basic.cpp

|  |
| --- |
| /\*include\*/  #pragma GCC optimize("Ofast")  #pragma GCC optimize("O2")  #pragma GCC optimize("O1")  #pragma GCC optimize("O3")  //#include<bits/stdc++.h>  #include<iostream>  #include<cstring>  #include<algorithm>  #include<cmath>  #include<string>  #include<sstream>  #include<vector>  #include<queue>  #include<deque>  #include<map>  #include<set>  #include<cstring>  #include<iomanip>  using namespace std;  #define what\_the\_fuck cin.tie(0);cout.tie(0);ios::sync\_with\_stdio(false)  #define ULLI unsigned long long int  #define LLI long long int  #define INT LLI  #define UINT unsigned INT  #define PII pair<INT,INT>  #define PUIUI pair<UINT,UINT>  #define endl "\n"  #define DBG if(debug)  #define FIR first  #define SEC second  #define elif else if  #define wassomething() empty()==false  #define REre return re  #define P(n,m) pair<n,m>  /\*struct宣告\*  /\*fn宣告\*/  /\*num\*/  bool debug=0;  bool iofast=true;  PII mv[]={{0,1},{1,0},{0,-1},{-1,0}};  INT mx[]={0,1,0,-1};  INT my[]={1,0,-1,0};  INT mod=988244353;  template<typename TPE>TPE reader(){    TPE a;    cin>>a;    return a;  }  /\*main\*/  int main(){    if(!debug&&iofast){what\_the\_fuck;}    /\*CIN\*/    INT n=reader<INT>();    cout<<n;    /\*solve\*/    return 0;  } |

include

|  |
| --- |
| #include<bits/stdc++.h>  #include<iostream>  #include<cstring>  #include<algorithm>  #include<cmath>  #include<string>  #include<sstream>  #include<vector>  #include<queue>  #include<deque>  #include<map>  #include<set>  #include<cstring>  #include<iomanip> |

define, num

|  |
| --- |
| #define what\_the\_fuck cin.tie(0);cout.tie(0);ios::sync\_with\_stdio(false)  #define ULLI unsigned long long int  #define LLI long long int  #define INT LLI  #define UINT unsigned INT  #define PII pair<INT,INT>  #define PUIUI pair<UINT,UINT>  #define endl "\n"  #define DBG if(debug)  #define FIR first  #define SEC second  #define elif else if  #define wassomething() empty()==false  #define REre return re  #define P(n,m) pair<n,m>  bool debug=0;  bool iofast=true;  PII mv[]={{0,1},{1,0},{0,-1},{-1,0}};  INT mx[]={0,1,0,-1};  INT my[]={1,0,-1,0};  INT mod=988244353; |

reader

|  |
| --- |
| template<typename TPE>TPE reader(){    TPE a;    cin>>a;    return a;  } |

矩陣乘法

|  |
| --- |
| struct mat{    INT a[2][2];    mat(){      memset(a,0,sizeof(a));    }    mat operator\*(const mat &b)const{      mat re;      for(INT i=0;i<2;i++){        for(INT j=0;j<2;j++){          for(INT k=0;k<2;k++){            re.a[i][j]=(re.a[i][j]+a[i][k]\*b.a[k][j])%mod;          }        }      }      return re;    }  }; |

Binary\_Search(二分搜)

|  |
| --- |
| bool vser(INT n,vector<INT>::iterator nw){    return n<=\*nw;  }  template<typename TPE,typename TPE2,typename Fn>TPE Bit\_Search(TPE l,TPE r,TPE2 n,Fn isit){    if(isit(n,l))return l;    while(r-l>1){      TPE nw=l+(r-l)/2;      if(isit(n,nw)){        r=nw;      }else{        l=nw;      }    }    return r;  }  vector<INT> a;  vector<INT>::iterator it=Bit\_Search(a.begin(),a.end(),3,vser); |

Topological\_sorting(拓撲排序)

|  |
| --- |
| vector<INT>tree[10000+1];  INT out[10000+1];  for(INT i=0;i<e;i++){    cin>>a>>b;    a--;    b--;    tree[a].push\_back(b)    out[b]++;  }  deque<INT>q;  q.push\_back(0);  while(q.wassomething()){    INT now=q.front();    q.pop\_front();    for(INT i:tree[now]){      out[i]--;     //do something here      if(out[i]==0)q.push\_back(i);//如果這次是最後一次通往這，就把他列入代辦清單    }  } |

最短距離

|  |
| --- |
| for(INT i=1;i<=n;i++){//中繼站    for(INT j=1;j<=n;j++){//起點(或終點)      for(INT k=j+1;k<=n;k++){//終點(或起點)        INT tosen=min(mp[j][i],mp[i][k]);//j=>i=>k        mp[j][k]=max(mp[j][k],tosen);//j=>k或者上面的，看哪個載重量比較大        mp[k][j]=mp[j][k];      }    }  } |

dsu

|  |
| --- |
| INT dsu[maxn]  void dsu\_re(INT n){//初始化    for(INT i=0;i<n;i++){      dsu[i]=i;    }  }  INT dsu\_find(INT n){//尋找此值的老大    if(dsu[n]==n)return n;    INT root=dsu\_find(dsu[n]);    dsu[n]=root;    return root;  }  INT dsu\_insert(INT a,INT b){//將a和b連在一起    dsu[dsu\_find(a)]=dsu\_find(b);    }  bool dsu\_get(INT a,INT b){//查詢a和b是否連線    return dsu\_find(a)==dsu\_find(b);  } |

LIS 最長嚴格遞增子序列

可能會超時

|  |
| --- |
| template<typename TPE,typename Fn>auto LIS(TPE a,Fn fn){    INT N=(int)a.size();    INT dp[N+1];dp[0]=1;    TPE vec;vec.push\_back(a[0]);    INT L=1;    for(INT i=1;i<N;i++){      if(fn(vec.back(),a[i])){        vec.push\_back(a[i]);        L++;        dp[i]=L;      }      else{        auto it=lower\_bound(vec.begin(),vec.end(),a[i]);        while(!( fn (\*(it-1),a[i]) )){          it--;        }        \*it=a[i];        dp[i]=(int)(it-vec.begin()+1);      }    }    //get 子序列    TPE re;    INT mx=L;    for(INT i=N-1;i>=0;i--){      if(dp[i]==L){        re.push\_back(a[i]);        L--;      }    }    reverse(re.begin(),re.end());    pair<INT,TPE> rere={mx,re};    return rere;  } |

LCS 最長共用子序列

|  |
| --- |
| template<typename TPE>auto LCS(TPE a,TPE b){    INT dp[a.size()+1][b.size()+1];    memset(dp,0,sizeof(dp));    INT as=a.size();    INT bs=b.size();    for(INT i=1;i<=as;i++){      for(INT j=1;j<=bs;j++){        if(a[i-1]==b[j-1]){          dp[i][j]=dp[i-1][j-1]+1;        }else{          dp[i][j]=max(dp[i-1][j],dp[i][j-1]);        }      }    }    //get 子序列    TPE re;    re.clear();    INT i=as,j=bs;    while(i && j){      if(a[i-1]==b[j-1]){        re.push\_back(a[i-1]);        i--;        j--;      }else{        if(dp[i-1][j]>=dp[i][j-1]){          i--;        }else j--;      }    }    reverse(re.begin(),re.end());    return re;  } |