CS3520 Programming in C++

Practice Activity 5

Objectives:
Working with structures and pointers

Practice Assignment:

1. Given the following structure and variable definitions,

```
struct alien {
    unsigned int alien_id_number;
    char* last_name;
    struct {
            char origin [ 10 ];
            int age;
            } personal, *personal_ptr = &personal;
    } alien_record, *alien_ptr = &alien_record, all_records[5];
```

Without **compiling and running it**, write an expression (in a cpp file as comments) that can be used to access (or print) the structure members in each of the following:
  a) alien_number of structure alien_record.
  b) alien_number of the structure pointed to by alien_ptr.
  c) last_name of structure alien_record.
  d) last_name of member structure pointed to by alien_ptr.
  e) age of the structure member personal of structure alien_record.
  f) age of member pointed to by personal_ptr of the structure pointed to by alien_ptr.
  g) origin of the structure member personal of structure alien_record.
  h) origin of member pointed to by personal_ptr of the structure pointed to by alien_ptr.

2. Now let's check if your answers were correct by writing them in code. Define the above structure and initialize the members with suitable values. Then compile and see how many of your answers had syntax errors? Report the number of errors {in comments}. Also identify/explain the mistakes (if any). Finally fix the code to ensure that it works properly.

3. Now let's do a little more **extra** work by updating your code (and testing it) to do the following:
  a) Initialize all members of all 5 aliens stored in all_records and print them neatly.
  b) Create a pointer that would point to dynamically allocated array of records of 5 aliens (similar to all_records[5]). Again, initialize all of its members and print them neatly using the newly created pointer.

Submit all work on Canvas (*.cpp file). No Makefile needed.

Note: See rubric on Canvas