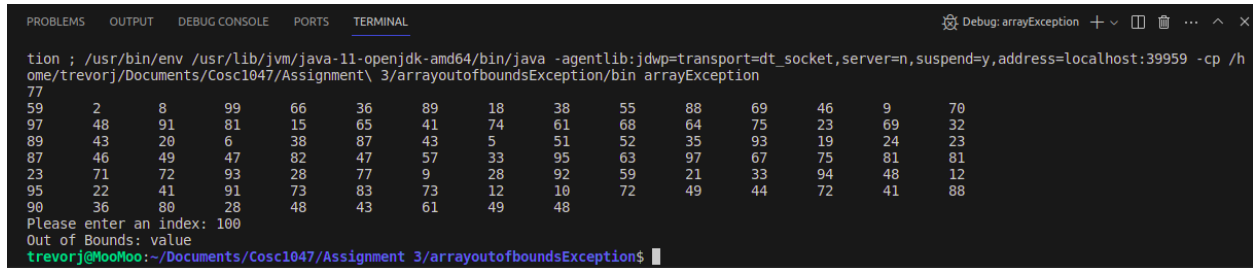


***12.3** (*ArrayIndexOutOfBoundsException*) Write a program that meets the following requirements:

- Creates an array with **100** randomly chosen integers.
- Prompts the user to enter the index of the array, then displays the corresponding element value. If the specified index is out of bounds, display the message "Out of Bounds".



```
tion ; /usr/bin/env /usr/lib/jvm/java-11-openjdk-amd64/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:39959 -cp /home/trevorj/Documents/Cosc1047/Assignment\ 3/arrayoutofboundsException/bin arrayException
77
59 2 8 99 66 36 89 18 38 55 88 69 46 9 70
97 48 91 81 15 65 41 74 61 68 64 75 23 69 32
89 43 20 6 38 87 43 5 51 52 35 93 19 24 23
87 46 49 47 82 47 57 33 95 63 97 67 75 81 81
23 71 72 93 28 77 9 28 92 59 21 33 94 48 12
95 22 41 91 73 83 73 12 10 72 49 44 72 41 88
90 36 80 28 48 43 61 49 48
Please enter an index: 100
Out of Bounds: value
trevorj@MooMoo:~/Documents/Cosc1047/Assignment 3/arrayoutofboundsException$
```

```
import java.util.Scanner;
```

```
public class arrayException {
```

```
    public static int [] array;
```

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

```
        Scanner input = new Scanner(System.in);
```

```
        arrayCreation(); printArray();
```

```
        try {
```

```
            arrayAccess(input);
```

```
        }
```

```
        catch (IndexOutOfBoundsException e) {
```

```
            throw new Exception("Out of Bounds: value ");
```

```
        }
```

```
        catch (Exception e) {
```

```
            System.out.println("Exception: "+e.getMessage());
```

```
        }
```

```
}
```

```
public static void arrayCreation() {  
    array= new int [100]; int temp;  
  
    for(int i=0; i<100; i++) {  
        temp = (int)(Math.random()*100)+1;  
        array[i]=temp;  
    }  
}
```

```
public static void printArray() {  
    for(int i=0; i<100; i++) {  
        System.out.print(array[i]+"\\t");  
        if(i%15==0) System.out.println( );  
    }  
}
```

```
public static void arrayAccess(Scanner in) {  
    int index=0;  
    try{  
        System.out.print("\\nPlease enter an index: ");  
        index = in.nextInt();  
        if( index < 0 || index > 99) {  
            throw new IndexOutOfBoundsException("Out of Bounds: value "+ index);  
        }  
    }  
    catch (IndexOutOfBoundsException ex) {  
        System.out.println("Out of Bounds: value ");  
    }  
}
```

```

        finally {
            //System.out.println("The index you chose is "+index + " and the value is
            "+array[index]);
        }
    }
}

```

***12.15** (Write/read data) Write a program to create a file named **Exercise12_15.txt** if it does not exist. Write **100** integers created randomly into the file using text I/O. Integers are separated by spaces in the file. Read the data back from the file and display the data in increasing order.

PROBLEMS	1	OUTPUT	DEBUG CONSOLE	PORTS	TERMINAL	Debug: FileTxtRead + - ... ^ X									
2	5	6	8	9	9	10	12	12	15	18	19	20	21	22	23
23	23	24	28	28	28	32	33	33	35	36	36	38	38	41	
41	41	43	43	43	44	46	46	47	47	48	48	48	48	49	
49	49	51	52	55	57	59	59	61	61	63	64	65	66	67	
68	69	69	70	71	72	72	72	73	73	74	75	75	77	80	
81	81	81	82	83	87	87	88	88	89	89	90	91	91	92	
93	93	94	95	95	97	97	99	trevorj@MooMoo:~/Documents/Cosc1047/Assignment 3/readTxtFile/readTxtFile\$							

```

import java.io.FileReader;
import java.util.ArrayList;
import java.util.Scanner;
import java.util.Collections;

public class FileTxtRead {
    public static void main(String[] args) throws Exception {
        Scanner input = new Scanner(new
        FileReader("/home/trevorj/Documents/Cosc1047/Assignment
        3/readTxtFile/readTxtFile/src/list.txt"));

        ArrayList<Integer> l = readFile(input);
        Collections.sort(l);
    }
}

