#include <iostream>

using namespace std;

int main() {

int n;

do{

cout<<"Enter square dimension:"<<endl;

cin >> n; // length and width of the area

}

while(n<2 || n>60); // 2<= n <=60

char d;

do{

cout<<"Enter wind direction:"<<endl;

cin >> d; // window direction

}

while(d != 'n' && d!= 's' && d!='w' && d!='e');

int x;

int y;

do{

cout<<"Enter start corner coordinates:"<<endl;

cin >> x >> y; // start corner

}

while(x!=0 && y!=0 && x!=(n-1) && y!=(n-1)); // (0,0) (0,n-1) (n-1,0) (n-1,n-1)

cout<<"Snake movements:"<<endl;

int prevX = x;

int prevY=y;

int k=1;

int mat[n][n];

switch(d){

case 'e':

cout<<"initialement x="<<x<<" et y = "<<y<<" prevX:"<<prevX<<" prevY:"<<prevY<<endl;

for(int iteration=0;iteration<(n\*n);iteration++){

cout<<"on va remplir mat ["<<x<<"] ["<<y<<"]"<<"par la valeur "<<k<<endl;

mat[x][y]=k;

if(y!=(n-1)) {cout<<"y!=(n-1) : y= "<<y<<endl; prevY=y;prevX=x;y+=1;}

else if(x==0 ){ // y=(n-1) and x=0

cout<<"y=(n-1) et x =0 :"<<"y="<<y<<"et x="<<x<<" prevX:"<<prevX<<" prevY:"<<prevY<<endl;

if(prevX!=(x+1)){ cout<<"on va comparer prevX avec x+1:"<<prevX<<"avec"<<(x+1)<<endl;

prevX=x;

prevY=y;

x+=1;

}

if(prevY!=(y-1)){ cout<<"on va comparer prevy avec y-1:"<<prevY<<"avec"<<(y-1)<<endl;

prevY=y;

prevX=x;

y-=1;

}

}

else if(x==(n-1)){ // y=(n-1) and x=n-1

cout<<"y=(n-1) et x =n-1 :"<<"y="<<y<<"et x="<<x<<" prevX:"<<prevX<<" prevY:"<<prevY<<endl;

if(prevX!=(x-1)){ cout<<"on va comparer prevX avec x-1:"<<prevX<<"avec"<<(x-1)<<endl;

prevX=x;

prevY=y;

x-=1;

}

else if(prevY!=(y-1)){ cout<<"on va comparer prevy avec y-1:"<<prevY<<"avec"<<(y-1)<<endl;

prevY=y;

prevX=x;

y-=1;

}

}

else { // x!=0 and x!= (n-1) and y=(n-1)

cout<<"y=(n-1) et x!=0 and x!= (n-1) :"<<"y="<<y<<"et x="<<x<<" prevX:"<<prevX<<endl;

if(prevX!=(x-1) ){ cout<<"on va comparer prevX avec x-1"<<prevX<<"avec"<<(x-1)<<endl;

prevX=x;

prevY=y;

x-=1;

}

if(prevX!=(x+1) ){ cout<<"on va comparer prevX avec x+1"<<prevX<<"avec"<<(x+1)<<endl;

prevX=x;

prevY=y;

x+=1;

}

}

k++;

};break;

case 's':

cout<<"initialement x="<<x<<" et y = "<<y<<" prevX:"<<prevX<<" prevY:"<<prevY<<endl;

for(int iteration=0;iteration<(n\*n);iteration++){

cout<<"on va remplir mat ["<<x<<"] ["<<y<<"]"<<"par la valeur "<<k<<endl;

mat[x][y]=k;

if(x!=(n-1)) {cout<<"x!=(n-1) : x= "<<x<<endl; prevY=y;prevX=x;x+=1;}

else if(y==0 ){ // x=(n-1) and y=0

cout<<"x=(n-1) et y =0 :"<<"y="<<y<<"et x="<<x<<" prevX:"<<prevX<<" prevY:"<<prevY<<endl;

if(prevY!=(y+1)){ cout<<"on va comparer prevY avec x+1:"<<prevY<<"avec"<<(y+1)<<endl;

prevX=x;

prevY=y;

y+=1;

}

else if(prevX!=(x-1)){ cout<<"on va comparer prevX avec x-1:"<<prevX<<"avec"<<(x-1)<<endl;

prevY=y;

prevX=x;

x-=1;

}

}

else if(y==(n-1)){ // x=(n-1) and y=n-1

cout<<"y=(n-1) et x =n-1 :"<<"y="<<y<<"et x="<<x<<" prevX:"<<prevX<<" prevY:"<<prevY<<endl;

if(prevY!=(y-1)){ cout<<"on va comparer prevY avec y-1:"<<prevY<<"avec"<<(y-1)<<endl;

prevX=x;

prevY=y;

y-=1;

