price = 60000.0f;
System.out.println("the car c is of type " + c.model +
" and the year of make is " + c.make + " and its price is " +
c.price);

//continue the program here ------
```

Exercise 3:

Create a class Restaurant that has its **name** (String), the cuisine **type** (String), the **establishment year** (int), and a variable to determine if it **was closed before** (boolean).

Restaurant
+ name: String + type: String + establishYear: int + wasClosed: boolean

Now, after creating the class, write the following lines of code in a separate program. However, you should add some code to it where marked, so that you can verify if

(rest1 == rest2) also verify if (rest2 == rest3).

Hint: *you don't have to use if statements.*

```
Restaurant rest1 = new Restaurant();
rest1.name = "Italian nights";
rest1.type = "Italian";
rest1.establishYear = 2010;
rest1.wasClosed = true;

Restaurant rest2 = new Restaurant();
rest2.name = "Layali Najd";
rest2.type = "Saudi";
rest2.establishYear = 2008;
rest2.wasClosed = false;

Restaurant rest3 = new Restaurant();
rest3.name = "Layali Najd";
rest3.type = "Saudi";
rest3.establishYear = 2008;
rest3.wasClosed = false;

//continue the program here ------
```