



### Submitting Assignments:

- ✓ This is a closed book and closed notes exam; calculators, mobile phones, and other electronics are NOT ALLOWED.
- ✓ Only use Eclipse and Windows Explorer.
- ✓ Using a web browser, a chat client, or any USB device is forbidden. Using any of these will result in dismissal from the exam and a grade of zero.
- ✓ Please note that your code must compile for it to be graded. A compilation error will result in a grade of zero. If you would like to skip a function, write it with an empty body.

### Question1 (9pts):

This code finds all the divisors of a given number, it takes a long time(27 second) to find the divisors of the following array of numbers {789654126,15639874,896521473,998517266,185485968}, by using threads can you enhance the performance. Proof by code, result is consistent

```
Divisor(896521473)=3
Divisor(896521473)=9
Divisor(896521473)=27
Divisor(896521473)=71
Divisor(896521473)=213
Divisor(896521473)=639
Divisor(896521473)=1917
Divisor(896521473)=467669
Divisor(896521473)=1403007
Divisor(896521473)=4209021
Divisor(896521473)=12627063
Divisor(896521473)=33204499
Divisor(896521473)=99613497
Divisor(896521473)=298840491
```

```
Divisor(998517266)=2
Divisor(998517266)=1433
Divisor(998517266)=2866
Divisor(998517266)=348401
Divisor(998517266)=696802
Divisor(998517266)=499258633
```

BUILD SUCCESSFUL (total time: 13 seconds)

```
import java.util.Scanner;

public class PrimeNum2{
    public static void main(String args[]){
        Scanner x=new Scanner(System.in);
        System.out.print("Enter the number : ");
        long y=x.nextInt(),i;
        System.out.print("Divisors of "+y+" = 1 , ");

        for( i=2;i<y;i++){
            long z=y%i;
            if(z!=0)continue;
            System.out.print(i+" , ");

        }System.out.println(y);
    }
}
```

```
Divisors of 789654126 = 1 , 2 3 6 3671 7342 11013 22026 35851 71702 107553 215106 131609021 263218042 394827063
Divisors of 15639874 = 1 , 2 29 43 58 86 1247 2494 6271 12542 181859 269653 363718 539306 7819937
Divisors of 896521473 = 1 , 3 9 27 71 213 639 1917 467669 1403007 4209021 12627063 33204499 99613497 298840491
Divisors of 998517266 = 1 , 2 1433 2866 348401 696802 499258633
Divisors of 185485968 = 1 , 2 3 4 6 8 9 12 16 18 24 36 41 48 72 82 89 123 144 164 178 246 267 328 353 356 369 492
BUILD SUCCESSFUL (total time: 27 seconds)
```



## Question2 (16pts):

The given file contains a long list of hostnames, IP addresses, URLs and other strings that are neither valid IP nor valid URL your mission is extract the information from each string as follows

1. If the string is a valid IP,
  - Check if it is your device IP, if it is print the NIC name of your machine if not
  - Print the hostname and /or the host address test if it is reachable, print the result to the console.
2. If the string is not a valid IP, check if it's a valid URL, if it is:
  - Print its IP addresses.
  - If the URL object links to a file then download the file into an output stream, its name is the file name appeared on the url.
  - If the string is not a valid URL print an error message to the console.
3. Solve the mission in Parallel (Assign each line that has read from the file to a thread). (Optional)

<b>Files</b> <ul style="list-style-type: none"><li>Exc_4</li><li>Exc_4_1</li><li>JavaApplication55</li><li>os</li><li>OSprogram2</li><li>Q3_Second<ul style="list-style-type: none"><li>build</li><li>dist</li><li>nbproject<ul style="list-style-type: none"><li>src</li></ul></li><li>test</li></ul></li><li>171203231146-jerusalem-significance-lee-pkg-super-169.jpg</li><li>About%20Jordan.pdf</li><li>build.xml</li><li>manifest.mf</li><li>sl.txt</li><li>sample.txt</li></ul>	<pre>run: http://txt2html.sourceforge.net/sample.txt:invalid IP, will Try with URL http://www.just.edu.jo:invalid IP, will Try with URL www.just.edu.jo www.just.edu.jo/10.242.6.158 txt2html.sourceforge.net txt2html.sourceforge.net/216.34.181.96 http://www.yu.edu.jo:invalid IP, will Try with URL www.yu.edu.jo www.yu.edu.jo/87.236.233.10 http://www.ju.edu.jo:invalid IP, will Try with URL www.ju.edu.jo www.ju.edu.jo/87.236.232.86 http://www.hu.edu.jo:invalid IP, will Try with URL www.hu.edu.jo www.hu.edu.jo/87.236.232.216 https://twitter.com/:invalid IP, will Try with URL twitter.com twitter.com/104.244.42.65 twitter.com twitter.com/104.244.42.129 https://www.facebook.com/:invalid IP, will Try with URL www.facebook.com www.facebook.com/157.240.20.35 https://www.google.com:invalid IP, will Try with URL www.google.com www.google.com/216.58.214.196</pre>
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**Hint:** To read the file line by line declare buffered reader as:

```
BufferedReader bf =new BufferedReader(new InputStreamReader(new FileInputStream("sl.txt")));
```