W13_COMPUTER PROGRAMMINING 2019 SPRING
W13 Input/output from files

IO.java

```
import java.util.*;
import javax.swing.*;
import java.awt.Font;
class IO
{ static Scanner input = new Scanner( System.in );
 //change font and size for JOptionPane class,//example font "Arial"
 //example size 14
 public static void setOptionPane(String font,int size)
 {UIManager.put("OptionPane.messageFont", new Font(font, Font.PLAIN, size));}
 //array input
 public static double[] Dinput()
 { String s1=JOptionPane.showInputDialog("input double vector");
 StringTokenizer token=new StringTokenizer(s1);
 int n=token.countTokens()-1;
 int m=n+1;
 double a[]=new double[m];
 int j=0;
 while(token.hasMoreTokens())
 {
 Double ax=new Double(token.nextToken());
 a[j++]=ax.doubleValue();
 }
 return a;
 }

 public static double[][] Dinput(int n)
 {double c[][]=new double[n][];
 for(int i=0;i<n;i++)
 {c[i]=Dinput();}
 return c;
 }

 public static int[] Iinput()
 {String s1=JOptionPane.showInputDialog("input int vector");
 StringTokenizer token=new StringTokenizer(s1);
 int n=token.countTokens()-1;
 int m=n+1;
 int a[]=new int[m];
 int j=0;
 while(token.hasMoreTokens())
 {
 Integer ax=new Integer(token.nextToken());
 a[j++]=ax.intValue();
 }
 return a;
 }
 public static int[][] Iinput(int n)
 {int c[][]=new int[n][];
 for(int i=0;i<n;i++)
 {c[i]=Iinput();}
 return c;
 }
 public static String[] input()
 {String s1=JOptionPane.showInputDialog("input String vector");
 StringTokenizer token=new StringTokenizer(s1);
 int n=token.countTokens()-1;
 int m=n+1;
 String a[]=new String[m];
 int j=0;
 while(token.hasMoreTokens())
 {
 String ax=new String(token.nextToken());
 a[j++]=ax;
 }
 return a;
 }
 public static String[][] input(int n)
 {String c[][]=new String[n][];
 for(int i=0;i<n;i++)
 {c[i]=input();}
```

```
return c;
}
public static String toString(double a[],int n)
{ Locale us=new Locale("us");
String s1="[";
for(int i=0;i<a.length;i++)
{ s1+=String.format(us,"%"+n+"f",a[i]);}
s1+="]\n";
return s1;
}
public static String toString(int a[],int n)
{String s1="[";
for(int i=0;i<a.length;i++)
{ s1+=String.format("%"+n+"d",a[i]);}
s1+="]\n";
return s1;
}

public static String toString(String a[],int n)
{String s1="[";
for(int i=0;i<a.length;i++)
{ s1+=String.format("%"+n+"s",a[i]);}
s1+="]\n";
return s1;
}

public static String toString(double a[][],int n)
{ String s1="";
for(int i=0;i<a.length;i++)
{ s1+=toString(a[i],n);}
return s1;
}

public static String toString(int a[][],int n)
{ String s1="";
for(int i=0;i<a.length;i++)
{ s1+=toString(a[i],n);}
return s1;
}

public static String toString(String a[][],int n)
{ String s1="";
for(int i=0;i<a.length;i++)
{ s1+=toString(a[i],n);}
return s1;
}

public static<E> String toString(Collection<E> c)
{  String s="";
   Iterator<E> i=c.iterator();
   while(i.hasNext()) {s+=i.next()+"\n";}
   return s;
}

public static void print(String s)
{JOptionPane.showMessageDialog(null,s);}

public static void Cprint(String s)
{System.out.print(s);}

public static void Cprintln(String s)
{System.out.println(s);}

public static double DCinput(String s)
{ System.out.print(s);
return Double.parseDouble(input.next());}

public static int ICinput(String s)
{ Cprint(s);return input.nextInt();}

public static String Cinput(String s)
{ Cprint(s);return input.next();}

public static double Dinput(String s)
{ double x=0;
```

```
 try{
 x=Double.parseDouble(JOptionPane.showInputDialog(s));
 } catch(NumberFormatException e) {System.out.println("number format exception");}
 return x;
 }
 public static int Iinput(String s)
 { int x=0;
 try{
 x=Integer.parseInt(JOptionPane.showInputDialog(s));
 } catch(NumberFormatException e) {System.out.println("number format exception");}
 return x;
 }

 public static String input(String s)
 { return JOptionPane.showInputDialog(s);}
}
```

