优化性模板

动态开数组

```
LL **f=new LL *[W+1];
for (int w=0;w<=W;w++)
   f[w]=new LL[M+1];
LL ***ff=new LL **[W+1];
for (int w=0;w<=W;w++){
   ff[w]=new LL *[M+1];
   for (int m=0;m<=M;m++)
      ff[w][m]=new LL [SS+1];
}
for (int w=0;w<=W;w++)
   delete [] f[w];
delete [] f;
for (int w=0;w<=W;w++){
   for (int m=0;m<=M;m++){
      delete [] ff[w][m];
   }
   delete [] ff[w];
}
delete [] ff;
```

对拍

```
while(true)
{
   system("./mkd");
   system("./E");
   system("./E_");
   if(system("diff E.out E_.out"))
   {
      printf("WA!\n");
      break;
   }
   else printf("YES!\n");
}
```

高精度

```
const int
step[8]={1,10,100,1000,10000,100000,1000000,10000000};
const int con=100000000;
```

```
class gj{
   public:
   int a[110];
   void getdata(const int
&x){memset(a,0,sizeof(a));a[0]=1;a[1]=x;}
   void getlarge(char s[]){
      memset(a,0,sizeof(a));
      int len=strlen(s);
      a[0]=(len-1)/8+1;
      for (int i=0;i<a[0];i++)
         for (int j=0;j<8;j++)
            if (len>i*8+j)
            a[i+1]+=(s[len-i*8-j-1]-'0')*step[j];
   }
   void priln(){
      printf("%d",a[a[0]]);
      for (int i=a[0]-1;i>0;i--)printf("%08d",a[i]);
      printf("\n");
   }
   bool operator <(const gj &X){
      if (a[0]<X.a[0])return true;if (a[0]>X.a[0])return
false;
      for (int i=a[0];i;i--){if (a[i]<X.a[i])return
true;if (a[i]>X.a[i])return false;}
      return false;
   }
   bool operator >(const gj &X){
      if (a[0]<X.a[0])return false;if (a[0]>X.a[0])return
true;
      for (int i=a[0];i;i--){if (a[i]<X.a[i])return
false;if (a[i]>X.a[i])return true;}
      return false;
   }
   bool operator <=(const gj &X){
      if (a[0]<X.a[0])return true;if (a[0]>X.a[0])return
false;
      for (int i=a[0];i;i--){if (a[i]<X.a[i])return
true;if (a[i]>X.a[i])return false;}
      return true;
   }
   bool operator >=(const gj &X){
      if (a[0]<X.a[0])return false;if (a[0]>X.a[0])return
true;
      for (int i=a[0];i;i--){if (a[i]<X.a[i])return
```

```
false;if (a[i]>X.a[i])return true;}
      return true;
   }
   bool operator ==(const gj &X){
      if (a[0]!=X.a[0])return false;for (int i=a[0];i;i-
-)if (a[i]!=X.a[i])return false;
      return true;
   }
   gj operator + (const gj &X){
      gj c;memset(c.a,0,sizeof(c.a));
      for (int i=1;i<=a[0]||i<=X.a[0];i++){
         c.a[i]+=a[i]+X.a[i];
         c.a[i+1]=c.a[i]/con;
         c.a[i]=c.a[i]-c.a[i+1]*con;
      }
      if (a[0]<X.a[0])c.a[0]=X.a[0];else c.a[0]=a[0];
      while (c.a[c.a[0]+1])++c.a[0];
      while (c.a[0]&&!c.a[c.a[0]])c.a[0]--;
      return c;
   }
   gj operator +(const int &X){
      gj c;memcpy(c.a,a,sizeof(c.a));c.a[1]+=X;
      for (int i=1;i<=c.a[0]&&c.a[i]>=con;i++)c.a[i]-
=con,c.a[i+1]++;
      while (c.a[c.a[0]+1])c.a[0]++;
      while (c.a[0]&&!c.a[c.a[0]])c.a[0]--;
      return c;
   }
   gj operator -(const gj &X){
      gj c;memcpy(c.a,a,sizeof(c.a));
      for (int i=1;i<=a[0];i++){c.a[i]=c.a[i]-X.a[i];if
(c.a[i]<0){c.a[i+1]--;c.a[i]+=con;}}
      while (c.a[0]&&!c.a[c.a[0]])c.a[0]--;
      return c;
   }
   gj operator -(const int &X){
      gj c;memcpy(c.a,a,sizeof(c.a));
      c.a[1]-=X;
      for (int i=1;c.a[i]<0;i++)c.a[i+1]--,c.a[i]+=con;
      while (c.a[0]&&!c.a[c.a[0]])c.a[0]--;
      return c;
   }
   gj operator * (const gj &X){
      gj c;memset(c.a,0,sizeof(c.a));
```

```
   int t;LL x;
   for (int i=1;i<=a[0];i++)
      for (int j=1;j<=X.a[0];j++){
         x=(LL)a[i]*X.a[j]+c.a[i+j-1];
         t=x/con;
         c.a[i+j]+=t;
         c.a[i+j-1]=x-t*con;
      }
   c.a[0]=max(a[0]+X.a[0]-1,0);
   while (c.a[c.a[0]+1])c.a[0]++;
   while (c.a[0]&&!c.a[c.a[0]])c.a[0]--;
   return c;
}
gj operator *(const int &X){
   gj c;memset(c.a,0,sizeof(c.a));
   int t;LL x;
   for (int i=1;i<=a[0];i++){
      x=(LL)a[i]*X+c.a[i];
      t=x/con;
      c.a[i+1]+=t;
      c.a[i]=x-t*con;
   }
   c.a[0]=a[0];if (c.a[c.a[0]+1]>0)c.a[0]++;
   while (c.a[0]&&!c.a[c.a[0]])c.a[0]--;
   return c;
}
gj operator /(const int &X){
   gj c;memcpy(c.a,a,sizeof(c.a));
   LL rem=0,s=0;
   for (int i=c.a[0];i;i--){
      s=rem*con+c.a[i];
      c.a[i]=s/X;
      rem=s-(LL)c.a[i]*X;
   }
   while (c.a[0]&&!c.a[c.a[0]])c.a[0]--;
   return c;
}
gj operator %(gj X){
   if ((*this)<X)return *this;
   gj c;c.getdata(0);
   gj d;d.getdata(0);
   c.a[0]=a[0]-X.a[0]+1;
   d.a[0]=X.a[0]-1;
   for (int i=1;i<X.a[0];i++)d.a[i]=a[a[0]-
```

```
X.a[0]+i+1];
      for (int i=a[0]-X.a[0]+1;i>0;i--){
         for (int j=d.a[0];j;j--)d.a[j+1]=d.a[j];
         d.a[1]=a[i];
         d.a[0]++;
         while (d.a[0]&&!d.a[d.a[0]])d.a[0]--;
         int ll=0,rr=con-1;
         while (ll<rr){
            int mid=(ll+rr+1)>>1;
            if (d>=(X*mid))ll=mid;
            else rr=mid-1;
         }
         c.a[i]=ll;
         d=d-X*ll;
      }
      return d;
   }
}A,B,C;
```

