Lab 07 Solutions:

Triangle

```
class Triangle{
	double side1;
	public double side2;
	public double side3;

	// Methods

	public boolean isItTriangle() {
		if (side1 < side2 + side3 && side2 < side1 + side3 && side3 < side1 +
side2)
				return true;
		 else return false;
	}
	public boolean isItRight() {
		if (side1*side1 == side2*side2 +side3*side3
			|| side2*side2==side1*side1+side3*side3
			|| side3*side3==side2*side2+side1*side1)
			return true;
			 else return false;
	}
	public double longest() {
		double longestSide=0;
		if (side1 >= side2 && side1 >= side3) longestSide=side1;
		else if (side2 >= side1 && side2 >= side3) longestSide=side2;
		else if (side3 >= side1 && side3 >= side2) longestSide=side3;
		return longestSide;
	}
} // Class



import java.util.Scanner;
public class testTriangle {
	public static void main(String[] args) {
		Scanner kb = new Scanner(System.in);
		Triangle t1 = new Triangle();
		System.out.print("Enter the three sides ");
		t1.side1 = kb.nextDouble();
		t1.side2 = kb.nextDouble();
		t1.side3 = kb.nextDouble();

		if (t1.isItTriangle()) {
			System.out.println("It is a triangle");
			if (t1.isItRight()) System.out.println("It is also a Right angle
triangle");
			else System.out.println("Not a Right angle triangle");
```

```
                System.out.println("The longest side is "+t1.longest());

            }
                else
                System.out.println("It is not a triangle ");
            kb.close();
        }
}
```

Building

```
public class Building {
private int apts;
private int normal;
private int delux;
public double rent;

// Methods

public void setApts(int n){
      apts = n;
}
public int howManyRented() {
      return normal+delux;
}
public boolean rentApt(int n, String type) {
      if (n+normal+delux > apts ) return false;
      else {
            if (type.equalsIgnoreCase("normal")) normal = normal +n;
            else if (type.equalsIgnoreCase("delux")) delux = delux +n;
            return true;
      }
}
public void printInfo() {
      System.out.println("\n================== Building Info ====================");
      System.out.println("The Building has "+apts+" appartment.\n"
                  +"Only "+howManyRented()+" have been rented. \n"+normal
                  +" normal appartments with rent = "+rent+" SR per month.\nAnd "
                  +delux+" delux appartments with rent "+rent*1.2+" SR per month");
      System.out.println("=====================================================\n");
      }

} // class Building



import java.util.Scanner;
public class testBuilding {
      public static void main(String[] args) {
            Scanner kb = new Scanner(System.in);
            Building b1 = new Building();
            System.out.print("Enter number of appartments and rent amount :");
            b1.setApts(kb.nextInt());
            b1.rent = kb.nextDouble();

            System.out.print("How many delux appartments would you like to rent? ");
            int n = kb.nextInt();
            if (b1.rentApt(n,"delux") == false )
                  System.out.println("Requested number of appartments exceeds
availability");
```

```
            else System.out.println(n+" delux Appartments have been rented");

            System.out.print("How many normal appartments would you like to rent? ");
            n = kb.nextInt();
            if (b1.rentApt(n,"normal") == false )
                  System.out.println("Requested number of appartments exceeds
availability");
            else System.out.println(n+" normal Appartments have been rented");

            b1.printInfo();

      }
}
```

TV

```
public class TV {
	private boolean on;
	private int volumeLevel;   // Between 0 .. 8
	private int channel;     // Between 00 .. 99

	// Methods start here

	public void turnOn() {
		on = true;
	}
	public void turnOff() {
		on = false;
	}
	public void volumeLevelUp(int vol) {
		if (vol >=0 )
			if (volumeLevel + vol > 8) volumeLevel = 8;
		else volumeLevel = volumeLevel + vol;
	}
	public void volumeLevelDown(int vol) {
		if (vol >=0 )
		if (volumeLevel - vol <= 0) volumeLevel = 0;
		else volumeLevel = volumeLevel - vol;
	}
	public void channelUp(int ch) {
		channel = channel + ch;
		if (channel >99) channel = channel % 100;
	}
	public void channelDown(int ch) {
		channel = channel - ch;
		if (channel < 0 ) channel = 100 + channel;
	}
	public String toString() {
		if ( on == true ) return "TV is On and current channel is "
			+channel+" and volume level is "+volumeLevel;
		else return "TV is Off";
			}
} // class TV



import java.util.Scanner;
public class testTV {
	public static void main(String[] args) {
		Scanner kb = new Scanner(System.in);

		TV tv1 = new TV();
		tv1.turnOn();
		tv1.turnOn();
		tv1.volumeLevelUp(5);
		tv1.channelUp(20);
```

```
        System.out.println(tv1.toString());
        tv1.volumeLevelUp(6);
        tv1.channelUp(90);
        System.out.println(tv1.toString());
        tv1.turnOff();
        System.out.println(tv1.toString());
        tv1.turnOn();
        tv1.volumeLevelDown(7);
        tv1.channelDown(15);
        System.out.println(tv1.toString());

        kb.close();
    }
```