```

```

        printList(l);

    }

    public static ArrayList<Integer> readFile(Scanner in){
        ArrayList<Integer> list = new ArrayList<Integer>();
        int i = 0;
        while( in.hasNext()){
            list.add(in.nextInt());
            i++;
        }
        return list;
    }

    public static void printList(ArrayList<Integer> list){
        for(int i = 0; i < list.size(); i++){
            System.out.print(list.get(i)+"\t");
            if(i % 15 == 0 && i != 0)
                System.out.println("\n");
        }
    }
}

```

****12.23** (Process scores in a text file on the Web) Suppose the text file on the Web <http://liveexample.pearsoncmg.com/data/Scores.txt> contains an unspecified number of scores separated by spaces. Write a program that reads the scores from the file and displays their total and average.

```
PROBLEMS OUTPUT DEBUG CONSOLE PORTS TERMINAL
14 32 24 31 34
53 74 22 29 trevorj@MooMoo:~/Documents/Cosc1047/Assignment 3/readHTTPFile/readHTTPFile$ cd /home/trevorj/Documents/Cosc1047/Assignment\ 3/readHTTPFile/readHTTPFile ; /usr/bin/env /usr/lib/jvm/java-11-openjdk-amd64/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:35521 -cp /home/trevorj/Documents/Cosc1047/Assignment\ 3/readHTTPFile/readHTTPFile/bin readHTTPFile
34 34 54 14 32
24 31 34 53 74
22 29 4 34 14
14 32 24 31 34
53 74 22 29
trevorj@MooMoo:~/Documents/Cosc1047/Assignment 3/readHTTPFile/readHTTPFile$ cd /home/trevorj/Documents/Cosc1047/Assignment\ 3/readHTTPFile/readHTTPFile ; /usr/bin/env /usr/lib/jvm/java-11-openjdk-amd64/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:40371 -cp /home/trevorj/Documents/Cosc1047/Assignment\ 3/readHTTPFile/readHTTPFile/bin readHTTPFile
```

```
import java.util.ArrayList;
```

```
import java.util.Scanner;
```

```
import java.net.*;
```

```
import java.io.*;
```

```
public class readHTTPFile {
```

```
    public static ArrayList<Integer> listFinal,listFinal2;
```

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

```
        URL url = new URL("http://liveexample.pearsoncmg.com/data/Scores.txt");
```

```
        BufferedReader input = new BufferedReader( new  
InputStreamReader(url.openStream()));
```

```
        Scanner inputScn = new Scanner(url.openStream());
```

```
        listFinal = new ArrayList<Integer>();    listFinal2 = new  
ArrayList<Integer>();
```

```
        readFile(input);    alternateReadFile(inputScn);
```

```
        printList(); printList2();
```

```
        input.close(); inputScn.close();
```

```
    }
```

```
    public static void alternateReadFile(Scanner input){
```

```

while(input.hasNext()){
    listFinal2.add( input.nextInt());
}
}

public static void readFile(BufferedReader in){

    try {
        String s;
        do{
            s= in.readLine();
            if(s != null)
                processLine(s);

        }while( s != null);

    }
    catch (IOException e) {
        e.printStackTrace();
    }
}

public static void processLine(String s){
    String [] tokens = s.split(" ");

    for(int i = 0; i < tokens.length; i++){
        listFinal.add(Integer.parseInt(tokens[i]));
    }
}

```

```

public static void printList(){
    System.out.println( "Buffered read output");
    int total= 0; double average =0;
    for(int i = 0; i < listFinal.size(); i++){
        System.out.print(listFinal.get(i)+"\t");
        total += listFinal.get(i);

        if((i+1)%5 == 0)
            System.out.println( );
    }
    average = total/listFinal.size();
    System.out.println( );
    System.out.println( "Total: "+total+"\tAverage: "+average);
}

```

```

public static void printList2(){
    System.out.println( "Scanner read output");
    int total= 0; double average =0;
    for(int i = 0; i < listFinal2.size(); i++){
        System.out.print(listFinal2.get(i)+"\t");
        total += listFinal2.get(i);
        if((i+1)%5 == 0)
            System.out.println( );
    }
    average = total/listFinal2.size();
    System.out.println( "\nTotal: "+total+"\tAverage: "+average);
    System.out.println( );
}
}

```