t=int(input())

for i in range(t):

k=int(input())

fl=0

mn=0

mat=[]

t=0

r=k

trp=[[]]\*k

colc=[[]]\*(k\*k)

while(mn<k\*k) :

a=list(map(int,input().split(" ")))

if(fl==0):

krs=[mk for mk in a if mk>9]

prs=[mk for mk in a if mk==0]

if((len(krs)>0) or (len(prs)>0)):

fl=1

else:

if(len(list(set(a)))==k\*k):

mat.append(a)

poi=0

for it in range(0,len(a)):

colc[it]=colc[it]+[a[it]]

if((fl==0) and (len(mat)==k\*k)):

if(len(set(list(colc[it])))!=k\*k):

fl=1

else:

fl=1

if((len(mat)==r) and (fl==0)):

for pms in range(t,r):

bv=0

ck=k

for rsp in range(k):

trp[rsp]=trp[rsp]+mat[pms][bv:ck]

bv+=k

ck+=k

for lm in trp:

if(len(list(set(lm)))!=k\*k):

fl=1

trp=[[]]\*k

t+=k

r+=k

mn+=1

if(fl==0):

print("Case #"+str(i+1)+": "+"Yes")

else:

print("Case #"+str(i+1)+": "+"No")