Program #1

```
/*
Author:  Serg Kolo
Date: Aug 25, 2015
Class: CS2050, Fall 2015
Instructor: Prof. Gurka
Purpose: Line, Letter, and Digit counter
*/

import java.util.Scanner;
import java.io.*;

public class  skolodya_hw1_linechardigit_counter
{
    public static void main (String[] args)
    {

        if (args.length < 1 )
            {
                System.out.println("Usage: skolodya_hw1_linechardigit_counter FILE1 [FILE2] [FILE3] . . . ");
                System.exit(1);
            }

        for (int i=0; i<args.length; i++)
            {
                try
                    {
                        countLinesChars(args[i]);
                    }
                catch (IOException e)
                    {
                        System.err.println(args[i] + "File not found");
                    }
            }
    }

    public static void countLinesChars( String filename ) throws IOException
    {
        FileInputStream inputFile  = new FileInputStream (filename);
        BufferedReader readFile = new BufferedReader (new InputStreamReader(inputFile) );
        int lineCount=0,charCount=0,digitCount=0;
        String currentLine;

        while ( (currentLine = readFile.readLine() ) != null )
            {

                lineCount++;

                for (int j = 0 ; j < currentLine.length(); j++)
                    {

                        if ( Character.isLetter(currentLine.charAt(j)  ) )
                            {
                                charCount++;
                            }
                        else if ( Character.isDigit(currentLine.charAt(j) ) )
                            {
                                digitCount++;
                            }
                    }


            }

        readFile.close();
        System.out.println("File:" + filename );
        System.out.println("LineCount: " + lineCount +" CharCount: " + charCount + " Digits: " + digitCount );
    }



}
```

