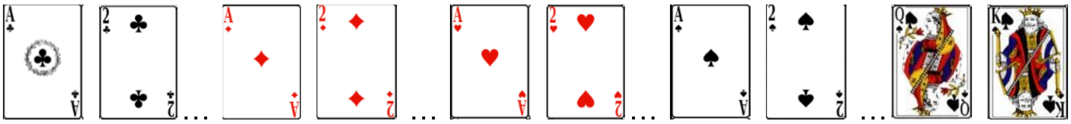
Lab3 Poker game

For this problem, you need to read and write files in C++, randomly generate one hand of cards (five cards) to two players. Sort the cards by number (regardless of suit), evaluate the type of cards (Straight Flush , Four of a Kind , Full house …) , compare and output who is the winner.

You must use the template to finish this assignment.

For TA's convenience, each card has a virtual number.
Use following format:
0 for Club A , 1 for Club 2 … 13 for Diamond A , 14 for Diamond 2 … 26 for Heart A , 27 for Heart 2 … 39 for Spade A , 40 for Spade 2 … 51 for Spade 13



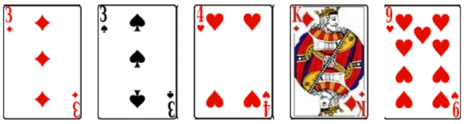
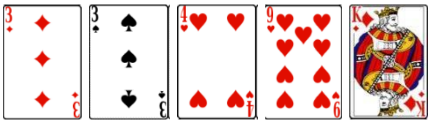
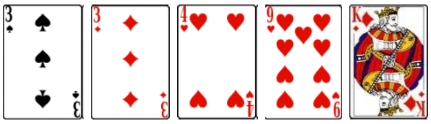
0 1 … 13 14 … 26 27 … 39 40 … 50 51

[Task One] Generate cards

1. Now, you need to randomly generate one hand of cards (five cards) to each player and make sure that two players do not get the same card.
   (hint: Use usedCards array to keep track of which card have been used)
   e.g. If player1 gets the Diamond A, then player2 should not have Diamond A.

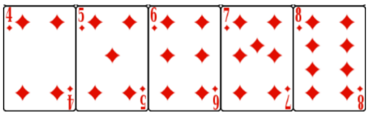
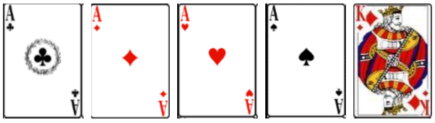
2. After randomly generating cards, store those values into the vector of class.

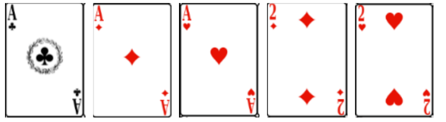
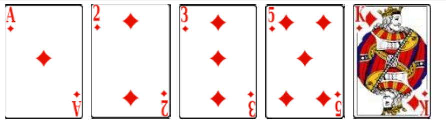
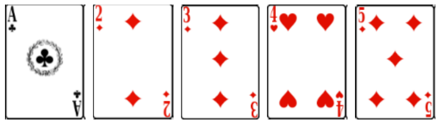
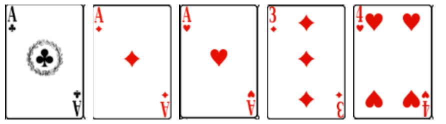
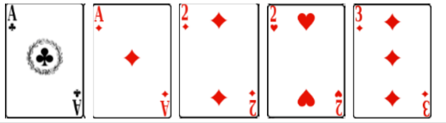
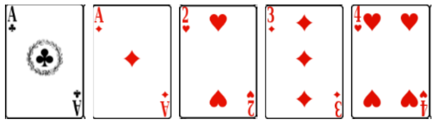
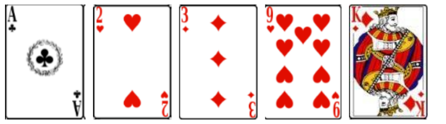
3. Sort the card number from small to large(regardless of suit).
   e.g. If player get the number of cards are:

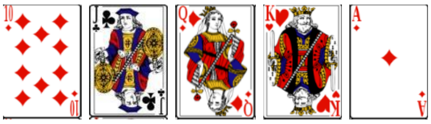
   15 , 41 , 29 , 25 , 34 
   You can sort them to
    or 

[Task Two] Evaluate cards

1. **[Figure 1]** Evaluate the type of cards. You need to evaluate the following type.

