#include<bits/stdc++.h>

using namespace std;

struct node

{

int x,y,time;

}q[150000];

int head=0,tail=1;

int n;

int G[310][310];

int dx[4]={1,-1,0,0};

int dy[4]={0,0,1,-1};

inline void init(int a,int b,int c)

{

G[a][b]=G[a][b]==-1?c:min(G[a][b],c);

G[a+1][b]=G[a+1][b]==-1?c:min(G[a+1][b],c);

G[a][b+1]=G[a][b+1]==-1?c:min(G[a][b+1],c);

if(a-1>=0)G[a-1][b]=G[a-1][b]==-1?c:min(G[a-1][b],c);

if(b-1>=0)G[a][b-1]=G[a][b-1]==-1?c:min(G[a][b-1],c);

}

int main()

{

// freopen("P2895\_8.in","r",stdin);

// freopen("P2895\_8.out","w",stdout);

memset(G,-1,sizeof(G));

scanf("%d",&n);

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

{

int x,y,t;

scanf("%d%d%d",&x,&y,&t);

init(x,y,t);

}

if(G[0][0]==-1)

{

cout<<0;

return 0;

}

q[head].x=0;q[head].y=0;q[head].time=0;G[0][0]=0;

while(head<tail)

{

for(int i=0;i<4;i++)

{

int xx=q[head].x+dx[i];

int yy=q[head].y+dy[i];

int ttime=q[head].time+1;

if(xx>=0&&yy>=0&&(G[xx][yy]==-1||ttime<G[xx][yy]))

{

if(G[xx][yy]==-1)

{

cout<<ttime;

// fclose(stdin);

// fclose(stdout);

return 0;

}

q[tail].time=ttime;

q[tail].x=xx;

q[tail].y=yy;

tail++;

G[q[head].x][q[head].y]=0;

}

}

head++;

}

cout<<-1;

return 0;

}

