

Program Name: recount.cpp

Input File: recount.dat

In this problem set, you have seen some card games that require a complete set of cards. It always seems that there are 3 or 4 decks that have been put together to make a complete one. Your job is to write a program that reads a list of cards and determines which are missing and which are duplicates.

Cards are described by rank and suit. Ranks are 2-9, T for 10, J for Jack, Q for Queen, K for King and A for Ace. There are four suits: S for Spades, H for Hearts, D for Diamonds, and C for Clubs. A complete deck should have exactly one card for each rank/suit combination for a total of 52 cards. If more than one card of a rank/suit combination is found, it is said to be a “duplicate”. If any rank/suit combination is not contained in the deck, it is considered to be “missing”.

Input

The input file contains descriptions for series of decks. A card deck description starts with a single integer ($1 \leq C \leq 100$) on a line by itself that indicated how many cards are in the deck. The next line contains C 2-character card descriptions with the rank as the first character and the suit as the second character. A single blank character will separate the C card descriptions from each other.

Output

For each deck in the input file, your program should print a list of missing and duplicate cards.

The missing cards list starts with the label “Missing: ”. Note that there is a single space after the colon. The missing cards then start in column 10. Each missing card consists of 2 characters: a single character rank followed by a single character suit. There should be a single space between characters.

The second line of output is the duplicate cards list which starts with label “Duplicates: “. The list of duplicated card rank/suit combinations is then printed in the same format described above for missing cards. The rank/suit combination is listed only once regardless of the number of times that the card is duplicated.

In the case of no cards qualifying as missing or duplicate, your program should print the word “None”. There should be a blank line printed after the duplicated cards list.

There should be no extraneous output or blank lines other than those explicitly described here.

Example: Input File (backslash means line is continued on next line)

```
52
3S KC AH 2D 9D 3D TD 4C 9C 5S AS 2C 9S 7D 3H KD QD 6D AC 2S 5D KH 8C QH JH JS 7C \
5C 7H 6C QC 7S TS 5H 2H 4H 6S 6H 8S 8D 4S KS 8H 4D 9H TC 3C TH AD QS JC JD
51
TC 9D KH 4H 4C 9C 9H KS 3H 4S 8S 5C AC JD 4D 8H TS JS KD TH 9S 7D 6D 8D AC QD 2D \
3S 2C TD AH 2S 2H JH KC AD 3H QS 5H 7C JC 6S 5S 8H 7H 7S 5D AS 6C 3C 8H
53
KD TD 7C 2H 3D 9S 7H TS KC JS 2D AH 7S 8D 3C 6H JC 2S 5C 2C QH QD QC 3S QS 7D AS \
JH KS 4C 4D 8S 6C 9D AC 6D 4S 3H 9H 6S 9C 8H JD 8C 5S TC 5H 4H TH KH 5D AD 7S
```

Output to screen

```
Missing: None
Duplicates: None
```

```
Missing: 6H QH 3D 8C QC
Duplicates: 3H 8H AC
```

```
Missing: None
Duplicates: 7S
```