*# Task1*

def find\_y(*arr*):

    lst = []

    for i in range(len(arr)):

        for j in range(len(arr[i])):

            if arr[i][j] == "Y":

                lst.append((i, j))

    return lst

def affected(*all\_y*, *lst*, *tup*):

    i, j = tup

    adj\_indexes = [(i-1, j-1), (i-1, j), (i-1, j+1), (i, j-1),

                   (i, j+1), (i+1, j-1), (i+1, j), (i+1, j+1)]

    for index in adj\_indexes:

        if index in all\_y:

            lst.append(index)

            all\_y.remove(index)

            affected(all\_y, lst, index)

def find\_max(*adj\_affected*):

    maximum = 0

    for lst in adj\_affected:

        if len(lst) > maximum:

            maximum = len(lst)

    return maximum

def max\_affected(*arr*):

    all\_y = find\_y(arr)

    adj\_affected = []

    while len(all\_y) != 0:

        lst = [all\_y[0]]

        all\_y.remove(all\_y[0])

        affected(all\_y, lst, lst[0])

        adj\_affected.append(lst)

    return find\_max(adj\_affected)

input\_file1 = open("D:/MSAS/10th Semester/CSE422/Labs/Lab 1/input1.txt", 'r')

arr1 = []

for line in input\_file1.readlines():

    arr1.append(line.split())

print(max\_affected(arr1))

*# Task2*

def find\_x(*arr*, *x*):

    lst = []

    for i in range(len(arr)):

        for j in range(len(arr[i])):

            if arr[i][j] == x:

                lst.append((i, j))

    return lst

def calc\_time(*alien*, *human*, *time*):

    if len(human) == 0:

        return time

    new\_alien = []

    for i, j in alien:

        adj\_indexes = [(i-1, j), (i, j-1), (i, j+1), (i+1, j)]

        for index in adj\_indexes:

            if index in human:

                new\_alien.append(index)

                human.remove(index)

    return time if len(new\_alien) == 0 else calc\_time(new\_alien, human, time+1)

def total\_time(*arr*):

    human = find\_x(arr, "H")

    alien = find\_x(arr, "A")

    time = calc\_time(alien, human, 0)

    return time, len(human)

input\_file2 = open("D:/MSAS/10th Semester/CSE422/Labs/Lab 1/input2.txt", 'r')

lines = input\_file2.readlines()

arr2 = []

for i in range(2, len(lines)):

    arr2.append(lines[i].split())

time, remained = total\_time(arr2)

print(f"Time:", time, "minutes")

print("No one" if remained == 0 else remained, "survived")