Program #2

```
/*
Author:  Serg Kolo
Date: Aug 26, 2015
Class: CS2050, Fall 2015
Instructor: Prof. Gurka
Purpose: a program to find prime numbers under specific limit
*/


import javax.swing.JOptionPane;
import java.util.*;
import java.lang.Math;

public class skolodya_hw1_primes
{
    public static void main (String[] args)
    {
        int userInput = 0;
        while ( userInput <=1 )
            {
               userInput = Integer.parseInt(JOptionPane.showInputDialog("Enter a positive integer limit for finding primes, greater than 2 "));
            }

        ArrayList<Integer> integerList = new  ArrayList<Integer>();
        fillArrayList (integerList,userInput);
        sievePrimes(integerList,userInput);
        printPrimes (integerList,userInput);
    }

    public static void fillArrayList ( ArrayList<Integer> nums,int limit )
    {
        /*
        Arrays go from 0 to n. So, if user asks for, say, 13 as limit,
        we allocate array list that is 13+1 items in size.
        */
        for (int i=0; i<(limit+1); i++)
            {
                nums.add(1);
            }
    }

// Sieve of Erathosenes.
// Basic idea is to cross out the multiples of known primes bellow
// the limit. The remaining numbers are prime.
// On paper it would be making a table or list of numbers and
// crossing out numbers for each prime. In this case, we set
// specific items whose positional number is not prime

    public static void sievePrimes (ArrayList <Integer> nums, int limit)
    {


// if an integer has prime factors, then at least one
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// of them does not exceed the square root of that integer
        for(int i=2; i<Math.sqrt(limit); i++)
            {
                for (int j=2; j<limit; j++)
                    {
                        if ( i*j > limit)
                            break;

// Mark items in the ArrayList , whose positional number is a multiple
// of a prime number
                        nums.set(i*j,0);

                    }
            }
    }
    public static void printPrimes (ArrayList <Integer> nums, int limit )
    {
        // JOptionPane dialogs require string, so
// we need to convert integers to strings

        ArrayList <String> primes =  new ArrayList();
        String output =" ";

// list numbers that have not been marked as false into
// the primes ArrayList.
        for (int i=2; i<limit; i++)
            {
                if (nums.get(i) == 1)
                    {
                        primes.add(Integer.toString(i));
                    }
            }

        for (int j=0; j<primes.size(); j++ )
            {
                output += primes.get(j) + " ";
            }

        JOptionPane.showMessageDialog(null," Primes found  " + output);

    }
}
```
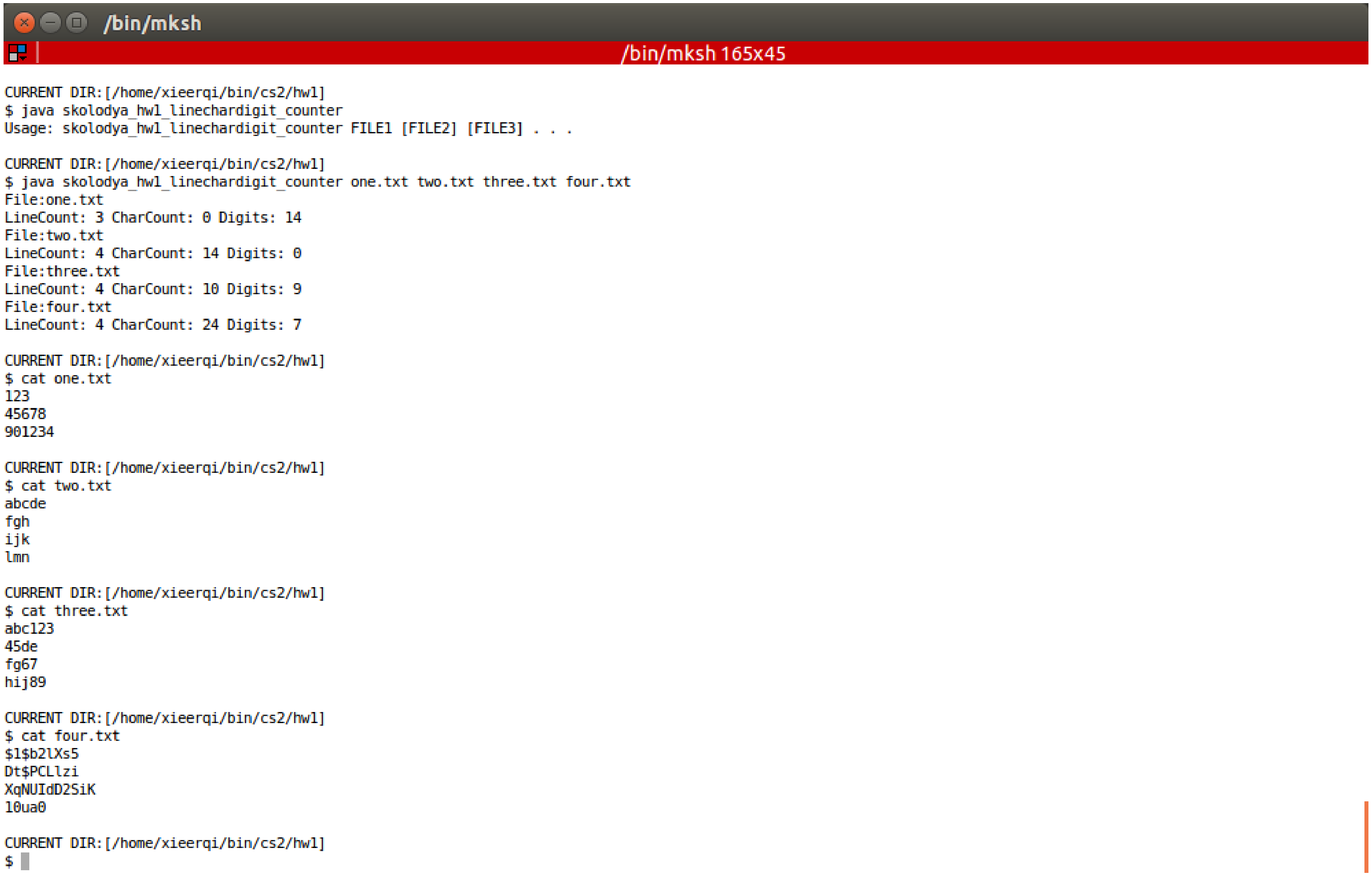
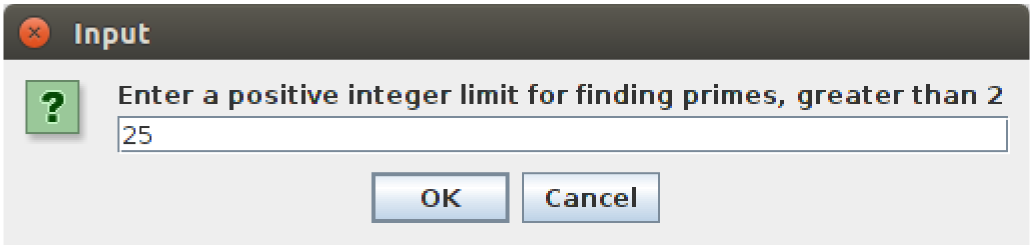
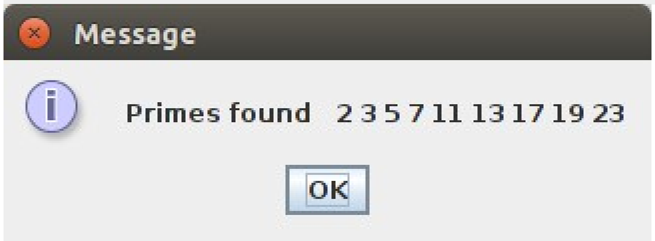



```
CURRENT DIR:[/home/xieerqi/bin/cs2/hw1]
$ java skolodya_hw1_linechardigit_counter
Usage: skolodya_hw1_linechardigit_counter FILE1 [FILE2] [FILE3] . . .

CURRENT DIR:[/home/xieerqi/bin/cs2/hw1]
$ java skolodya_hw1_linechardigit_counter one.txt two.txt three.txt four.txt
File:one.txt
LineCount: 3 CharCount: 0 Digits: 14
File:two.txt
LineCount: 4 CharCount: 14 Digits: 0
File:three.txt
LineCount: 4 CharCount: 10 Digits: 9
File:four.txt
LineCount: 4 CharCount: 24 Digits: 7

CURRENT DIR:[/home/xieerqi/bin/cs2/hw1]
$ cat one.txt
123
45678
901234

CURRENT DIR:[/home/xieerqi/bin/cs2/hw1]
$ cat two.txt
abcde
fgh
ijk
lmn

CURRENT DIR:[/home/xieerqi/bin/cs2/hw1]
$ cat three.txt
abc123
45de
fg67
hij89

CURRENT DIR:[/home/xieerqi/bin/cs2/hw1]
$ cat four.txt
$1$b2lXs5
Dt$PCLlzi
XqNUIdD2SiK
10ua0

CURRENT DIR:[/home/xieerqi/bin/cs2/hw1]
$ 
```



Enter a positive integer limit for finding primes, greater than 2

25



Primes found   2 3 5 7 11 13 17 19 23