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import java.text.DecimalFormat;
import java.util.Arrays;
import java.util.Scanner;
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 upperBound) {
        // This method will compute the prime numbers
        boolean[] primeArray = new boolean[upperBound+1];
        for (int index = 2; index <= upperBound; index++) {
            primeArray[index] = true;
        }

        int multiple = 2;
        for (int num = 2; num <= upperBound; num++) {
            for (multiple = 2*num; multiple <= upperBound; multiple+=num) {
                primeArray[multiple] = false;
            }
        }

        return primeArray;
    }

    public static void displayPrimes(boolean[] primeArray) {
        // This method will display the prime numbers
        DecimalFormat df = new DecimalFormat("0000");
        int count = 0;

        for (int index = 0; index < primeArray.length; index++) {
            if (primeArray[index] == true) {
                String deci = df.format(index);
                System.out.print(deci + " ");
                count++;

                if (count % 16 == 0) {
                    System.out.println();
                }
            }
        }
    }
}

```