Example	Input	Type
	16 17 18 19 20	Straight Flush
	0 13 26 39 25	Four of a kind

	0 13 26 14 27	Full house
	13 14 15 17 25	Flush
	0 14 15 29 17	Straight
	0 13 26 15 29	Three of a Kind
	0 13 14 27 15	Two pairs
	0 13 27 15 29	One pair
	0 27 15 34 25	High card

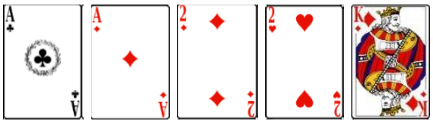
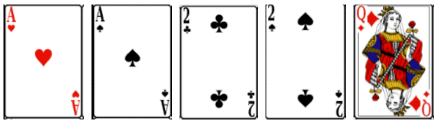
For convenience you can ignore  this type in straight.
(This type should be classified as High card)

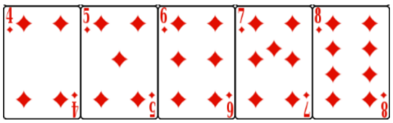
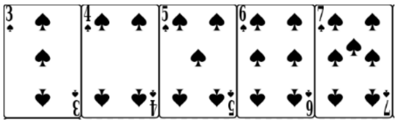
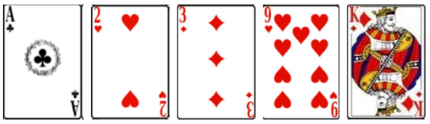
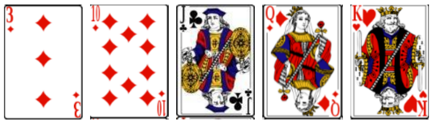
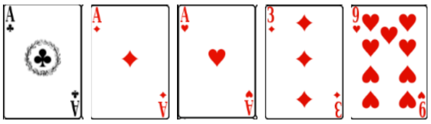
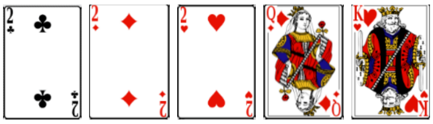
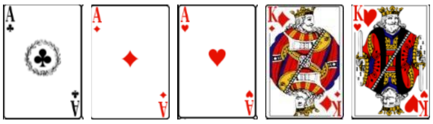
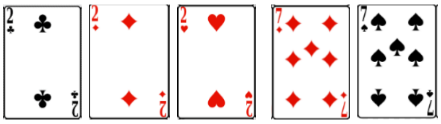
[Task Three] Compare and output winner
Compare the type of cards of each player and output the winner.
Straight Flush > Four of a kind > Full house > Flush > Straight > Three of a Kind > Two pairs > One pair > High card

If the type of cards of each player are the same, we need to consider the suit and number of cards.
In general, we compare the numbers first, then the suits.
that is 1 < 2 < …. < Q < K and Club < Diamond < Heart < Spade

But if the type of cards of each player are the same and the type of cards is such a Four of a kind、Full house、Three of a Kind、Two pairs or One pair
You need to compare the highest suit and number in at most the same number.

For example:

Player1	Player2
	
Result : Player2 is winner. Because Spade 2 > Heart 2	

	
Result : Player1 is winner. Because 8 > 7	
	
Result : Player2 is winner. Because Heart K > Diamond K	
	
Result : Player2 is winner. Because Heart 2 > Heart 1	
	
Result : Player2 is winner. Because Full house Heart 2 > Full house Heart 1	

[Task Four] Check Machine (File input / output)
Read a card set from the "input.txt" file and output the types to the “output.txt” file.

1. Open the "input.txt" file and read its contents. The first line is the number of cases, after that every two lines represent one case(player1’s card set and player2’s card set), and each line has five virtual numbers representing a card set.
2. Evaluate the type of card (Follow Figure 1 in Task two) and determine the winner.
3. Output the result to the “output.txt” file. You can check your answer via sample_output.txt.

Input Format

Please refer to sample input and sample output.
First, the process executes the Check Machine (Task four), then executes the poker game.
The First line shows that “Y” is entering the poker game, “N” is exiting the process.

