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Problem D

Psychic Yahtzee

Yahtzee is a popular dice game, which can be played with any number of people. Each player has a score card such as the one below, and all players use the same set of 5 fair dice.

Ones	
Twos	
Threes	
Fours	
Fives	
Sixes	
3-Of-A-Kind	
4-Of-A-Kind	
Yahtzee	
Chance	
Total	

The object for each player is to get as many points on his scorecard as possible. In each turn, each player gets to throw with the 5 dice. After the first throw, the player can decide to pick up any set of dice on the table to throw again for the second time. After this second throw, the player can again decide to pick any set of dice on the table, and throw these for the third time. Note that the player may even throw a dice again that was left on the table after the first throw. If the player decides, after the first or second throw, not to throw any dice on the table again, this ends the turn for the player.

Anyway, after a maximum of three throws there are 5 dice on the table. Now comes the task of writing down this turn in the scorecard. The following rules must be followed:

- After every turn, exactly one empty line on the score card must be filled in.
- Once a line has been filled in, it cannot be replaced with another score in a later turn.
- This means that after exactly 10 turns the entire score card will be completely filled in.
- Every line on the score card has special rules governing when a score may be filled in on that line, and how to calculate the score for that line given the 5 final dice:
    - Lines ‘Ones’ till ‘Sixes’ can always be filled in; the score is the total of the dice which show the corresponding number (i.e. in line ‘Sixes’ you can fill in the sum of the 6’s thrown, in line ‘Fours’ the sum of the 4’s thrown).
    - Lines ‘3-Of-A-Kind’, ‘4-Of-A-Kind’ can only be filled in if at least 3 and 4 (respectively) of the same faces of the dice are on the table; the score is the total of **all** the dice on the table.
    - Line ‘Yahtzee’ can only be filled in if all the faces of the dice are the same; the score is always 50 (no matter what the number on the dice is).
    - Line ‘Chance’ may always be filled in; the score is the total of **all** the dice on the table.

- In addition to the rules given above it is also always allowed to fill in a score of 0 on a line. For example, if the only open line for a player is the 4-Of-A-Kind line and the player does not throw at least 4 the same dice, he must fill in 0 on that line.

Consider the following dice on the table at the end of the turn: 2 3 3 3 5. This turn can be filled in on line 'Twos' (score is 2), line 'Threes' (score is 9), line 'Fives' (score is 5), line '3-Of-A-Kind' (score is 16) and line 'Chance' (score is 16). For all other lines the score is 0.
Consider the following dice on the table at the end of the turn: 1 1 1 1 1. This turn can be filled in on line 'Ones' (score is 5), line '3-Of-A-Kind' (score is 5), line '4-Of-A-Kind' (score is 5), line 'Yahtzee' (score is 50) and on line 'Chance' (score is 5). For all other lines the score is 0.

Each player gets to take 10 turns, and afterwards the totals on everybody's scorecard are compared and the winner is decided (usually the one with the most number of points).

One of your friends likes to play Yahtzee very much. Lately he thinks that he is psychic: he is convinced that he can predict the dice he will throw in advance. He likes to cheat a bit on his friends by taking this foresight into account in his games of Yahtzee, but he does not know how. This is where you come in:
Your task is to write a program which, given the dice which will be thrown, determines the optimal score that can be reached with those dice.

The dice for a given game are described by 10 lines of 15 digits between 1 and 6 (inclusive). Each line represents one turn. The first 5 digits on the line give the first throw in a turn. The next 5 digits represent the outcome of the dice that can be thrown in the second throw. Only as many as are actually thrown are used (starting at the left-most), those remaining are then skipped. The last 5 digits on the line represent the outcome of the dice that can be thrown in the throw. Again, only as many as are actually thrown are used (again, starting at the left-most; numbers may not be skipped in favour of the following number).

For instance, if the input line is '1 1 3 4 5 1 3 1 4 6 1 6 6 1 3', a final configuration of '1 1 1 1 1' on the table after the third throw can be obtained as follows:
- After the first throw, keep the two 1's and throw the dice with 3,4 and 5 again.
- This second throw will result in the dice 1,3 and 1 appearing on the table too. Keep the two 1's again and throw the dice 3 again.
- This throw will result in the last 1 appearing on the table.

You can also obtain 3 sixes as follows:
- After the first throw, keep none of the dice and throw them all again.
- Of the second throw, keep the 6 and the 4. Both 1's and the 3 are thrown again.
- In the third throw the final configuration will become: '6 6 6 4 1'.

The output is the score table which the maximum score (total) that can be reached. The input is such, that the score table with the maximum score is uniquely defined.

Input

The input consists of a line containing the number of games N ($0 \leq N \leq 1000$). Following this line there are descriptions for N games. Each game is described in 10 lines, each with 15 digits (1,2,3,4,5 or 6).

Output

The output for each game is the score table leading to the maximum score possible for that game. A score table consists of 11 lines. Each line in the score table starts with the string identifying the line (see the example score table above), followed by a colon, a single space and the score filled in on this row. Before each colon as many spaces as needed are added to make sure that all the colons are neatly in the same column. There are no spaces between the colon and the longest identification strings (that's either '3-Of-A-Kind' or '4-Of-A-Kind'). Between two score cards there is an empty line, a line containing 12 dashes ('-') and an empty line. See also the example output given on the next page.

Sample input

```
2
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
```

Output for the sample input

```
Ones       : 3
Twos       : 6
Threes     : 9
Fours      : 8
Fives      : 5
Sixes      : 0
3-Of-A-Kind: 12
4-Of-A-Kind: 0
Yahtzee    : 0
Chance     : 15
Total      : 58

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Ones       : 0
Twos       : 0
Threes     : 0
Fours      : 0
Fives      : 0
Sixes      : 30
3-Of-A-Kind: 30
4-Of-A-Kind: 30
Yahtzee    : 50
Chance     : 30
Total      : 170
```