CSC 209 Review 7 Solution

August 26, 2020

1 Exercises

1. First, I need to justify if the following declarations legal on an individual basis:

```
struct {int x, y;} x;
struct {int x, y;} y;
```

The struct struct {int x, y;} x; is legal. struct {int x, y;} x; is equivalent to

```
struct {
    int x;
    int y;
    int y;
```

and 'x' beside struct represents variable of that type. It is used to declare struct and access members of the struct (e.g. x.x., x.y).

The same is true for struct {int x, y;} y;.

Second, I need to answer if both declarations of struct can appear in a program.

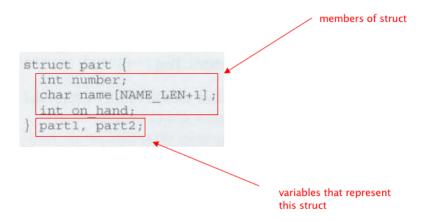
The answer is yes. Each structure has a separate name space for it's members.

Notes

• Declaring Structure Variables

- Struct can have many variables that represent the same struct

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• Initializing Structure Variables

- Struct can be initialized with preset values (like python class under __init__)

```
struct {
  int number;
  char name[NAME_LEN+1];
  int on hand;
} part1 = {528, "Disk drive", 10},
  part2 = {914, "Printer cable", 5};
```

2. a) I need to declare structure variables named c1, c2 and c3, each having members real and imaginary of type double.

The solution to this problem is:

```
struct {
double real, imaginary;
} c1, c2, c3;
```

- b) I need to modify the declaration in part a) so that
 - c1's members initially have the values 0.0 and 1.0
 - c2's members initially have the values 1.0 and 0.0
 - c3 is not initialized

The solution to this problem is:

```
struct {
    double real, imaginary;
} c1 = {0.0, 1.0},
c2 = {1.0, 0.0},
c3;
```