8. Palindromic Essays

Program Name: Palindrome.java   Input File: palindrome.dat

Hannah Radar is a high school English teacher. However, she has a major idiosyncrasy. She loves palindromes, words that are spelled the same both forward and backward. When students write an essay, they are instructed to use as many palindromes in the essay as possible. When determining the student's grade on an essay, Madam Radar considers the number of palindromes that are two or more letters long that a student uses in that essay.

Since the essays are submitted electronically, Madam Radar wants you to write a program for her to find the palindromes in a student's essay. You are to write a program for Ms. Radar that will find all of the palindromes in an essay that are two or more than two letters long. She wants you to print an alphabetical list of the palindromes in the essay and the number of times each palindrome appears in the essay.

Input
The first line of input will contain a single integer n that indicates the number of essays to follow. On the following lines, n essays will appear with a single line containing only a dash (-) at the end of each essay. There will be no blank lines. All essays will be written in only upper case letters with correct punctuation. Periods and commas are the only punctuation marks included in the essay and will always be at the end of a word and followed by a single space.

Output
For each essay, you will print ESSAY x:, where x is the number of the essay, followed by an alphabetical list of palindromes found in the essay, one palindrome per line. If the same palindrome appears more than once, you will print a space followed by the number of times in parentheses that the palindrome appears. Print a blank line after the results of each essay.

Example Input File
```
2
BOB WAS FROM WASSAMASSAW, SOUTH CAROLINA. HE LOVED TO DRIVE HIS RACECAR. MARY
WAS FROM KINIKINIK, COLORADO, AND SHE LOVED TO KAYAK ON THE RIVERS.
THEY BOTH LOVED TO PLAY TIDDLYWINKS.
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OTTO GOT A SUMMER JOB TO REPAPER THE DINING ROOM OF A HOUSE. THIS WAS HIS
FIRST SUMMER JOB EVER. IT WAS HARD FOR OTTO TO START THE WALLPAPER LEVEL TO
THE FLOOR BUT WITH PRACTICE, HE SUCCEEDED.
HE GAVE THE MONEY HE EARNED TO HIS MOM.
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```

Example Output to Screen
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ESSAY #1:
BOB
KAYAK
KINIKINIK
RACECAR
WASSAMASSAW

ESSAY #2:
LEVEL
MOM
OTTO (2)
REPAPER
```