

Sieve.java

```
1 package intro;
2
3 import java.text.NumberFormat;
4
5
6
7 public class Sieve {
8
9     static int MAX = 0;
10
11     public static void main(String[] args) {
12
13         System.out.println("\n    Sieve of Eratosthenes\n");
14
15         Scanner input = new Scanner(System.in);
16         System.out.print("Enter the primes upper bound  ==>>  ");
17         MAX = input.nextInt();
18
19         boolean primes[] = new boolean[MAX];
20         computePrimes(primes);
21         System.out.println("\n");
22         displayPrimes(primes);
23         input.close();
24     }
25
26     public static void computePrimes(boolean primes[]) {
27
28         for (int i = 2; i <= MAX - 1; i++)
29             primes[i] = true;
30
31         for (int a = 2; a * a <= MAX - 1; a++)
32             if (primes[a])
33                 for (int j = a; a * j <= MAX - 1; j++)
34                     primes[a * j] = false;
35     }
36
37     public static void displayPrimes(boolean primes[]) {
38
39         int prime = 0;
40         for (int i = 2; i <= MAX - 1; i++)
41             if (primes[i] == true) {
42                 prime++;
43                 NumberFormat formatter = new DecimalFormat("0000");
44                 System.out.print(" " + formatter.format(i));
45                 if (prime % 16 == 0) {
46                     System.out.println("\n");
47                 }
48             }
49     }
50 }
```