

Utility.java

```
/* File: Utility.java

This file contains several utility methods that are designed to be used
by other programs.

getMonthName - returns the name of the month
getDayName   - returns the name of the day
padString    - pads a numeric string value with a designated character to form a fixed length
string
fixString    - pads a string with trailing spaces to form a fixed length string
addComponent - adds a component to a container
readString   - reads a String from the keyboard
readInt      - reads an int value from the keyboard
readDouble   - reads a double value from the keyboard
stringSplit  - splits a String object into an array of Strings, based on a specified
delimiter

*/

import java.awt.*;           // used by addComponent method
import java.text.*;         // needed for DecimalFormat class
import java.util.*;

public class Utility
{

/*****
getMonthName(int)

Returns the month name of a desired month.

Parameters:
    int    monthNumber    month number (1-12)

Returns:
```

a String object

example:

```
String monthName=Utility.getMonthName(7);
```

```
*/
```

```
public static String getMonthName(int monthNumber)
```

```
{
```

```
String[] monthNames=new String[12];
```

```
monthNames[0]="January";
```

```
monthNames[1]="February";
```

```
monthNames[2]="March";
```

```
monthNames[3]="April";
```

```
monthNames[4]="May";
```

```
monthNames[5]="June";
```

```
monthNames[6]="July";
```

```
monthNames[7]="August";
```

```
monthNames[8]="September";
```

```
monthNames[9]="October";
```

```
monthNames[10]="November";
```

```
monthNames[11]="December";
```

```
return monthNames[monthNumber-1];
```

```
}
```

```
/******
```

```
getDayName(int)
```

Returns the day name of a desired day number.

Parameters:

int dayNumber day number (1-7)

Returns:

a String object

example:

```
String dayName=Utility.getDayName(7);
```

```
*/
```

```

public static String getDayName(int dayNumber)
{
    String[] dayNames=new String[7];
    dayNames[0]="Sunday";
    dayNames[1]="Monday";
    dayNames[2]="Tuesday";
    dayNames[3]="Wednesday";
    dayNames[4]="Thursday";
    dayNames[5]="Friday";
    dayNames[6]="Saturday";

    return dayNames[dayNumber-1];
}

```

```

/*****

```

```

padString(Number,int,int,String)

```

Method which pads a string of digits with trailing zeroes and a specified leading padding character to form a fixed length string with optional decimal places.

Parameters:

Number number	input Number object
int chars	length of desired fixed length string
int decimals	desired number of digits to the right of the decimal point in returned fixed length string
String lead	character to be used for leading padding

Returns:

a String object

example:

```

String output=Utility.padString(50.4,6,2,"*");

```

output will have a String value of "*50.40"

```

*/

```

```

public static String padString(Number number,int chars,int decimals,String lead)
{

```

```

DecimalFormat format;
String          s="";

if(decimals>0)
{
    s=".";
    for(int i=0;i<decimals;i++)
    {
        s=s+"0";
    }
}

int digits=chars-s.length();
for(int i=0;i<digits;i++)
{
    if(i>0 && i%3==0)
    {
        s=","+s;
    }
    s="#" +s;
}

format=new DecimalFormat(s);
s=format.format(number);
digits=chars-s.length();
for(int i=0;i<digits;i++)
{
    s=lead+s;
}
return s;
}

public static String padString(long number,int chars,int decimals,String lead)
{
    return Utility.padString(new Long(number),chars,decimals,lead);
}

public static String padString(double number,int chars,int decimals,String lead)
{
    return Utility.padString(new Double(number),chars,decimals,lead);
}

```

```
public static String padString(String number,int chars,int decimals,String lead)
{
    return Utility.padString(new Double(number),chars,decimals,lead);
}
```

```
public static String padString(Number number,int chars,int decimals)
{
    return Utility.padString(number,chars,decimals," ");
}
```

```
public static String padString(long number,int chars,int decimals)
{
    return Utility.padString(new Long(number),chars,decimals," ");
}
```

```
public static String padString(double number,int chars,int decimals)
{
    return Utility.padString(new Double(number),chars,decimals," ");
}
```

```
public static String padString(String number,int chars,int decimals)
{
    return Utility.padString(new Double(number),chars,decimals," ");
}
```

```
public static String padString(Number number,int chars)
{
    return Utility.padString(number,chars,0," ");
}
```

```
public static String padString(long number,int chars)
{
    return Utility.padString(new Long(number),chars,0," ");
}
```

```
public static String padString(double number,int chars)
{
    return Utility.padString(new Double(number),chars,0," ");
}
```

```

public static String padString(String number,int chars)
{
    return Utility.padString(new Double(number),chars,0," ");
}

public static String padString(Number number,int chars,String lead)
{
    return Utility.padString(number,chars,0,lead);
}

public static String padString(long number,int chars,String lead)
{
    return Utility.padString(new Long(number),chars,0,lead);
}

public static String padString(double number,int chars,String lead)
{
    return Utility.padString(new Double(number),chars,0,lead);
}

public static String padString(String number,int chars,String lead)
{
    return Utility.padString(new Double(number),chars,0,lead);
}

```

```

/*****

```

```

fixString(String,int)

```

Method which pads a string with trailing spaces to form a fixed length field.

