

Advanced C Programming – Homework #2

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Problem 1

- You are a brilliant spy and stole the secret Morse code from North Korea. Using the Morse code, complete the Morse code Decoding and Encoding program.
- Morse code contains only .(dot), -(dash), (space)
- Morse code input from user
- Each alphabet separated with one space
- Each word separated with two spaces

In : -.- .. -- .--- --- -. --. ..-
 .-... .. -.- . -.-.-.-.-.-.-.-.-.-.-.-

Out: KIM JONG UN LIKE NUCLEAR

In : kim jong un like nuclear

Out: -.- .. -- .--- --- -. --. ..-
 .-... .. -.- . -.-.-.-.-.-.-.-.-.-.-.-

A	.-	N	-.
B	-...	O	---
C	-.-.	P	.-..
D	-..	Q	--.-
E	.	R	.-.
F	..-.	S	...
G	--.	T	-
H	U	..-
I	..	V	...-
J	.-..	W	.-
K	-.-	X	-.-.
L	.-..	Y	-.--
M	--	Z	--..



Problem 2

- Poker contains 52 cards each cards has Clover, Diamond, Heart, Spade (C, D, H, S) shape and each shape has 2 – 10 number, Jack, Queen, King, and Ace(2,3,4,5,6,7,8,9,10,J,Q,K,A). The game is determined by the high rank of the poker and the poker rank as follows(look up appendix A).
- If same rank of two sides are same than select winner side as follows
 - Look up higher value on the largest number. (A>K>Q>J>10>....>2)
 - If values are same Look up higher shape (S > H > C > D)
 - Exception → Full house finds the biggest number on triple rank side
- Read text file and select winner of the game (First five are stands for team A, last five are stands for team B)
- Left side -> number / right side -> shape (Ex. 4S → Four spade, KH → King heart)

input(poker_game.txt)

```
2H 3D 5S 9C KD 2C 3H 4S 8C AH
2H 4S 4C 2D 4H 2S 8S AS QS 3S
2H 3D 5S 9C KD 2C 3H 4S 8C KH
2H 3D 5S 9C KD 2D 3H 5C 9S KH
```

Sample output

-
1. Print all Game result
 2. Print Game (number)
 3. Delete Game (number)
 4. Exit
-

Select option :: 1

Team B wins.

Team A wins.

Team A wins.

Team B wins.



- All game information should be stored in struct array (구조체 배열 사용) using dynamic allocation (동적할당)
- When delete called with number you should delete the game with matching number.
- Node construction

```

Struct Node{
    char TeamA[10], TeamB[10]; // Team A and B's card information e.g.) 2H3D5S9CKD

    int type; // Combination of winner side (1: High card, 2: 1Pair, ... , 10: Royal Flush)

    int winner; // 0 for Team A, 1 for Team B
}

```

input(poker_game.txt)

```

2H 3D 5S 9C KD 2C 3H 4S 8C AH
2H 4S 4C 2D 4H 2S 8S AS QS 3S
2H 3D 5S 9C KD 2C 3H 4S 8C KH
2H 3D 5S 9C KD 2D 3H 5C 9S KH

```

Sample output

-
1. Print all Game result
 2. Print Game (number)
 3. Delete Game (number)
 4. Exit
-

Select option :: 2/3

Team A : 2H 3D 5S 9C KD
 Team B : 2C 3H 4S 8C KH
 Team A wins with High card

Sample output

-
1. Print all Game result
 2. Print Game (number)
 3. Delete Game (number)
 4. Exit
-

Select option :: 3/1

Game 1 Deleted

Select option :: 2/1

Team A : 2H 4S 4C 2D 4H

Team B : 2S 8S AS QS 3S

Team A wins with Full house



Consideration

- When **Exit** selected all struct node must be free (Memory Management)
- Option 2, 3 must be consist of (Number)/(Number) // e.g 2/3 (show data info on linked list 3)
- Exception handling needed
 - 1 . Find/Delete information with wrong game number
 - 2 . Wrong input
 - 3 . Wrong Input file type



Appendix.A

ROYAL FLUSH

This hand contains five cards in sequence, all of the same suit.



STRAIGHT FLUSH

This hand contains five cards in sequence, all of the same suit.



4 OF A KIND

This hand contains all four cards of one rank and any other unmatched card.



FULL HOUSE

This hand contains three matching cards of one rank and two matching cards of another rank.



FLUSH

This hand contains all five cards are of the same suit, but not in sequence.



STRAIGHT

This hand contains five cards of sequential rank in at least two different suits.



3 OF A KIND

This hand contains three cards of the same rank, with two cards not of this rank nor the same as each other.



2 PAIR

This hand contains two cards of the same rank, plus two cards of another rank.



1 PAIR

This hand contains two cards of one rank, plus three cards which are not of this rank nor the same.



HIGH CARD

made of any five cards not meeting any of the above requirements.

