CPP Problem Design

Subject: Classify A Poker Hand

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Main testing concept: Sort, String

Basics	Functions
■ C++ BASICS	☐ SEPARATE COMPILATION AND NAMESPACES
■ FLOW OF CONTROL	☐ STREAMS AND FILE I/O
■ FUNCTION BASICS	☐ RECURSION
☐ PARAMETERS AND OVERLOADING	☐ INHERITANCE
☐ ARRAYS	☐ POLYMORPHISM AND VIRTUAL FUNCTIONS
☐ STRUCTURES AND CLASSES	☐ TEMPLATES
☐ CONSTRUCTORS AND OTHER TOOLS	☐ LINKED DATA STRUCTURES
☐ OPERATOR OVERLOADING, FRIENDS, AND REFERENCES	☐ EXCEPTION HANDLING
■ STRINGS	☐ STANDARD TEMPLATE LIBRARY
☐ POINTERS AND DYNAMIC ARRAYS	☐ PATTERNS AND UML

Description:

Please write an evaluator for 5-card poker games. Given 5 cards which are randomly draw from a full deck of 52 card (without Jokers). Each card in the hand will have both a suit (clubs, diamonds, hearts. or spades) and a rank (two, three, four, five, sir, seven, eight, nine, ten, jack, queen, king, or ace). We'll assume that aces are high. The hand is classified into one of the following categories (listed in order from best to worst): Straight Flush (both a straight and a flush), Four-Of-A-Kind (four cards of the same rank), Full House (a three-of-a-kind and a pair), Flush (five cards of the same suit), Straight (five cards with consecutive ranks), Three-Of-A-Kind (three cards of the same rank), Two Pairs, Pair (two cards of the same rank), High Card (any other hand).

If a hand falls into two or more categories, the program will choose the best one. Note that for input purpose, we'll abbreviate ranks and suits as follows (in the ascending order and letters must be lower-case):

    Ranks: 2 3 4 5 6 7 8 9 t j q k a
    Suits: c d h s

If the user enters an illegal card or tries to enter the same card twice, the program will issue an error message "Illegal card", "Duplicate card", or "Illegal and Duplicate cards".

Input:

5 cards each represented by rank and suit; for instance 2s 3d 4h 5c 6d.

Output:

One of the category mentioned above and five cards in the ascending order or error messages.

Sample Input / Output：

Sample Input	Sample Output

2s 5s 4s 3s 6S 10 as 8C ad d2 6s 2d 9c 4h ts	Straight Flush 2s 3s 4s 5s 6s Illegal card High Card 2d 4h 6s 9c ts

☐ Eazy,Only basic programming syntax and structure are required.

■ Medium,Multiple programming grammars and structures are required.

☐ Hard,Need to use multiple program structures or complex data types.

Expected solving time:

40 minutes

Other notes: