Lauren Mangibin

Pd.0A 05/23/2017

Free Style Lab: Project Euler Programs

**Multiples of 3 and 5:**

int sum = 0;  
 for (int i = 0; i <1000; i++){  
 if(i%3==0 || i%5==0)  
 sum+=i;  
 }  
 System.out.println(sum);

**Fibonacci Evens:**  
 ArrayList<Integer> fib = new ArrayList<Integer>();  
 fib.add(1);  
 fib.add(2);  
 for (int i = 2; i < 400; i++){  
   
 if ((fib.get(i-2)+fib.get(i-1))<4000000)  
 fib.add(fib.get(i-2)+fib.get(i-1));  
 else  
 break;  
 }  
 int sum =0;  
   
 for (int i =0; i<fib.size();i++){  
 if (fib.get(i)%2 ==0)  
 sum += fib.get(i);  
 }  
 System.out.println(sum);

**Largest Prime Factor:**

ArrayList<Integer> factors = new ArrayList<Integer>();  
 int n = 600851475143;  
 int d = 2;  
 while (n>1){  
 while(n%d == 0){  
 factors.add(d);  
 n /= d;  
 }  
 d++;  
 if(d\*d > n){  
 if (n>1)  
 factors.add(n);  
 break;  
 }   
 }  
 System.out.print(factors.get(factors.size()-1));

**Largest Palindrome Product:**

import java.util.\*;  
 public class ProjectEuler{  
 public static void main(String[]args){  
 ArrayList<Integer> products = new ArrayList<Integer>();  
 ArrayList<String> numbers = new ArrayList<String>();  
 ArrayList<String> reverses = new ArrayList<String>();  
 for (int i = 100; i <1000; i++){  
 for (int j = 100; j<1000; j++){  
 products.add(i\*j);  
 }  
 }  
 Collections.sort(products);  
 for (int k = 0; k < products.size(); k++){  
 String number = Integer.toString(products.get(k));  
 String reverse = new StringBuffer(number).reverse().toString();  
 reverses.add(reverse);  
 numbers.add(number);  
 }  
 for(int i=0; i<reverses.size(); i++){  
 if (reverses.get(i).equals(numbers.get(i)))   
 System.out.println(reverses.get(i));  
 }   
 }  
 }

**Special Pythagorean Triplet:**

import java.util.\*;  
 public class ProjectEuler{  
 public static void main(String[]args){  
 for (int n = 0; n < 22; n++){  
 for(int m = 0; m < 500; m++){  
 if ((n\*n) + (n\*m) < 501){  
 System.out.println((n\*n) + (n\*m) + " " + "n: " + n + "m: " + m);  
 }  
 }  
 }  
 }  
}

**Largest Product in a Series:**

import java.util.\*;  
public class ProjectEuler{  
 public static void main(String[]args){  
  
 String stuffs = "7316717653133062491922511967442657474235534919493496983520312774506326239578318016984801869478851843858615607891129494954595017379583319528532088055111254069874715852386305071569329096329522744304355766896648950445244523161731856403098711121722383113622298934233803081353362766142828064444866452387493035890729629049156044077239071381051585930796086670172427121883998797908792274921901699720888093776657273330010533678812202354218097512545405947522435258490771167055601360483958644670632441572215539753697817977846174064955149290862569321978468622482839722413756570560574902614079729686524145351004748216637048440319989000889524345065854122758866688116427171479924442928230863465674813919123162824586178664583591245665294765456828489128831426076900422421902267105562632111110937054421750694165896040807198403850962455444362981230987879927244284909188845801561660979191338754992005240636899125607176060588611646710940507754100225698315520005593572972571636269561882670428252483600823257530420752963450";  
 ArrayList<Integer> sums = new ArrayList<Integer>();  
 for (int i = 0; i<=stuffs.length(); i++){  
 String number = stuffs.substring(i, i+13);   
 int sum = 1;   
 for (int j = 0; j<number.length(); j++){  
 int no = Integer.parseInt(number.substring(j, j+1));  
 sum\*= no;   
 }  
 sums.add(sum);  
 }  
 Collections.sort(sums);  
 System.out.println(sums.get(sums.size()-1));  
   
 }  
}

**Summation of Primes:**

import java.util.\*;  
  
public class ProjectEuler{  
 public static void main(String[]args){  
 long sum = 0;   
 long num = 0;   
 for (long i=1; i<2000000;i++){  
 num = i;   
 boolean prime = true;  
 for (long j = 2; j < i;j++){  
 if (i%j == 0){  
 prime = false;  
 break;   
 }  
 }  
 if (prime == true)  
 sum+= num;   
   
 }  
 System.out.println(sum);   
 }   
   
 }

**10001st prime:**

import java.util.\*;  
  
public class ProjectEuler{  
 public static void main(String[]args){  
 long num = 0;   
 long count= 0;   
 while(count<10002){  
 for (long i=1; i<2000000;i++){  
 num = i;   
 boolean prime = true;  
 for (long j = 2; j < i;j++){  
 if (i%j == 0){  
 prime = false;  
 break;   
 }  
 }  
 if (prime == true){  
 System.out.println(num);  
 count++;  
 }   
 }  
 }  
 }   
 }   
   
  
**Smallest Multiple:**

import java.util.\*;  
  
public class ProjectEuler{  
 public static void main(String[]args){  
 long no = 2520;  
 boolean there = false;  
 while (!there) {  
 no += 2520;  
 boolean divide = true;  
 for (int i = 11; i <= 20; i++) {  
 if (no % i != 0) {  
 divide = false;  
 break;  
 }  
 }  
 if (divide) {  
 there = true;  
 }  
 }  
 System.out.println( no);  
   
}   
}   
   
**Sum Square Difference:**

import java.util.\*;  
  
public class ProjectEuler{  
 public static void main(String[]args){  
 int sum1 = 0;  
 int sum2 = 0;  
 int sum = 0;  
 int n = 100;  
  
   
 sum1 = n\*(n+1)/2;  
 sum1 \*= sum1;  
  
   
 sum2 = (n \* (n+1) \* (2\*n+1))/6;  
  
 System.out.println(sum1 - sum2);  
  
}   
}