```java
import java.text.DecimalFormat;


public class Sieve {

    public static void main(String[] args) {
        System.out.println("\nSieve of Eratosthenes\n");


        Scanner input = new Scanner(System.in);
        System.out.print("Enter the primes upper bound ===>> ");
        final int MAX = input.nextInt();
        input.close();

        boolean[] primes = computePrimes(MAX);
        displayPrimes(primes);

    }

    public static boolean[] computePrimes(int MAX) {
        boolean[] primeArray = new boolean[MAX];

        //Make all values true

        for (int i = 2; i < MAX; i++) {
            primeArray[i] = true;
        }
        //compute the prime numbers
        int counter = 2;
        primeArray[0] = false;
        primeArray[1] = false;

        while (counter <= (int) Math.sqrt(MAX)) {

            if (primeArray[counter] == true) {
                for (int j = counter; j < primeArray.length - 1; j+
+) {
                    int composite = counter * j;
                    if (composite < MAX) {
                        primeArray[composite] = false;
                        }
                    }
                }
            counter++;
        }
```

```
46
47          return primeArray;
48      }
49
50      public static void displayPrimes(boolean[] primeArray) {
51
52          // This method will display the prime numbers
53
54          DecimalFormat df = new DecimalFormat("0000");
55
56
57          int counter = 0;
58
59
60          for (int index = 2; index < primeArray.length; index++) {
61
62                  if (primeArray[index] == true) {
63                      if (counter == 16) {
64                          System.out.print("\n");
65                          counter = 0;
66                      }
67                      System.out.print(df.format(index) + " ");
68                      counter++;
69
70                  }}}}
71
72
```