}

else if(prevX!=(x-1)){ cout<<"on va comparer prevx avec x-1:"<<prevX<<"avec"<<(x-1)<<endl;

prevY=y;

prevX=x;

x-=1;

}

}

else { // y!=0 and y!= (n-1) and x=(n-1)

cout<<"x=(n-1) et y!=0 and y!= (n-1) :"<<"y="<<y<<"et x="<<x<<" prevX:"<<prevX<<endl;

if(prevY!=(y-1) ){ cout<<"on va comparer prevy avec y-1"<<prevY<<"avec"<<(y-1)<<endl;

prevX=x;

prevY=y;

y-=1;

}

else if(prevY!=(y+1) ){ cout<<"on va comparer prevy avec y+1"<<prevY<<"avec"<<(y+1)<<endl;

prevX=x;

prevY=y;

y+=1;

}

}

k++;

}break;

case 'n':

for(int iteration=0;iteration<(n\*n);iteration++){

cout<<"iteration:"<<iteration<<"avec x= "<<x<<" et y= "<<y<<endl;

if(x!=0 && mat[x-1][y]!=NULL){

cout<<"x!=0 && mat[x-1][y]!=NULL"<<endl;

cout<<"mat["<<x-1<<"]["<<y<<"]="<<k<<endl;

mat[x-1][y]=k;

x=x-1;

}if(y!=(n-1) && mat[x][y+1]!=NULL){

cout<<"y!=(n-1) && mat[x][y+1]!=NULL"<<endl;

cout<<"mat["<<x<<"]["<<y+1<<"]="<<k<<endl;

mat[x][y+1] = k;

y=y+1;

}if (y!=0 && mat[x][y-1]!=NULL){

cout<<"y!=0 && mat[x][y-1]!=NULL"<<endl;

cout<<"mat["<<x<<"]["<<y-1<<"]="<<k<<endl;

mat[x][y-1]=k;

y=y-1;

}if(x!=(n-1) && mat[x+1][y]!= NULL){

cout<<"x!=(n-1) && mat[x+1][y]!= NULL"<<endl;

cout<<"mat["<<(x+1)<<"]["<<y<<"]="<<k<<endl;

mat[x+1][y]=k;x=x+1;

}

k++;

}

/\*

cout<<"initialement x="<<x<<" et y = "<<y<<" prevX:"<<prevX<<" prevY:"<<prevY<<endl;

for(int iteration=0;iteration<(n\*n);iteration++){

cout<<"on va remplir mat ["<<x<<"] ["<<y<<"]"<<"par la valeur "<<k<<endl;

mat[x][y]=k;

if(x!=0) {

cout<<"x!=0 : x= "<<x<<endl;

if(mat[x-1][y-1]== NULL){

prevY=y;prevX=x;x-=1;

}

else {

prevY=y;prevX=x;y-=1;

}

}

else if(y==0 ){ // x=0 and y=0

cout<<"x=0 et y =0 :"<<"y="<<y<<"et x="<<x<<" prevX:"<<prevX<<" prevY:"<<prevY<<endl;

if(prevY!=(y+1)){ cout<<"on va comparer prevY avec x+1:"<<prevY<<"avec"<<(y+1)<<endl;

prevX=x;

prevY=y;

y+=1;

}

else if(prevX!=(x+1)){ cout<<"on va comparer prevX avec x-1:"<<prevX<<"avec"<<(x+1)<<endl;

prevY=y;

prevX=x;

x+=1;

}

}

else if(y==(n-1)){ // x=0 and y=n-1

cout<<"y=(n-1) et x =0 :"<<"y="<<y<<"et x="<<x<<" prevX:"<<prevX<<" prevY:"<<prevY<<endl;

if(prevY!=(y-1)){ cout<<"on va comparer prevY avec y-1:"<<prevY<<"avec"<<(y-1)<<endl;

prevX=x;

prevY=y;

y-=1;

}

else if(prevX!=(x+1)){ cout<<"on va comparer prevx avec x-1:"<<prevX<<"avec"<<(x+1)<<endl;

prevY=y;

prevX=x;

x+=1;

}

}

else { // y!=0 and y!= (n-1) and x=0

cout<<"x=0 et y!=0 and y!= (n-1) :"<<"y="<<y<<"et x="<<x<<" prevY:"<<prevY<<endl;

if(prevY!=(y-1) ){ cout<<"on va comparer prevy avec y-1"<<prevY<<"avec"<<(y-1)<<endl;

prevX=x;

prevY=y;

y-=1;

}

else if(prevY!=(y+1) ){ cout<<"on va comparer prevy avec y+1"<<prevY<<"avec"<<(y+1)<<endl;

prevX=x;

prevY=y;

y+=1;

}

}

k++;

}\*/

break;

case 'w': break;

}

for(int i=0;i<n;i++){

for(int j=0;j<n;j++)

cout<<mat[i][j]<<'\t';

cout<<endl;

}

return 0;

}