W13E1: File test program

```
 import java.awt.*;
import java.io.File;
import java.util.HashMap;
import java.awt.event.*;
import javax.swing.*;
import javax.swing.filechooser.*;
import javax.swing.event.*;
public class W13E1
{
public static void main(String args[])
{
//select file by using JFileChooser class
File f=new File("readfromfile1.java");
JFileChooser selectfile=new JFileChooser();
int approval = selectfile.showOpenDialog(null);
if(approval==JFileChooser.APPROVE_OPTION)
{
f=selectfile.getSelectedFile();
}
String s="";
s+="File name : "+f.getName()+"\n";
s+="Directory name : "+f.getPath()+"\n";
s+="Absolute directory name : "+f.getAbsolutePath()+"\n";
s+="Parent directory name : "+f.getParent()+"\n";
s+=f.exists() ? "Existed " : " Not existed "+"\n";
s+=f.canWrite() ? "Writable " : " Not writable"+"\n";
s+=f.canRead() ? "Readable " : " Not Readable"+"\n";
s+=f.isDirectory() ? "Directory " : " Not directory"+"\n";
s+=f.isFile() ? "File " : " Not File"+"\n";
s+=f.isAbsolute() ? "Absolute file name " : " not an absolute file name"+"\n";
s+="Last modified : "+f.lastModified()+"\n";
s+="File size : "+f.length()+" Byte"+"\n";
JOptionPane.showMessageDialog(null,s,"File test",JOptionPane.PLAIN_MESSAGE);
System.exit(0);
}}
```

W13E2: readfromfile

```
 import java.io.*;
 import java.util.*;
  import javax.swing.*;
  import javax.swing.table.*;
  import java.awt.*;

 public class W13E2
 {
 public static void main(String args[]) throws IOException
 {
 String isim=JOptionPane.showInputDialog("enter file name:(a.txt)");
 File f=new File(isim);
 BufferedReader fin=new BufferedReader(new FileReader(f));
 double number=Double.parseDouble(fin.readLine());
 String s="number = "+number;
 JOptionPane.showMessageDialog(null,s,"sequential file reading",JOptionPane.PLAIN_MESSAGE);
 System.exit(0);
 }
```

```
}
```

EX3: read a vector by BufferedReader

```
                import java.io.*;
                import java.util.*;
                import javax.swing.*;
      import javax.swing.table.*;
      import java.awt.*;

public class W13E3
{

    public static double[] inputdouble(String filename) throws IOException
    {
                //reading double values from one line of data
                BufferedReader fin=new BufferedReader(new FileReader(filename));
    double a[]=inputdouble(fin);
    return a;
    }

    public static double[] inputdouble(BufferedReader fin) throws IOException
    {
                //reading double values from one line of data
                String s1=fin.readLine();
    StringTokenizer token=new StringTokenizer(s1);
    int n=token.countTokens()-1;
    int m=n+1;
    double a[]=new double[m];
    int j=0;
    while(token.hasMoreTokens())
    {
    Double ax=new Double(token.nextToken());
    a[j++]=ax.doubleValue();
    }
    return a;
    }


    public static String toString(double a[])
    {
                String s="";
    for(int i=0;i<a.length;i++)
    {s+="a["+i+"] = "+a[i]+"\n";}
    return s;
                }


public static void main(String args[]) throws IOException
{
  String s1="a.txt";
  JFileChooser fc=new JFileChooser();
  ExampleFileFilter filter = new ExampleFileFilter();
  filter.addExtension("txt");
  filter.setDescription("text file : .txt");
  fc.setFileFilter(filter);
  if (fc.showOpenDialog(null) == JFileChooser.APPROVE_OPTION) {File file = fc.getSelectedFile();s1=file.getName(); }
  File f=new File(s1);
  BufferedReader fin=new BufferedReader(new FileReader(f));
  double number[]=inputdouble(fin);
  JOptionPane.showMessageDialog(null,toString(number),"sequential file reading",JOptionPane.PLAIN_MESSAGE);
  System.exit(0);
}
}
```

W13E4 read a double matrix by BufferedReader

```
                import java.io.*;
                import java.util.*;
                import javax.swing.*;
      import javax.swing.table.*;
      import java.awt.*;

class data1
            {
```

```
                public double x[];
                public data1(double[] xi)
                {
                int n=xi.length;
                x=new double[n];
                for(int i=0;i<n;i++) {x[i]=xi[i];}
                }
                public String toString() {return ""+x[0]+" "+x[1];}
                }

public class W13E4
{
    public static double[][] inputdouble(String filename) throws IOException
    {
                //reading double values from one line of data
                BufferedReader fin=new BufferedReader(new FileReader(filename));
    double a[][]=inputdouble(fin);
    return a;
    }

   public static double[][] inputdouble(BufferedReader fin) throws IOException
   {
                ArrayList<data1> a=new ArrayList<data1>();
                int mmax=0;
                double b[][];
                int n=0,m=0;
                String s1="";
                try{
     while(fin!=null)
     { s1=fin.readLine();
     if(s1==null)break;
       StringTokenizer token=new StringTokenizer(s1);
       m=token.countTokens();
       if(m>mmax) mmax=m;
       double aa[]=new double[m];
       int j=0;
       while(token.hasMoreTokens())
       { Double ax=new Double(token.nextToken());
         aa[j++]=ax.doubleValue();
       }
       data1 vx=new data1(aa);
       a.add(vx);
     n++;
                  }
     } catch(EOFException e_eof)
       {
       //close ffile
       try{fin.close();
     }
     catch(NullPointerException e) {}
     catch(IOException e)
          {
          System.err.println("Error Closing File\n"+e.toString());
          System.exit(1);
          }
       } //End of EOFException
    b=new double[n][mmax];
    int k=0;
    Iterator i=a.iterator();
    while(i.hasNext()) {data1 vx=(data1)i.next();b[k++]=vx.x;}
    return b;
    }
    public static String toString(double a[][])
    {String s="";
    for(int i=0;i<a.length;i++)
    { for(int j=0;j<a[0].length;j++)
    {s+="a["+i+"]["+j+"] = "+a[i][j]+" ";}
    s+="\n";
    }
    return s;
                }

public static void main(String args[]) throws IOException
{
  String s1="c.txt";
```

```
  //JFileChooser fc=new JFileChooser();
  //if (fc.showOpenDialog(null) == JFileChooser.APPROVE_OPTION) {File file = fc.getSelectedFile();s1=file.getName(); }
  File f=new File(s1);
  BufferedReader fin=new BufferedReader(new FileReader(f));
  double number[][]=inputdouble(fin);
  JOptionPane.showMessageDialog(null,toString(number),"sequential file reading",JOptionPane.PLAIN_MESSAGE);
  System.exit(0);
}}
```

W13E5 Scanner class

```
 import java.util.Scanner; // program uses class Scanner
import java.util.Locale;  // international format library Locale
import javax.swing.*;     //Java swing graphic library
import java.io.*;         //Java input library for File class

public class W13E5
{
    // main method begins execution of Java application
    public static void main( String args[] ) throws FileNotFoundException
    {
       // create Scanner to obtain input from a file
      String filename=JOptionPane.showInputDialog("Enter file name (a.txt): ");
      Scanner input = new Scanner(new File(filename));
      Locale us=new Locale("US");
      input.useLocale(us);
      double number1; // first number to add
      double number2; // second number to add
      double sum; // sum of number1 and number2
      number1 = input.nextDouble(); // read first number from user
      number2 = input.nextDouble(); // read second number from user
      sum = number1 + number2; // add numbers
      String s=String.format(us,"Sum is %10.5f\n", sum );
      System.out.println(s); // display sum
    } // end method main
} // end class W13E5
```

W13E6 reading a vector by using Scanner class

```
 import java.io.*;
import java.util.*;
import javax.swing.*;
import javax.swing.table.*;
import java.awt.*;

public class W13E6
{
    public static double[] inputdouble(String filename) throws IOException
    {
   ArrayList<String> b=new ArrayList<String>();
   Scanner fin = new Scanner(new File(filename));
    int n=0;
    int k=0;
    while(fin.hasNext())
    {b.add(fin.next());}
    double a[]=new double[b.size()];
    Iterator<String> i=b.iterator();
    while(i.hasNext())
    {Double ax=new Double(i.next());
     a[k++]=ax.doubleValue();
    }
     return a;
    }

    public static String toString(double a[])
    {
                String s="";
    for(int i=0;i<a.length;i++)
    { s+="a["+i+"] = "+a[i]+"\n";}
    return s;
                }


public static void main(String args[]) throws IOException
{
```

```
  String s1="b.txt";
  double number[]=inputdouble(s1);
  JOptionPane.showMessageDialog(null,toString(number),"sequential file reading",JOptionPane.PLAIN_MESSAGE);
  System.exit(0);
}
}
```

W13E7 reading a file Word by Word by using Scanner class

```
 import java.io.File;
import java.io.FileNotFoundException;
import java.util.Scanner;

  public class W13E7 {

    public static void readFile(String fileName) {
      try {
        File file = new File(fileName);
        Scanner scanner = new Scanner(file);
        while (scanner.hasNext()) {
          System.out.println(scanner.next());
        }
        System.out.println();
        scanner.close();
      } catch (FileNotFoundException e) {
        e.printStackTrace();
      }
    }

    public static void main(String[] args)
    { readFile("W13E1.java");}
    }
```

W13E7a reading a file Word by Word by using Scanner class

```
 import java.io.File;
import java.io.FileNotFoundException;
import java.util.Scanner;
import java.io.*;
import java.util.*;
import javax.swing.*;
import javax.swing.table.*;
import java.awt.*;

  public class W13E7a {

    public static String[] readFile(String fileName)
    { ArrayList<String> b=new ArrayList<String>();
      int k=0;
      String a[]=new String[1];
      try {
        File file = new File(fileName);
        Scanner scanner = new Scanner(file);
        while (scanner.hasNext()) {
          b.add(scanner.next());
        }
    String a1[]=new String[b.size()];
    a=a1;
    Iterator<String> i=b.iterator();
    while(i.hasNext())
    { a[k++]=i.next()+"\n";}
    scanner.close();
    return a;
      } catch (FileNotFoundException e) {e.printStackTrace();}
      return a;
    }

    public static void main(String[] args)
    { String s[]=readFile("W13E1.java");
      IO.print(IO.toString(s,20));
    }
    }
```

