ECE 175: Computer Programming for Engineering Applications
Lab Assignment #8 (Wed session)

Relevant Programming Concepts:

- Structure
- Array of structure
- Dynamic memory allocation

Problem (30 points) Player Stats

For this problem you are required to use the following user-defined structure:

```
typedef struct player_stats_s {
        char player_name[30];
        char team[5];
        char position[5];
        int Yards_per_game;
}player_stats;
```

You are given "player_data" text file that contains player statistics for pro football players. Each line in the file pertains to a specific player, with data separated by spaces; for example (fist 10 lines of data)

```
Devonta Freeman ATL RB 15
Robert Woods LA WR 142
T.J. Yeldon JAX RB 32
Eli Rogers PIT WR 42
Brandin Cooks NE WR 52
Dede Westbrook JAX WR 28
Marqise Lee JAX WR 23
Tyreek Hill KC WR 87
Tevin Coleman ATL RB 21
Corey Davis TEN WR 49
```

Write the C program, to achieve as shown in the sample code execution, using the given struct and using the comments in the given main program below:

15 points deduction if you do not use malloc or calloc in your code

```
int main(void){
        player_stats *allplayers;
        //ask a user to enter the number of players, num
        //dynamically allocate memory for an array of players of the appropriate size (num that the
        //user just entered)
        //read the data from the text file (player_data.txt) to initialize the array above
        //Once the data has been successfully loaded into an array, ask the user to enter in a value for
        //Yards per Game. Then print out all players who have more yards per game than the value
        //entered by the user (>=).
        //make it interactive (Q to quit)
}
```

For example, using the example data above, the first element of your array would contain
player_name = " Devonta Freeman"
team = "ATL"
position = "RB"
Yards_per_game = 15

You might need to run the debugger to test that your code is correctly copying the string information into the correct fields.

Your code must employ the following functions to load and print the data

```
void Load_Struct(player_stats* P, FILE* fid); //this function is to load data of one player. Use in a loop to load the data

void print_player(player_stats* P); //this function is to print the data of one player.
```

10 points deduction if you do not use the above functions in your code

Sample code execution #1: **Bold** text indicates information entered by a user.
Enter number of players: **10**
Show player's with Yards/Game >= **30**

Robert Woods,	LA,	WR,	142
T.J. Yeldon,	JAX,	RB,	32
Eli Rogers,	PIT,	WR,	42
Brandin Cooks,	NE,	WR,	52
Tyreek Hill,	KC,	WR,	87
Corey Davis,	TEN,	WR,	49

Continue (Q to quit)? **C**

Show player's with Yards/Game >= **52**

Robert Woods,	LA,	WR,	142
Brandin Cooks,	NE,	WR,	52
Tyreek Hill,	KC,	WR,	87

Continue (Q to quit)? **Q**

Sample code execution #2: **Bold** text indicates information entered by a user.
Enter number of players: **50**
Show player's with Yards/Game >= **105**

Robert Woods,	LA,	WR,	142
Michael Thomas,	NO,	WR,	108
Greg Olsen,	CAR,	TE,	107
Vance McDonald,	PIT,	TE,	112
Antonio Brown,	PIT,	WR,	132

Danny Amendola, NE, WR, 116
Continue (Q to quit)? **r**

Show player's with Yards/Game >= **63**
Robert Woods, LA, WR, 142
Tyreek Hill, KC, WR, 87
Michael Thomas, NO, WR, 108
Greg Olsen, CAR, TE, 107
Alshon Jeffery, PHI, WR, 73
Travis Kelce, KC, TE, 66
Ted Ginn, NO, WR, 94
Stefon Diggs, MIN, WR, 104
Christian McCaffrey, CAR, RB, 101
Rob Gronkowski, NE, TE, 73
Zach Ertz, PHI, TE, 64
Vance McDonald, PIT, TE, 112
Antonio Brown, PIT, WR, 132
Devin Funchess, CAR, WR, 79
Danny Amendola, NE, WR, 116
Julio Jones, ATL, WR, 98
Le'Veon Bell, PIT, RB, 88
Cooper Kupp, LA, WR, 69
Mohamed Sanu, ATL, WR, 63
Continue (Q to quit)? **Q**