Parameters:

String inString	input string of digits
int chars	length of desired fixed length string

Returns:

a String object

example:

```

input="test";
output=Utility.fixString(input,10);

```

```

    output will have a String value of "test    "
*/

public static String fixString(String inString,int chars)
{
    String s=inString;                // get temp string
    for(int i=0;i<chars-inString.length();i++)    // add trailing spaces
    {
        s=s+" ";
    }
    return s.substring(0,chars);        // return fixed length field
}

```

```

/*****

```

```

commaString(String,int)

```

Method which inserts commas into a number for readability

Parameters:

```

String inString    input string of digits
int    chars        length of desired fixed length string

```

Returns:

a String object

example:

```

input="test";
output=Utility.fixString(input,10);

```

```

    output will have a String value of "test    "
*/

```

```

public static String commaString(String inString)
{
    String s="";
    int decimal=inString.indexOf(".");
    if(decimal!=-1)
    {
        if(inString.length(<3)

```

```

    {
        return inString;
    }
    s=inString.substring(inString.length()-3,inString.length());
    inString=inString.substring(0,inString.length()-3);
    while(inString.length(>2)
    {
        if(inString.length()==3)
        {
            s=inString+", "+s;
            inString="";
        }
        else
        {
            s=inString.substring(inString.length()-3,inString.length()+", "+s;
            inString=inString.substring(0,inString.length()-3);
        }
    }
    if(inString.length(>0)
    {
        s=inString+", "+s;
    }
    }
    return s;
}

```

```

public static String commaString(long number)
{
    return Utility.commaString(number+"");
}

```

```

public static String commaString(double number)
{
    return Utility.commaString(number+"");
}

```

```

/*****

```

```

addComponent(Container container,Component component,int align)

```

Method which adds a component to a container. This method will use a components

preferred size, not necessarily filling up the container (as GridLayout would do).

Parameters:

Container container	the container to which the component is to be added
Component component	the component
int align	a constant from the FlowLayout class

Returns:

nothing

example:

```
Panel myPanel=new Panel();
myPanel.setLayout(new GridLayout(4,2));

Button myButton=new Button("click me");

Utility.addComponent(myPanel,myButton);
```

*/

```
public static void addComponent(Container container,Component component,int align)
{
    Panel tempPanel=new Panel();
    tempPanel.setLayout(new FlowLayout(align));
    tempPanel.add(component);
    container.add(tempPanel);
}
```

```
public static void addComponent(Container container,Component component)
{
    addComponent(container,component,FlowLayout.LEFT);
}
```

/******

readString()

Method which reads a String value from the keyboard.

Parameters:

none

Returns:

a String object

example:

```
String inString=Utility.readString();
```

```
*/  
  
public static String readString()  
{  
    int    input=0;           // define and initialize an int  
variable  
    String s="";           // define and initialize a String  
object  
  
    while(input!=10)        // loop until LF byte is read  
    {  
        try  
        {  
            input=System.in.read(); // read next byte from keyboard  
        }  
        catch(Exception e)  
        {  
            input=13;  
        }  
        if(input!=13 && input!=10) // if byte is not CR and not LF,  
concatenate  
        {  
            s=s+(char)input; // cast int input as char, then  
concatenate  
        }  
    }  
    return s;               // return String to calling program  
}
```

```
/******  
readInt()
```

Method which reads an int value from the keyboard.

Parameters:

none

Returns:

an int value

-999999f if error (invalid input)

example:

```
int i=Utility.readInt();
```

```
*/  
  
public static int readInt()  
{  
    int i;  
  
    String s=Utility.readString();           // read a String from the keyboard  
  
    try  
    {  
        i=Integer.parseInt(s);             // try to parse String into an int  
    }  
    catch(Exception e)                     // catch exception thrown by  
Integer.parseInt  
    {  
        i=-999999;                          // flag to indicate input error  
    }  
  
    return i;  
}                                           // return value of i
```

```
/******
```

```
readDouble()
```

Method which reads a double value from the keyboard.

Parameters:

none

Returns:

a double value

-999999f if error (invalid input)

example:

```
double d=Utility.readDouble();
```

```
*/  
  
public static double readDouble()  
{  
    double d;  
  
    String s=Utility.readString();           // read a String from the keyboard  
  
    try  
    {  
        Double doubleObject=Double.valueOf(s);           // try to parse String into a Double  
        d=doubleObject.doubleValue();  
    }  
    catch(Exception e)           // catch exception  
    {  
        d=-999999;           // flag to indicate input error  
    }  
  
    return d;  
}           // return value of f
```

```
/**  
*****  
stringSplit(String s,String d)
```

Method which splits a String into an array of Strings, based on a specified delimiter

Parameters:

s -- String to be split

d -- specified delimiter

Returns:

an array of Strings

example:

```

String[] splitStrings=Utility.stringSplit(inputRecord,",");

*/

public static String[] stringSplit(String s,String d)
{
    Vector<String> v=new Vector<String>();           // vector to hold parsed substrings

    while(s.length()>0)                           // loop while string is not null
    {
        int i=s.indexOf(d);                         // find next delimiter
        if(i>-1)
        {
            v.addElement(s.substring(0,i));          // delimiter was found
            // extract substring (left of
delimiter)
            s=s.substring(i+1);                     // then strip string for further
processing
        }
        else
        {
            v.addElement(s);                         // no delimiter found
            // add final string to vector
            s="";                                    // set string to null
        }
    }

    String[] returnString=new String[v.size()];     // instantiate String[] for return
    for(int i=0;i<returnString.length;i++)         // step through vector, assigning to
String[]
    {
        returnString[i]=(String) v.elementAt(i);
    }

    return returnString;                            // return array of String objects
}
}

```