Output Format

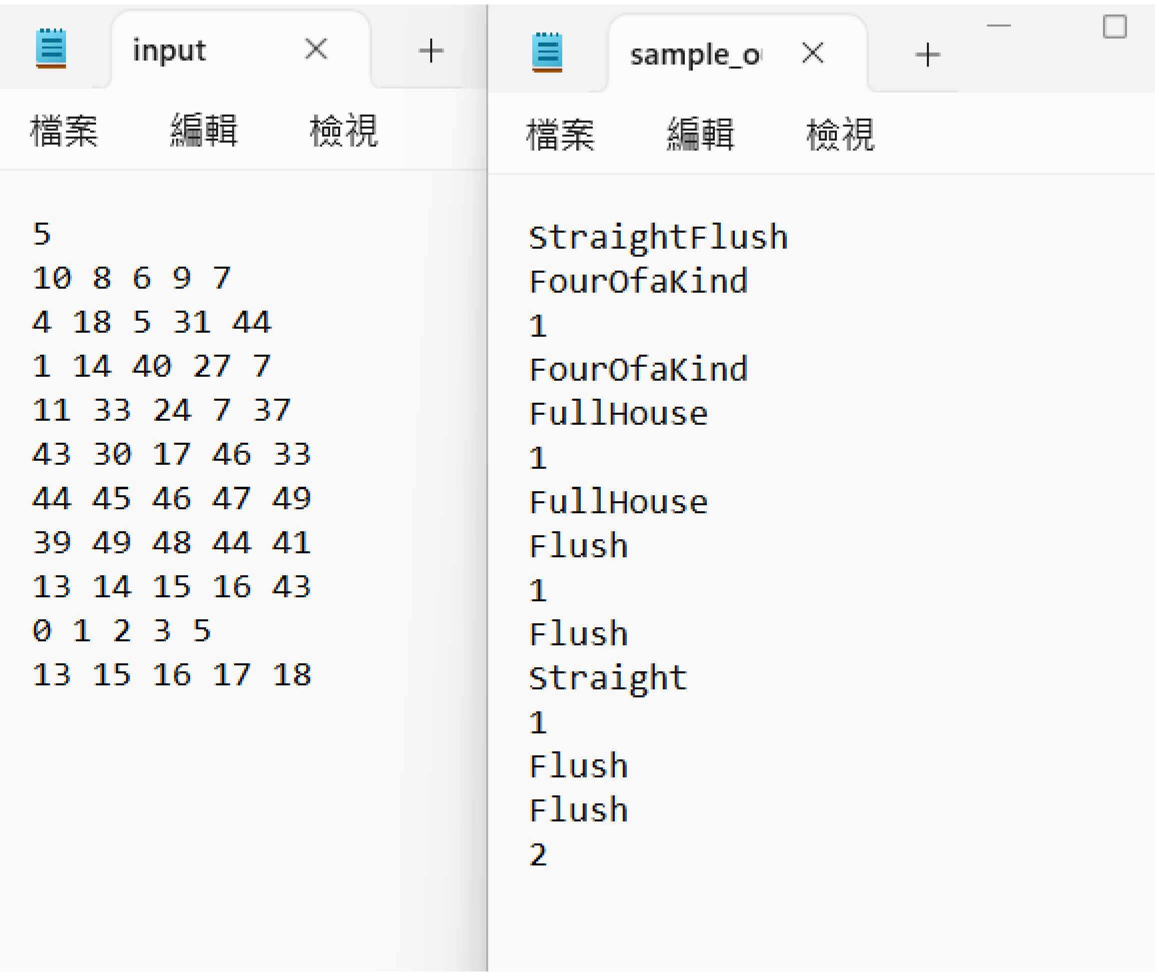
The output format should contain two players’ card number and type and print which player wins.
The card number needs to change from virtual number to card suit and number.
Virtual number 0~12 are Club, represent as “C”
Virtual number 13~25 are Diamond, represent as “D”
Virtual number 26~38 are Heart, represent as “H”
Virtual number 39~51 are Spade, represent as “S”
e.g. If virtual number is “0”, output “C1”

Sample Input and Sample Output

Check Machine：

Input file:

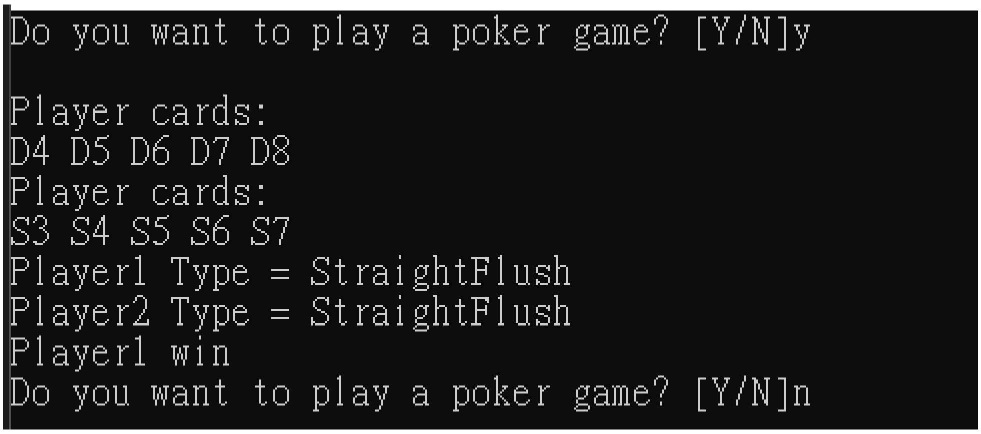
First line: the number of cases, each including two sets of cards (5 cards + 5 cards).



```
5
10 8 6 9 7
4 18 5 31 44
1 14 40 27 7
11 33 24 7 37
43 30 17 46 33
44 45 46 47 49
39 49 48 44 41
13 14 15 16 43
0 1 2 3 5
13 15 16 17 18
```

```
StraightFlush
FourOfaKind
1
FourOfaKind
FullHouse
1
FullHouse
Flush
1
Flush
Straight
1
Flush
Flush
2
```

Poker Game：



```
Do you want to play a poker game? [Y/N]y

Player cards:
D4 D5 D6 D7 D8
Player cards:
S3 S4 S5 S6 S7
Player1 Type = StraightFlush
Player2 Type = StraightFlush
Player1 win
Do you want to play a poker game? [Y/N]n
```