#----------------------------- TASK 1 --------------------------------------------------------------------------------------------------------

rws = [1, 1, 1, 0, 0, -1, -1, -1]

cws = [1, 0, -1, 1, -1, 1, 0, -1]

def final(graph):

row = len(graph)

col = len(graph[0])

explored=[]

count=[0]

track=[]

neigh=[]

for i in range(row):

explored.append([0]\*col)

for i in range(row):

for j in range(col):

if graph[i][j]=="Y" and explored[i][j]==0:

count[0]=1

neigh.append([i,j])

explored[i][j] = 1

while neigh:

x,y=neigh.pop(0)

for (k, l) in zip(rws, cws):

if y + l >= 0 and y + l < col and x + k >= 0 and x + k < row and graph[x + k][y + l] == "Y" and explored[x + k][y + l] == 0:

count[0] += 1

if explored[x+k][y+l]!= 1:

neigh.append([x+k,y+l])

explored[x+k][y+l] = 1

track.append(count[0])

return max(track)

file = open("input()1.txt")

graph=[]

s=file.read()

s=s.split('\n')

for i in s:

graph.append(i.split(' '))

print(final(graph))

#---------------------------------------TASK 2---------------------------------------------------------------------------

def bfs(graph, explored,r,c):

count=0

cut=0

q=[]

q.append((r, c))

explored[r][c]=1

while len(q) > 0:

x,y= q.pop(0)

for i in range(4):

ax = x + rws[i]

ay = y + cws[i]

if ay>=0 and ay<col and ax>=0 and ax<row and graph[ax][ay]=='H' and explored[ax][ay]==0:

if graph[r][c]=='A':

graph[ax][ay]='A'

q.append((ax, ay))

explored[ax][ay]=1

elif ay>=0 and ay<col and ax>=0 and ax<row and graph[ax][ay]=='T' and explored[ax][ay]==0:

for i in range(4):

aix=ax+rws[i]

aiy=ay+cws[i]

if aiy >= 0 and aiy < col and aix >= 0 and aix < row and graph[aix][aiy] == 'A' and explored[aix][aiy] == 0:

q.append((aix, aiy))

explored[aix][aiy] = 1

cut+=1

count += 1

return graph,cut//count

file = open("Question2 input1.txt")

graph=[]

s=file.read()

s=s.split('\n')

for i in range(0,len(s)):

if i==0:

row=int(s[i])

elif i==1:

col=int(s[i])

else:

graph.append(s[i].split(' '))

explored = [[0]\*col for i in range(row)]

rws=[-1,0,1,0]

cws=[0,1,0,-1]

a=bfs(graph,explored,0,0)

g=a[0]

surv=0

for i in range(row):

for k in range(col):

if g[i][k]=='H':

surv+=1

if surv==0:

print("No one survived")

else:

print(surv,'survived')

print('Time:',a[1],'minutes')