PROBLEM C
Solitaire Cribbage

Cribbage is an old card game, usually played by 2 people. Points are scored by having various card combinations in a hand. In Cribbage, many of these combinations are similar to other card games, two−of−a−kind, three−of−a−kind, four−of−a−kind and runs (numerically sequential cards of 3 or more). But also in Cribbage, combinations of cards that add up to 15 are important. (Face cards are counted as 10 points, and aces are worth 1 point).

In a standard, two−player game, each person is dealt 6 cards. Four of these cards are kept as the player's hand, and the other 2 are placed in the "crib". The crib is given to each player alternately. Therefore, scoring is done on groups of 4 cards (either in the hand or the crib). In addition, a single card is turned up (after the crib is made), which can be used to supplement the scoring.

In our version of Cribbage, we will be "dealt" 8 cards, plus the one extra. It is the job of your program to divide the 8 dealt cards into a hand and a crib (4 cards each) such that the maximum total score is achieved, using the extra card as appropriate. (That is, the sum of the hand and the crib is maximized.)

For our purposes, we will not use card suits, and we will represent the cards as single characters, as follows:
Ace=1, Two=2, Three=3, Four=4, Five=5, Six=6, Seven=7, Eight=8, Nine=9, Ten=T, Jack=J, Queen=Q, King=K

Scoring
Two−of−a−kind (a pair): 2 points
Three−of−a−kind (3 pair): 6 points
Four−of−a−kind (6 pair): 12 points
Runs (sequentially numbered cards of length greater than 2): 1 point per card in the run
Fifteens: 2 points for any distinct combination of cards that sum to 15

Example #1
Hand dealt: 5T524765
Extra card: 9
Best possible total score: 20 points
Explanation:
Hand: 555T = 14 points (3 pair for 6 points, plus 4 15s for 8 points(10+5, 10+5, 10+5, 5+5+5))
Crib: 2467 = 6 points (3 15s (9+6, 2+4+9, 2+6+7))
(Note that either group of 4 could be the "crib" and either group the "hand".)

Example #2
Hand dealt: 46K98827
Extra card: 5
Best possible total score: 18 points
Explanation:
Hand: 6788 = 14 points (2 runs of 4 cards for 8 points, a pair of 8s for 2 points, and two 15s (8+7,8+7) for 4 points)
Crib: 249K = 4 points (2 15s (2+4+9, 5+K))

Example #3

Hand dealt: 76547T61
Extra card: 6
Best possible total score: 25 points
Explanation:
Hand: 4566 = 21 points (3 runs of 3 cards for 9 cards, 3 pair for 6 points, 3 15s for 6 points)
Crib: 177T = 4 points (a pair for 2 points, one 15 (1+7+7) for 2 points)

Note that the extra card is not displayed as a part of either the hand or the crib, but it can be used in scoring for both.

Your task is to write a program that reads a file of "dealt" cards, and returns the maximum point total for each dealing, along with the hand and crib configuration that produced that score. (Order of cards in display is ascending. Which group of 4 is the hand and which is the crib is immaterial.)

Input:
The input file will consist of a series of lines, each line containing 9 "cards". The last card on each line will be considered the "extra" card for that dealing. The last line in the file will consist of 9 zeroes, which will indicate the end of file, and the end of your processing. All input characters will be of a valid card type, as explained above. Cards represented by alphabetic characters will be capitalized. There will be no spaces between card characters, and no blank lines in the file.

The input file for this problem is **c.dat.**

Output:

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Deal #1:
Extra Card: x
Hand: xxxx = yy points
Crib: xxxx = yy points
Best Score = zz

Deal #2:
Extra Card: x
Hand: xxxx = yy points
Crib: xxxx = yy points
Best Score = zz

etc.
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Note that a line of whitespace is *required* between the output for each dealing.

Note also that the explanation of scoring (as seen in the examples) is not to be displayed in the actual program output.