W4_COMPUTER PROGRAMMINING 2019 SPRING
W4 Introduction to class concept & dynamic methods

We will use the class IO we created last week, be sure that it is include in the directory you use

```
import java.util.Scanner;
import javax.swing.*;

class IO
{  public static void print(String s)
   {JOptionPane.showMessageDialog(null,s);}
    public static void Cprint(String s)
   {System.out.print(s);}
    public static double Dinput(String s)
   {     return Double.parseDouble(JOptionPane.showInputDialog(s));}
   public static int Iinput(String s)
   {     return Integer.parseInt(JOptionPane.showInputDialog(s));}
   public static String input(String s)
   {     return JOptionPane.showInputDialog(s);}
}
```

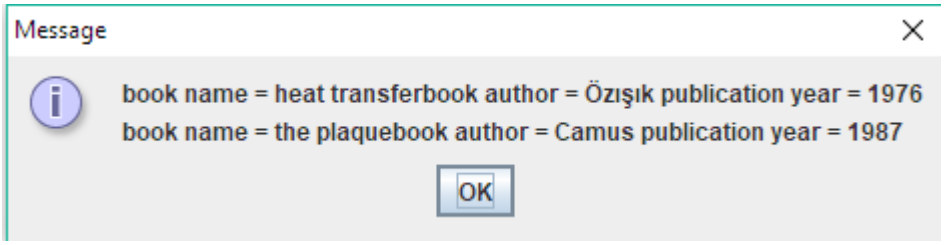
EX 1 for

```
 class f1
{public int func(int x)
 {return x*x+2*x+1;}
}
public class W4E1
{ public static void plot(f1 f,int xmin,int xmax)
  {     int x=xmin;
        String sum="";
        String s="";
        int y=0;
        while(x<=xmax)
        {   y=f.func(x);  // function to be plotted
            int i=0;
            sum="*";
            while(i<y)
            { sum = " "+sum;i++;}
            s+=sum+"\n";
            x++;
        }
        IO.print(s);
 }
  public static void main(String arg[])
  { f1 f=new f1();
    plot(f,-10,10);
  }
}
```

EX2

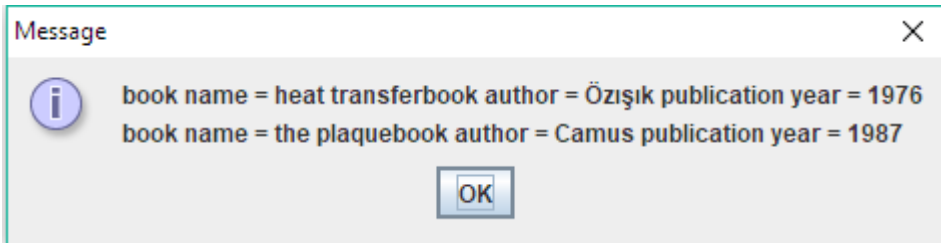
book.java

```
 public class book
{ public String name,author;
  int year;
  public book(String namei,String authori,int yeari)
  {name=namei;author=authori;year=yeari;}
  public String toString()
  {String s="book name = "+name+"book author = "+author+" publication year = "+year;
   return s;
  }
}
```



W4E2.java

```
public class W4E2
{
 public static void main(String arg[])
 { book b1=new book("heat transfer","Özışık",1976);
   book b2=new book("the plaque","Camus",1987);
   IO.print(""+b1+"\n"+b2);
 }
}
```



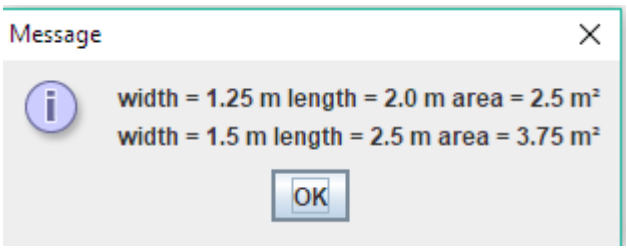
EX3

rectangle.java

```
public class rectangle
{ double width,length;
public rectangle(double widthi,double lengthi)
{width=widthi;length=lengthi;}
public double area()
{return width*length;}
 public String toString()
 {String s="width = "+width+" m length = "+length+" m area = "+area()+" m"+'\u00B2';
  return s;
 }}
```

W4E3.java

```
public class W4E3
{
 public static void main(String arg[])
 { rectangle k1=new rectangle(1.25,2.0);
   rectangle k2=new rectangle(1.5,2.5);
   IO.print(""+k1+"\n"+k2);
 }
}
```

