Problem 207: Counting Cards

Difficulty: Medium

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Problem Background

You have been hired by Casino Royale in Las Vegas, Nevada to build an application that can determine whether a player or dealer has won a hand of blackjack. Casino Royale will be using this application to support their electronic blackjack operations to determine whether to pay out a player or not based on whether they have a winning hand. The rules of blackjack are provided below along with how to determine whether a player has won, tied, or lost against the dealer.

Problem Description

In the game of blackjack, the player and the dealer will both receive two cards from a shuffled deck of cards. After those cards are dealt to the player and the dealer, the player and dealer may both "hit" as many times as they'd like to receive more cards, or "stay" to keep the cards they have. The objective of the game is to make the sum of your card values as close to 21 as possible without going over 21. If a player or dealer makes 21 exactly, then they have a "blackjack" which cannot be beaten. If either the player or the dealer goes over 21, then they "bust" and lose the round.

The number cards (2 through 10) are worth the number displayed, face cards (i.e. Jack, Queen or King) are worth 10, and an Ace can be worth either 1 or 11 (whichever benefits the player or dealer more). For example, if the player's first two cards are a Jack and an Ace, we would want to count the Ace as 11 since 10 + 11 = 21 and the player would have a blackjack. If the player had already had a hand worth 18, decided to hit and got an Ace, then the player would want to count it as 1, since counting it as 11 would put the player at 29 and they would bust.

The scoring of the game is settled using the following simple rules:

- If the player has a blackjack, they win, unless the dealer also has a blackjack, in which case the game is a tie.
- If the dealer busts and the player doesn't, then the player wins.
- If the player busts, the dealer wins.
- If neither player nor dealer busts, whoever is closest to 21 wins.
- If both the player and the dealer end up with the same score, the game is a tie.

Sample Input

The first line of your program's input, **received from the standard input channel**, will contain a positive integer representing the number of test cases. Each test case will include two lines of text,

representing the player's final hand and the dealer's final hand, respectively. Each line will contain the names of at least two cards, separated by spaces. Card names contain three parts:

- The card rank, either a number from 2 through 10 inclusive or one of the rank names "ACE", "JACK", "QUEEN", or "KING"
- The string "_OF_"
- The name of a suit of cards: "CLUBS", "SPADES", "HEARTS", or "DIAMONDS".

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3
ACE_OF_DIAMONDS 10_OF_DIAMONDS
QUEEN_OF_HEARTS ACE_OF_HEARTS
5_OF_HEARTS KING_OF_DIAMONDS QUEEN_OF_DIAMONDS
8_OF_CLUBS JACK_OF_HEARTS
7_OF_CLUBS 10_OF_CLUBS
6_OF_HEARTS JACK_OF_HEARTS KING_OF_HEARTS
```

Sample Output

For each test case, your program must print a single line containing the following information, separated by spaces:

- The string "Player Score:"
- The total value of the player's cards
- The string "Dealer Score:"
- The total value of the dealer's cards
- One of the strings "Player Wins!", "Dealer Wins!", or "Tie!", depending on the outcome of the game.

```
Player Score: 21 Dealer Score: 21 Tie!
Player Score: 25 Dealer Score: 18 Dealer Wins!
Player Score: 17 Dealer Score: 26 Player Wins!
```