

```
1 import java.util.Arrays;
2
3
4
5 public class Sieve {
6
7     public static void main(String args[]) {
8         System.out.println("\nSieve of Eratosthenes\n");
9         Scanner input = new Scanner(System.in);
10        System.out.print("Enter the primes upper bound ==>> ");
11        final int MAX = input.nextInt();
12        boolean primes[] = new boolean[MAX];
13
14        for (int z = 0; z < primes.length; z++) {
15            primes[z] = true;
16        }
17        primes[0] = false;
18
19        computePrimes(primes);
20        displayPrimes(primes);
21    }
22
23    // true = prime
24    // false = composite
25
26    public static void computePrimes(boolean primeArray[]) {
27
28        // This method will compute the prime numbers
29
30        for (int i = 2; i <= Math.sqrt(primeArray.length) + 1; i++) {
31            // checks if i is prime
32            for (int a = 2; a < i; a++) {
33                if (i % a == 0) {
34                    primeArray[i - 1] = false;
35                    break;
36                }
37            }
38            if (primeArray[i - 1] == true) {
39                for (int b = 3; b <= primeArray.length; b++) {
40                    if (b % i == 0 && b != i) {
41                        primeArray[b - 1] = false;
42                    }
43                }
44            }
45        }
46        System.out.println(Arrays.toString(primeArray));
47    }
48
49
50    public static void displayPrimes(boolean primeArray[]) {
51        int a = 1;
52        DecimalFormat df = new DecimalFormat("0000");
53
54        String result = new String();
55        for (int i = 0; i < primeArray.length; i++) {
56
57            if (primeArray[i] == true) {
58                result = result + df.format(i + 1) + " ";
59                if (a % 16 == 0) {
60                    result = result + "\n";
61                }
62                a++;
63            }
64
65        }
66
67        result.trim();
68        System.out.println(result);
69
70    }
71 }
72 }
```