手动开栈

```
#include <...>
register char *_sp __asm__("rsp");
int main(){
   const int size=64*1024*1024;
   static char *sys, *mine(new char[size]+size-4096);
   sys=_sp;
   _sp=mine;

   mmain();

   _sp=sys;
}
```

cin 优化：`cin.sync_with_stdio(false);`

fastIO

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#include<time.h>
#include<math.h>
#include<iostream>
```

```
#include<algorithm>
using namespace std;
namespace fastIO{
   #define BUF_SIZE 100000
   #define OUT_SIZE 100000
   #define ll long long
   //fread->read
   bool IOerror=0;
   inline char nc(){
      static char
buf[BUF_SIZE],*p1=buf+BUF_SIZE,*pend=buf+BUF_SIZE;
      if (p1==pend){
         p1=buf; pend=buf+fread(buf,1,BUF_SIZE,stdin);
         if (pend==p1){IOerror=1;return -1;}
         //{printf("IO error!\n");system("pause");for
(;;);exit(0);}
      }
      return *p1++;
   }
   inline bool blank(char ch){return ch=='
'||ch=='\n'||ch=='\r'||ch=='\t';}
   inline void read(int &x){
      bool sign=0; char ch=nc(); x=0;
      for (;blank(ch);ch=nc());
      if (IOerror)return;
      if (ch=='-')sign=1,ch=nc();
      for (;ch>='0'&&ch<='9';ch=nc())x=x*10+ch-'0';
      if (sign)x=-x;
   }
   inline void read(ll &x){
      bool sign=0; char ch=nc(); x=0;
      for (;blank(ch);ch=nc());
      if (IOerror)return;
      if (ch=='-')sign=1,ch=nc();
      for (;ch>='0'&&ch<='9';ch=nc())x=x*10+ch-'0';
      if (sign)x=-x;
   }
   inline void read(double &x){
      bool sign=0; char ch=nc(); x=0;
      for (;blank(ch);ch=nc());
      if (IOerror)return;
      if (ch=='-')sign=1,ch=nc();
      for (;ch>='0'&&ch<='9';ch=nc())x=x*10+ch-'0';
      if (ch=='.'){
```

