PA5

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👤 Assign	
⊘ Status	
⊘ Priority	
🗓 Due Date	@10/13/2022
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```
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];
```

Running code by mind

1. alien_number of structure alien_record.

   ```
   cout<< alien_record.alian_id_number <<endl;
   ```

2. alien_number of the structure pointed to by alien_ptr.

   ```
   cout<< alien_ptr->alien_id_number<<endl;
   ```

3. last_name of structure alien_record.

```
cout<< *(alien_record.last_name) <<endl;
```

4. last_name of member structure pointed to by alien_ptr.

```
cout<<*(alien_ptr->lastname)<<endl;
```

5. Age of the structure member personal of structure alien_record.

```
cout<<(**alien_record).personal.age << endl;
```

6. Age of member pointed to by personal_ptr of the structure pointed to by alien_ptr.

```
cout<<alien_ptr->personal_ptr.age<<endl;
```

7. origin of the structure member personal of structure alien_record.

```
cout<<(**alien_record).personal.(*origin)<<endl;
```

8. origin of member pointed to by personal_ptr of the structure pointed to by alien_ptr.

```
cout<<alien_ptr->personal_ptr.*origin<<endl
```

Running code with compiler.
there are 7 errors.

1. Typo: lastname which should be last_name;

2. No Error.

3. Mis-use of *, should be deleted

4. Mis-use of *, should be deleted

5. should use one & intead of **

6. shoud use → to reference the age.

7. should use one & intead of **

8. personal_prt is a pointer type, so → should be used instead of dot

Here is the code debuged.

```
  27   *      Compiler:  gcc
  26   *
  25   *         Author:  YOUR NAME (),
  24   *   Organization:
  23   *
  22   * ================================================================================
  21   */
  20 #include <stdlib.h>
  19
  18 #include <iostream>
  17 using namespace std;
  16
  15 struct alien {
  14   unsigned int alien_id_number = 1111;      ■ Default member initializer for non-static data member is a C++11 extension
  13   char* last_name = "caoshan";      ■■ Conversion from string literal to 'char *' is deprecated
  12   struct {
  11     char origin[10] = "China";      ■ Default member initializer for non-static data member is a C++11 extension
  10     int age = 33;      ■ Default member initializer for non-static data member is a C++11 extension
   9   } personal, *personal_ptr = &personal;      ■ Default member initializer for non-static data member is a C++11 extension
   8 } alien_record, *alien_ptr = &alien_record, all_records[5];
   7
   6 int main() {
   5
   4     cout << alien_record.alien_id_number << endl;
   3     cout<< alien_ptr->alien_id_number<<endl;
   2     cout<< alien_record.last_name <<endl;
   1     cout<<alien_ptr->last_name<<endl;
  38     cout<<alien_record.personal.age << endl;
   1     cout<<alien_ptr->personal_ptr->age<<endl;
   2     cout<<(&alien_record)->personal.origin<<endl;
   3     cout<<alien_ptr->personal_ptr->origin<<endl;
   4 }
```

Here is the terminal output.

```
[shancao@shans-iMac prac_5 % ./a.out
1111
1111
caoshan
caoshan
33
33
China
China
shancao@shans-iMac prac_5 %
```

Refer to prac_5_2.cpp for source code

Extra

Here is output:

```
[shancao@shans-iMac prac_5 % ./a.out
LastName: Cao
Alien Numer: 12345
Age: 33
Origin: China

LastName: Cao
Alien Numer: 12346
Age: 33
Origin: China

LastName: Han
Alien Numer: 12347
Age: 33
Origin: China

LastName: Unni
Alien Numer: 12348
Age: 33
Origin: China

LastName: Wang
Alien Numer: 12349
Age: 33
Origin: China

-----------------------------------------------
LastName: Cao
Alien Numer: 12345
Age: 33
Origin: China

LastName: Cao
Alien Numer: 12346
Age: 33
Origin: China

LastName: Han
Alien Numer: 12347
Age: 33
Origin: China

LastName: Unni
Alien Numer: 12348
Age: 33
Origin: China

LastName: Wang
Alien Numer: 12349
Age: 33
Origin: China

shancao@shans-iMac prac_5 %
```

refer to prac_5_3.cpp for source code