Hello person1, person2 and personN

Greet multiple people in a "Hello" message. For a given n names, greet by the message "Hello person1, person2, ... and personN".

Input

The input begins with the number t of test cases in single line (t<=10). Each test case in a single line begins with a number n of names of the people followed by n names of the people (n<=10) separated by spaces. A name of a person is alphanumeric single-word of length not exceeding 10 characters.

Output

For every test case print a "Hello" message in a single line such that the message starts with "Hello " and n names of the people separated by a comma and a space except between (n-1)th and nth name where connector "and" is printed, and an exclamation mark at the end of the message. If there are zero or just one name, connector "and" is not necessary. Exclamation mark is printed at end of the message irrespective of number of names.

Example

Input:
5
2 Lisa Sneha
1 Adithya
3 Chandramouli Saimadhav Venkat
0
4 Aarti Debarati Apoorva Anjana

Output:
Hello Lisa and Sneha!
Hello Adithya!
Hello Chandramouli, Saimadhav and Venkat!
Hello!
Hello Aarti, Debarati, Apoorva and Anjana!