Write following and save it as mixed.txt

Testing Scanner 10 12.2 one true two false

W13E7b reading a file Word by Word by using Scanner class

```
 import java.io.FileReader;
import java.io.FileWriter;
import java.io.IOException;
import java.util.Scanner;

public class W13E7b {
  public static void main(String args[]) throws IOException {
    int i;
    double d;
    boolean b;
    String str;
    FileReader fin = new FileReader("mixed.txt");
    Scanner src = new Scanner(fin);
    while (src.hasNext()) {
      if (src.hasNextInt()) {
        i = src.nextInt();
        System.out.println("int: " + i);
      } else if (src.hasNextDouble()) {
        d = src.nextDouble();
        System.out.println("double: " + d);
      } else if (src.hasNextBoolean()) {
        b = src.nextBoolean();
        System.out.println("boolean: " + b);
      } else {
        str = src.next();
        System.out.println("String: " + str);
      }
    }

    fin.close();
  }
}
```

W13E8 Writing a sequaetial file by PrintWriter

```
 import java.awt.event.*;
import java.util.*;
import javax.swing.*;
import javax.swing.table.*;
import java.awt.*;
import java.awt.event.*;
import javax.swing.event.*;
import java.awt.geom.*;


public class  mouseP extends JPanel implements MouseListener,MouseMotionListener
{
  //push-move-release line draw
  int x1,y1,x2,y2;
  Color c;
  boolean first;
  Line2D x;

 public mouseP()
 {super();
  x1=0;y1=0;x2=0;y2=0;
  first=true;
  addMouseListener(this);
  addMouseMotionListener(this);
 }

 public mouseP(int x1i,int y1i,int x2i,int y2i)
 {super();
  x1=x1i;y1=y1i;x2=x2i;y2=y2i;
  first=true;
 addMouseListener(this);
 addMouseMotionListener(this);
 }

 public void setLine(int x1i,int y1i,int x2i,int y2i)
 {x1=x1i;y1=y1i;x2=x2i;y2=y2i;}
```

```
 public void paint(Graphics g)
 {
 super.paintComponent(g);
 Graphics2D g2=(Graphics2D)g;
 g2.setFont(new Font("Serif",Font.BOLD,24));
 g2.setColor(Color.blue);
 g2.setStroke(new BasicStroke(2.0f));
 x=new Line2D.Double(x1,y1,x2,y2);
 g2.draw(x);
 }

//MouseListener
public void mouseClicked(MouseEvent e)
 {}

 public void mousePressed(MouseEvent e)
 {
   x1=e.getX();y1=e.getY();}

  public void mouseReleased(MouseEvent e)
 { x2=e.getX();y2=e.getY();repaint();}

 public void mouseEntered(MouseEvent e)
 { }

 public void mouseExited(MouseEvent e)
 { }
//MouseMotionListener

 public void mouseDragged(MouseEvent e)
 {}
 public void mouseMoved(MouseEvent e)
 {}

}
```

W13E9

```
import java.io.FileReader;
import java.io.FileWriter;
import java.io.IOException;
import java.util.Scanner;

public class W13E9 {
  public static void main(String args[]) throws IOException {

    int i;
    double d;
    boolean b;
    String str;

    FileWriter fout = new FileWriter("mixed1.txt");
    fout.write("Testing Scanner 10 12.2 one true two false");
    fout.close();

    FileReader fin = new FileReader("mixed1.txt");
    Scanner src = new Scanner(fin);

    while (src.hasNext()) {
      if (src.hasNextInt()) {
        i = src.nextInt();
        System.out.println("int: " + i);
      } else if (src.hasNextDouble()) {
        d = src.nextDouble();
        System.out.println("double: " + d);
      } else if (src.hasNextBoolean()) {
        b = src.nextBoolean();
        System.out.println("boolean: " + b);
      } else {
        str = src.next();
        System.out.println("String: " + str);
      }
    }
```

```
    fin.close();
  }
}
```

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

W13HW1 :

Read contents of **W13E3.java** file as Strings, **count total number of words**, list each word seperately. Write a program to do this.

W13HW2 :

Temperature and specific heat of CO_2 gas is given in file co2_cv.txt . Read the data, from the file, calculate the avarage temperature and Cp value and print out the result.