```
         double tmp=1; ch=nc();
         for
(;ch>='0'&&ch<='9';ch=nc())tmp/=10.0,x+=tmp*(ch-'0');
      }
      if (sign)x=-x;
   }
   inline void read(char *s){
      char ch=nc();
      for (;blank(ch);ch=nc());
      if (IOerror)return;
      for (;!blank(ch)&&!IOerror;ch=nc())*s++=ch;
      *s=0;
   }
   inline void read(char &c){
      for (c=nc();blank(c);c=nc());
      if (IOerror){c=-1;return;}
   }
   //getchar->read
   inline void read1(int &x){
      char ch;int bo=0;x=0;
      for (ch=getchar();ch<'0'||ch>'9';ch=getchar())if
(ch=='-')bo=1;
      for (;ch>='0'&&ch<='9';x=x*10+ch-'0',ch=getchar());
      if (bo)x=-x;
   }
   inline void read1(ll &x){
      char ch;int bo=0;x=0;
      for (ch=getchar();ch<'0'||ch>'9';ch=getchar())if
(ch=='-')bo=1;
      for (;ch>='0'&&ch<='9';x=x*10+ch-'0',ch=getchar());
      if (bo)x=-x;
   }
   inline void read1(double &x){
      char ch;int bo=0;x=0;
      for (ch=getchar();ch<'0'||ch>'9';ch=getchar())if
(ch=='-')bo=1;
      for (;ch>='0'&&ch<='9';x=x*10+ch-'0',ch=getchar());
      if (ch=='.'){
         double tmp=1;
         for
(ch=getchar();ch>='0'&&ch<='9';tmp/=10.0,x+=tmp*(ch-
'0'),ch=getchar());
      }
      if (bo)x=-x;
```

```
   }
   inline void read1(char *s){
      char ch=getchar();
      for (;blank(ch);ch=getchar());
      for (;!blank(ch);ch=getchar())*s++=ch;
      *s=0;
   }
   inline void read1(char &c){for
(c=getchar();blank(c);c=getchar());}
   //scanf->read
   inline void read2(int &x){scanf("%d",&x);}
   inline void read2(ll &x){
      #ifdef _WIN32
         scanf("%I64d",&x);
      #else
      #ifdef __linux
         scanf("%lld",&x);
      #else
         puts("error:can't recognize the system!");
      #endif
      #endif
   }
   inline void read2(double &x){scanf("%lf",&x);}
   inline void read2(char *s){scanf("%s",s);}
   inline void read2(char &c){scanf(" %c",&c);}
   inline void readln2(char *s){gets(s);}
   //fwrite->write
   struct Ostream_fwrite{
      char *buf,*p1,*pend;
      Ostream_fwrite(){buf=new
char[BUF_SIZE];p1=buf;pend=buf+BUF_SIZE;}
      void out(char ch){
         if (p1==pend){
            fwrite(buf,1,BUF_SIZE,stdout);p1=buf;
         }
         *p1++=ch;
      }
      void print(int x){
         static char s[15],*s1;s1=s;
         if (!x)*s1++='0';if (x<0)out('-'),x=-x;
         while(x)*s1++=x%10+'0',x/=10;
         while(s1--!=s)out(*s1);
      }
      void println(int x){
```

```
        static char s[15],*s1;s1=s;
        if (!x)*s1++='0';if (x<0)out('-'),x=-x;
        while(x)*s1++=x%10+'0',x/=10;
        while(s1--!=s)out(*s1); out('\n');
      }
      void print(ll x){
        static char s[25],*s1;s1=s;
        if (!x)*s1++='0';if (x<0)out('-'),x=-x;
        while(x)*s1++=x%10+'0',x/=10;
        while(s1--!=s)out(*s1);
      }
      void println(ll x){
        static char s[25],*s1;s1=s;
        if (!x)*s1++='0';if (x<0)out('-'),x=-x;
        while(x)*s1++=x%10+'0',x/=10;
        while(s1--!=s)out(*s1); out('\n');
      }
      void print(double x,int y){
        static ll
mul[]={1,10,100,1000,10000,100000,1000000,10000000,100000
000,

