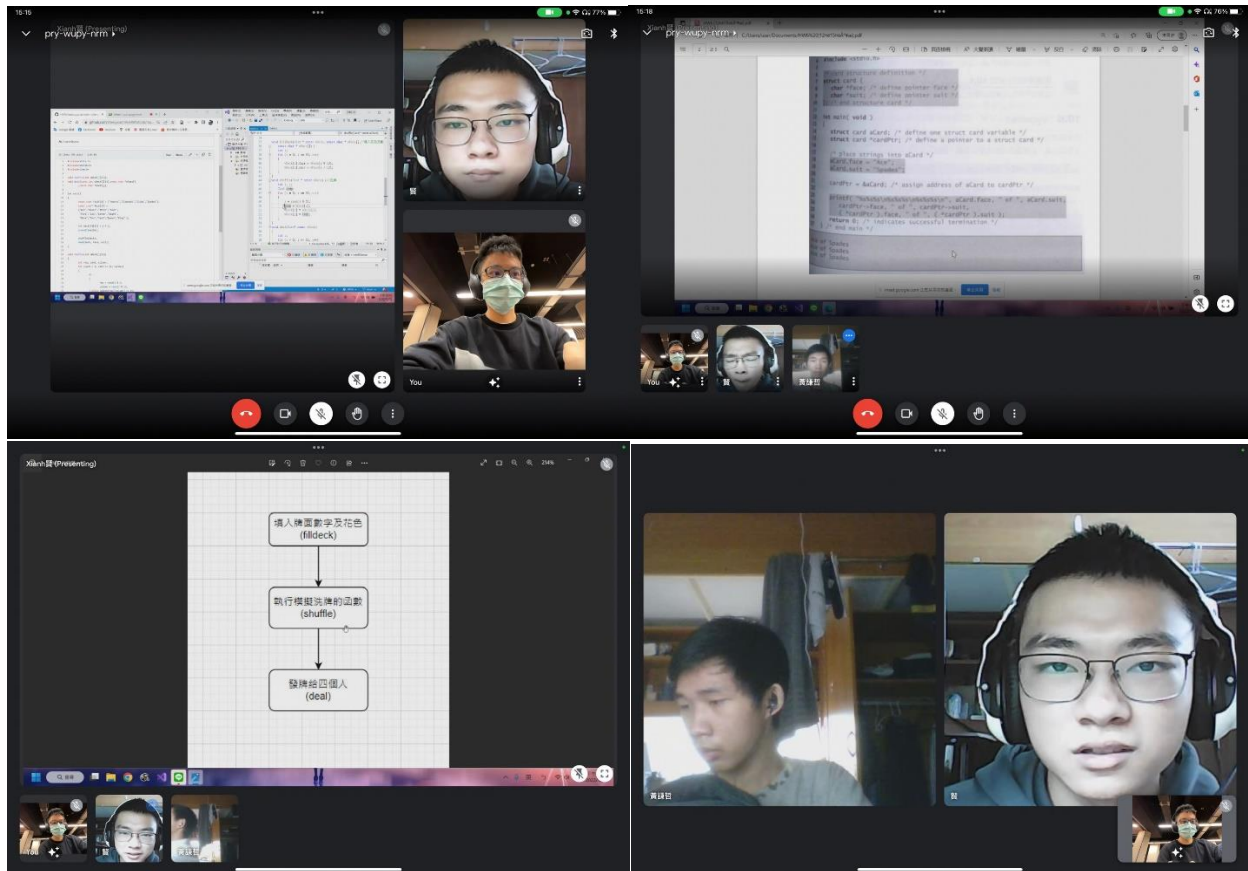Discussion Time: 15:15 - 15:22

P10-7
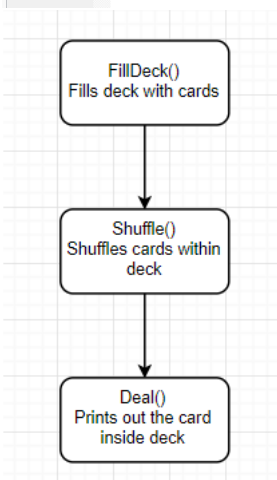
```c
#include <stdio.h>
#include <stdlib.h>

struct card {
    char *face;
    char *suit;
};

int main()
{
    struct card Card;
    struct card *Pointer;

    Card.face = "Ace";
    Card.suit = "Spades";

    Pointer = &Card;

    printf("%s of %s\n%s of %s\n%s of %s\n",
            Card.face, Card.suit,
            Pointer->face, Pointer->suit,
            (*Pointer).face, (*Pointer).suit);

    system ("pause");
    return 0;
}
```

main.c ✕

```c
1    #include <stdio.h>
2    #include <stdlib.h>
3    #include <time.h>
4
5    typedef struct card {
6        const char *Face;
7        const char *Suit;
8    } Card;
9
10   void FillDeck(Card * const Deck, const char *face[], const char *suit[]);
11   void Shuffle(Card * const Deck );
12   void Deal(const Card * const Deck);
13
14   int main()
15   {
16       Card deck[52];
17       const char *suit[] = {"Hearts", "Diamonds", "Clubs", "Spades"};
18       const char *face[] = {"Ace", "One", "Two", "Three", "Four",
19                             "Five", "Six", "Seven", "Eight", "Nine",
20                             "Jack", "Queen", "King"};
21
22       srand(time(NULL));
23
24       FillDeck(deck, face, suit);
25       Shuffle(deck);
26       Deal(deck);
27
28       system ("pause");
29       return 0;
30   }
31
32   void FillDeck(Card * const Deck, const char *face[], const char *suit[]) {
33       int i;
34       for (i = 0; i <= 51; i++) {
35           Deck[i].Face = face[i % 13];
36           Deck[i].Suit = suit[i / 13];
37       }
38   }
39
40   void Shuffle(Card * const Deck ) {
41       int i, j;
42       Card temp;
43
44       for(i = 0; i <= 51; i++) {
45           j = rand() % 52;
46           temp = Deck[i];
47           Deck[i] = Deck[j];
48           Deck[j] = temp;
49       }
50   }
51
52   void Deal(const Card * const Deck) {
53       int i;
54
55       for (i = 0; i <= 51; i++) {
56           printf("%5s of %-8s%s", Deck[i].Face, Deck [i].Suit, (i + 1) % 4 ? "  " : "\n");
57       }
58   }
59
```

```
┌─────────────────────┐
│     FillDeck()      │
│ Fills deck with cards│
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│      Shuffle()      │
│ Shuffles cards within│
│        deck         │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│       Deal()        │
│  Prints out the card │
│     inside deck     │
└─────────────────────┘
```

Conclusion:

With the use of structure, you can organize your data types in to multiple groups. Using typedef allows us to use the data type more easily, without needing to attach struct behind the data type every time. The fact that the data type is grouped, modifying a specific data within the structure requires additional information. The additional information would be adding a dot between the structure and data type within structure.

Code: https://github.com/AldrichWijaya/Homework.git