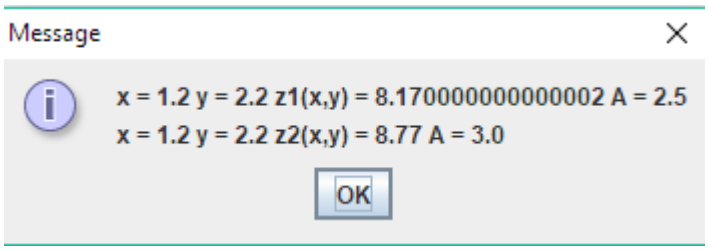


EX4

```
public class f2
{public double A;
```

```
 public f2(double Ai)
 {A=Ai;}
 public double func(double x,double y)
 {double z=A*x+2.35*y;
  return z;}
}
```

```
public class W4E4
{
  public static void main(String arg[])
  { f2 z1=new f2(2.5);
    f2 z2=new f2(3.0);
    double x=1.2;
    double y=2.2;
    String s="x = "+x+" y = "+y+" z1(x,y) = "+z1.func(x,y)+" A = "+z1.A+"\n";
    s+="x = "+x+" y = "+y+" z2(x,y) = "+z2.func(x,y)+" A = "+z2.A+"\n";
    IO.print(s);
  }
}
```

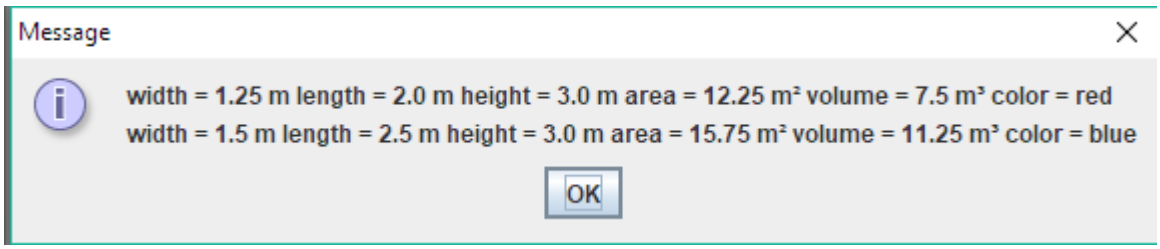


EX5

Box.java

```
public class box
{ double width,length,height;
  String bcolor;
 public box(double widthi,double lengthi,double heighti,String bc)
 {width=widthi;length=lengthi;height=heighti;bcolor=bc;}
 public double area()
 {return width*length+width*height+length*height;}
 public double volume()
 {return length*width*height;}
  public String toString()
  {String s="width = "+width+" m length = "+length+" m height = "+height+" m area = "+area()+" m"+'\u00B2'+" volume = "+volume()+"
m"+'\u00B3'+" color = "+bcolor;
   return s;
  }
}
```

```
public class W4E5
{
  public static void main(String arg[])
  { box b1=new box(1.25,2.0,3.0,"red");
    box b2=new box(1.5,2.5,3.0,"blue");
    IO.print(""+b1+"\n"+b2);
  }}
```



HOMEWORK EXERCISES

Homework exercises will be done at home and will bring to next Thursday class printed no late exercises will be excepted. Each code should include student name id#, code plus results should be given. Homeworks will be accepted in written format plus a computer copy in pdf format will be sent to computer_programming@turhancoban.com adress your file name should be "group"+"week#"+studentname+studentid#.pdf

A_W1_turhan_coban_0101333.pdf

B_W3_ali_veli_02335646.pdf

W4HW1 : Investigate excersise W4E5. Write a sphere class to calculate area and volume of sphere for D=0.1 m ,0.2 m and 0.3 m

```
public class W4HW1
{ public static void main(String arg[])
  {sphere s1=new sphere(0.1);
   sphere s2=new sphere(0.2);
   sphere s3=new sphere(0.3);
   String s="s1 = "+s1+"s2 = "+s2+"s3 = "+s3;
   IO.print(s);
  }
}
```

W4HW2

Class f3 is given as

```
class f3
{public double func(double x)
 {return x*x+2*x+1;}
}
```

Call the class and method in main method of program W4HW2.java to calculate function value for x=0.1,0.2,0.3,0.4,0.5,0.6,0.7,0.8,0.9

(hint you can use for loop to create x values)

```
class f3
{public double func(double x)
 {return x*x+2*x+1;}
}

public class W4HW2
{ public static void main(String arg[])
  { String s="";
    f3 f=new f3();
    for(double x=0.1;x<1.0;x+=0.1)
    {s+="x = "+x+" y = "+f.func(x)+"\n";}
    IO.print(s);
  }
}
```