   1000000000,10000000000LL,100000000000LL,1000000000000L
L,10000000000000LL,

   100000000000000LL,1000000000000000LL,10000000000000000
LL,100000000000000000LL};
        if (x<-1e-12)out('-'),x=-x;x*=mul[y];
        ll x1=(ll)floor(x); if (x-floor(x)>=0.5)++x1;
        ll x2=x1/mul[y],x3=x1-x2*mul[y]; print(x2);
        if (y>0){out('.'); for (size_t
i=1;i<y&&x3*mul[i]<mul[y];out('0'),++i); print(x3);}
      }
      void println(double x,int y){print(x,y);out('\n');}
      void print(char *s){while (*s)out(*s++);}
      void println(char *s){while
(*s)out(*s++);out('\n');}
      void flush(){if (p1!=buf){fwrite(buf,1,p1-
buf,stdout);p1=buf;}}
      ~Ostream_fwrite(){flush();}
   }Ostream;
   inline void print(int x){Ostream.print(x);}
   inline void println(int x){Ostream.println(x);}
   inline void print(char x){Ostream.out(x);}
```

```
   inline void println(char
x){Ostream.out(x);Ostream.out('\n');}
   inline void print(ll x){Ostream.print(x);}
   inline void println(ll x){Ostream.println(x);}
   inline void print(double x,int y){Ostream.print(x,y);}
   inline void println(double x,int
y){Ostream.println(x,y);}
   inline void print(char *s){Ostream.print(s);}
   inline void println(char *s){Ostream.println(s);}
   inline void println(){Ostream.out('\n');}
   inline void flush(){Ostream.flush();}
   //puts->write
   char Out[OUT_SIZE],*o=Out;
   inline void print1(int x){
      static char buf[15];
      char *p1=buf;if (!x)*p1++='0';if (x<0)*o++='-',x=-
x;
      while(x)*p1++=x%10+'0',x/=10;
      while(p1--!=buf)*o++=*p1;
   }
   inline void println1(int x){print1(x);*o++='\n';}
   inline void print1(ll x){
      static char buf[25];
      char *p1=buf;if (!x)*p1++='0';if (x<0)*o++='-',x=-
x;
      while(x)*p1++=x%10+'0',x/=10;
      while(p1--!=buf)*o++=*p1;
   }
   inline void println1(ll x){print1(x);*o++='\n';}
   inline void print1(char c){*o++=c;}
   inline void println1(char c){*o++=c;*o++='\n';}
   inline void print1(char *s){while (*s)*o++=*s++;}
   inline void println1(char *s){print1(s);*o++='\n';}
   inline void println1(){*o++='\n';}
   inline void flush1(){if (o!=Out){if (*(o-1)=='\n')*--
o=0;puts(Out);}}
   struct puts_write{
      ~puts_write(){flush1();}
   }_puts;
   inline void print2(int x){printf("%d",x);}
   inline void println2(int x){printf("%d\n",x);}
   inline void print2(char x){printf("%c",x);}
   inline void println2(char x){printf("%c\n",x);}
   inline void print2(ll x){
```

```
      #ifdef _WIN32
         printf("%I64d",x);
      #else
      #ifdef __linux
         printf("%lld",x);
      #else
         puts("error:can't recognize the system!");
      #endif
      #endif
   }
   inline void println2(ll x){print2(x);printf("\n");}
   inline void println2(){printf("\n");}
   #undef ll
   #undef OUT_SIZE
   #undef BUF_SIZE
};
using namespace fastIO;
int main(){
   //freopen("1.in","r",stdin);
   //freopen("1.out","w",stdout);
   int n,x,sum=0;long long lx;char str[105],ch;
   println(3.01,2);flush();
   print(-1);print(' ');
   println2(123456789123456789LL);
   println(-3.141592653589,10);
   println(2.9999,2);
   read2(ch);println2(ch);
   read1(lx);println(lx);
   read(n);
   for (int i=1;i<=n;++i)read(x),sum+=x;
   printf("%d\n",sum);
   read(str);
   puts(str);
   print1("zzy dhh");
   println("zhazha frog");
   flush1(); flush();
   system("pause");for (;;);
   return 0;
}
/*
input:
A
123456789123456789
3
```

```
1 10 100
nie&&ga!
output:
3.01
123456789123456789
A
111
nie&&ga!
zzy dhh
-1 -3.1415926536
3.00
123456789123456789
zhazha frog
*/
```