题目：验证哥德巴赫猜想。统计其关键语句的执行次数。并绘制规模-执行次数散点图

时间：2020.11.1 星期天

代码：

public class MainClass {

static Map<Integer,Long> output=new LinkedHashMap<>();

static int curN=0;

public static boolean isPrimeNumber(int n){

if(n<=1){

return false;

}

int m=n;

while (m>2){

m--;

if(n % m==0){

output.put(curN,output.get(curN)+1);

return false;

}

}

return true;

}

public static boolean goldbachOne(int n){

if(n==2){

return true;

}

for(int j=2;j<n;j++){

for(int k=j;k<n;k++){

if(k+j==n && isPrimeNumber(k) && isPrimeNumber(j)){

output.put(curN,output.get(curN)+1);

return true;

}

}

}

return false;

}

public static boolean goldbach(int n){

boolean result= n > 1;

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

result=result && goldbachOne(i);

}

return result;

}

public static void main(String[] args) throws FileNotFoundException {

for(int i=200;i<1000;i+=50){

curN=i;

output.put(curN,0L);

goldbach(i);

}

toCSV(output);

}

public static void toCSV(Map<Integer,Long> result) throws FileNotFoundException {

PrintWriter printWriter=new PrintWriter("result.csv");

printWriter.println("n,times");

result.forEach((k,v)->{printWriter.println(k+","+v);});

printWriter.flush();

}

运行结果

n,times

200,411

250,561

300,673

350,885

400,1007

450,1139

500,1301

550,1481

600,1647

650,1779

700,1923

750,2073

800,2243

850,2409

900,2589

950,2789

