Practice 09. Structures

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The structures are used to make compound data types when the data is complicated.

define struct {
    char board[4][3];
    char my_hand[8];
    char en_hand[8];
} State;

define struct {
    int x;
    int y;
    int dead;
} Coord;

define struct {
    int type;
    char piece;
    Coord from;
    Coord to;
} Mov;
The structures make the code readable.

```cpp
void read_game(State * state);
void print_coord(int x, int y);
int get_giraffe_movs(State * state, Mov movs[]);
int get_giraffe_coords(State * state, Coord coords[]);
void print_mofs(State * state, Mov movs[], int n);
int is_out(int x, int y);
```
Instead of brute force approach, use lot of functions even when the code is short.

```c
for (i = 0; i < 4; i++)
{
    int nx = x + dx[i];
    int ny = y + dy[i];
    if (nx < 0 || nx > 2 || ny < 0 || ny > 3)
        continue;
...
```

```c
for (i = 0; i < 4; i++)
{
    int nx = x + dx[i];
    int ny = y + dy[i];
    if (is_out(nx, ny))
        continue;
...
```
printf("%c ", piece);
printf("%c%c ", from.x + 'A', from.y + '1');
printf("%c%c\n", to.x + 'A', to.y + '1');

printf("%c ", piece);
print_coord(from.x, from.y);
printf(" ");
print_coord(to.x, to.y);
printf("\n");
If you want to make the function that returns an array of something, passing an array as a parameter is recommended.

```c
int main()
{
    int f[100];
    get_factorials(100, f);
}

void get_factorials(int n, int fact[])
{
    int i;
    if (n <= 0)
        return;

    f[0] = 1;
    for (i = 1; i < n; i++)
        f[i] = i*f[i-1];
}
```
Assignment Submission

- Create a directory named assignment in your home directory.
- Create a directory named 09 in your assignment directory.
- Put your C files named p[# of problem].c for each problem.
  - p01.c
  - p02.c
  - ...
- Due to: 5/6(Wed) 23:59 pm
Assignment 01 [15 points]

- The inputs come from the project.
- Output all possible movements and placements of your giraffes line by line.
- Use structures and well organized functions to enhance the readability.
- The readability is going to be evaluated.
[Input]
loe
ooo
oGo
CLo
G
ce

[Output]
G B3 A3
G B3 B2
G B3 C3
G P B1
G P A2
G P B2
G P C2
G P A3
G P C3
G P C4