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import java.util.Scanner;

import java.text.DecimalFormat;

public class SieveOfEratosthenes {

    public static void main(String args[]){

        System.out.println("\nSieve of Eratosthenes\n");

        Scanner steve = new Scanner(System.in);

        System.out.print("Enter the primes upper bound ==>> ");

        final int MAX = steve.nextInt();

        boolean isPrime[] = new boolean[MAX+1];

        for(int i=2; i<=MAX; i++) {

            isPrime[i]=true;

        }

        computePrimes(isPrime);

        displayPrimes(isPrime);

        steve.close();

    }

    public static void computePrimes(boolean primeArray[]){

        int upperBound=(int) (Math.ceil(Math.sqrt(primeArray.length)));

        for(int i=2; i<upperBound; i++){
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        if(primeArray[i] {
            for(int j=2*i; j<primeArray.length; j+=i) {
                primeArray[j]=false;
            }
        }
    }
}

public static void displayPrimes(boolean primeArray[]){
    DecimalFormat dom = new DecimalFormat("0000");
    System.out.println("\nPRIMES BETWEEN 1 AND " +(primeArray.length-1) + ":\n");
    int numNumsPrinted=0;
    int sum=0;
    for(int i=1; i<primeArray.length; i++) {
        if(numNumsPrinted==27) {
            numNumsPrinted=0;
            System.out.println();
        }
        if(primeArray[i] {
            System.out.print(dom.format(i) + " ");
            sum+=i;
            numNumsPrinted++;
        }
    }
}

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        }  
    }  
    System.out.println("\nThe sum of the primes under " + (primeArray.length-1) + " is equal to " + sum);  
}  
}
```