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import java.util.Arrays;
import java.util.Scanner;

public class Sieve {

    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.println("Welcome to the Sieve of Eratosthenes");
        System.out.println("Enter an upper bound for the prime search");
        final int max = scan.nextInt();
        scan.close();
        boolean[] primes = computePrimes(max);
        displayPrimes(primes);
    }

    public static boolean[] computePrimes(int upBound) {
        int j = 2;
        boolean[] primeArray = new boolean[upBound + 1];
        Arrays.fill(primeArray, true);
        primeArray[0] = false;
        primeArray[1] = false;
        for (int i = 2; i <= upBound; i++) {
            if (primeArray[i] == true) {
                for (j = 2; j < (upBound / i) + 1; j++) {
                    primeArray[i * j] = false;
                }
                j = 2;
            }
        }
        return primeArray;
    }

    public static void displayPrimes(boolean[] primeArray) {
        int newLine = 0;
        for (int i = 0; i <= primeArray.length - 1; i++) {
            if (primeArray[i] == true) {
                if (newLine >= 16) {
                    System.out.print("\n");
                    newLine = 0;
                }
                if (i < 10) {
                    System.out.print("000" + i + " ");
                } else if (i < 100) {
                    System.out.print("00" + i + " ");
                }
            }
        }
    }
}

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        } else if (i < 1000) {
            System.out.print("0" + i + " ");
        } else {
            System.out.print(i + " ");
        }
        newLine++;
    }
}
}
```