



## Problem J. Worried School

Time limit: 1 second

You may already know that how the World Finals slots are distributed in EC sub-region. But you still need to keep reading the problem in case some rules are different.

There are totally  $G$  slots for EC sub-region.  $X$  slots will be distributed among five China regional sites and  $Y$  slots will be distributed to the EC-Final. Of course  $X$  and  $Y$  are non-negative integers and  $X + Y = G$ .

Here is how the  $X$  slots be distributed:

1. Slots are assigned to the Asia Regional sites from the first place, the second place,  $\dots$ , last place.
2. For schools having the same place across the sites, the slots will be given in the order of the number of “effective teams” in the sites.
3. No school could be assigned a slot 2 times, which means the schools will be skipped if they already got a slot.

After  $X$  slots are distributed, the EC-Final ranklist from highest rank will be assigned  $Y$  slots for those schools that haven't got a slot yet.

Now here comes a sad story, as  $X$  and  $Y$  are not announced until the end of the last regional contest of that year, even later!!!

Teachers from a school are worried about the whether they can advance to WF whatever the  $X$  and  $Y$  is. Let's help them find out the results before the announcement of  $X$  and  $Y$ .

### Input

The first line of the input gives the number of test cases,  $T$ .  $T$  test cases follow.

Each test case starts with a line consisting of 1 integer and 1 string,  $G$  representing the sum of  $X$  and  $Y$  and  $S$  representing the name of the worried school.

Next 5 lines each consists of 20 string representing the names of top 20 schools in each site. The sites are given in the order of the number of “effective teams” which means the first site has the largest number of “effective teams” and the last site has the smallest numebr of “effective teams”. The last line consists of 20 strings representing the names of top 20 schools in EC-Final site. No school can appear more than once in each ranklist.

### Output

For each test case, output one line containing “Case #x: y”, where  $x$  is the test case number (starting from 1) and  $y$  is “ADVANCED!” if every non-negative value  $X, Y$  will advance the school. Otherwise, output the smallest value of  $Y$  that makes the school sad.



## Limits

- $1 \leq T \leq 200$ .
- School names only consist of upper case characters 'A' - 'Z' and the length is at most 5.
- $1 \leq G \leq 20$ .

## Sample input and output

Sample Input	Sample Output
1	Case #1: 4
10 IJU	
UIV GEV LJTV UKV QLV TZTV AKOV TKUV	
GAV DVIL TDBV ILVTU AKV VTUD IJU IEV	
HVDBT YKUV ATUV TDOV	
TKUV UIV GEV AKV AKOV GAV DOV TZTV	
AVDD IEV LJTV CVQU HVDBT AKVU XIV TDVU	
OVEU OVBB KMV OFV	
QLV OCV TDVU COV EMVU TEV XIV	
VFTUD OVBB OFV DVHC ISCTU VTUD OVEU DTV	
HEVU TEOV TDV TDBV CKVU	
CVBB IJU QLV LDDLQ TZTV GEV GAV KMV	
OFV AVGF TXVTU VFTUD IEV OVEU OKV DVIL	
TEV XIV TDVU TKUV	
UIV DVIL VFTUD GEV ATUV AKV TZTV QLV	
TIV OVEU TKUV UKV IEV OKV CVQU COV	
OFOV CVBB TDVU IOV	
UIV TKUV CVBB AKV TZTV VFTUD UKV GEV	
QLV OVEU OVQU AKOV TDBV ATUV LDDLQ AKVU	
GAV SVD TDVU UPOHK	

## Note

For the first test case, the optimal solution is  $X = 6$  and  $Y = 4$ , at this time the advanced schools were [UIV, TKUV, QLV, CVBB, GEV, OCV, AKV, TZTV, VFTUD, UKV].