Module 4 Chapter 8 Homework

Ashton Hellwig

April 22, 2020

Contents

Listings

1 Question 1

Determine whether the following array declarations are valid. If a declaration is invalid, explain why.

A. `string customers [];`

B. `int numArray[50];`

C. `const int SIZE = 30; double list [20 − SIZE];`

D. `int length = 50; double list [ length − 50];`

E. `int ids[−30];`

F. `colors [30] string ;`

1.1 Solution

a. **Invalid** – Static array declarations require a size specifier or to be initialized.

b. **Valid**

c. **Invalid** – Cannot declare an array with a negative size.

d. **Valid**

e. **Invalid** – Cannot declare an array with a negative size.

f. **Invalid** – `typename (std :: string )` should come before the declaration / `string` is a reserved word.

2 Question 2

Determine whether the following array declarations are valid. If a declaration is valid, determine the size of the array.

A. `int list [] = {18, 13, 14, 16};`

B. `int x[10] = {1, 7, 5, 3, 2, 8};`

C. `double y[4] = { 2.0, 5.0, 8.0, 11.0, 14.0};`

D. `double lengths [] = { 8.2, 3.9, 6.4, 5.7, 7.3};`

E. `int list [7] = {12, 13, , 14, 16, , 8};`

F. `string names[8] = {"John", "Lisa", "Chris", "Katie"};`

2.1 Solution

a. placeholder

b. placeholder

c. placeholder

d. placeholder

e. placeholder

f. placeholder

3 Question 3

What is the output of the following C++ code?

```cpp
#include <iostream>
using namespace std;
int main() {
  int list1[5];
  int list2[15];

  for (int i = 0; i < 5; i++)
    list1[i] = i * i - 2;
  cout << "list1: ";

  for (int i = 0; i < 5; i++)
    cout << list1[i] << " ";
  cout << endl;

  for (int i = 0; i < 5; i++) {
    list2[i] = list1[i] * i;
    list2[i + 5] = list1[4 - i] + i;
    list2[i + 10] = list2[9 - i] + list2[i];
  }
  cout << "list2: ";

  for (int i = 0; i < 7; i++)
    cout << list2[i] << " ";
  cout << endl;

  return 0;
}
```

Listing 1: Question 3 Program

3.1 Solution

```
Placeholder.
```

Listing 2: Question 3 Solution

4 Question 4

What is the output of the following program?

```
#include <iostream>
using namespace std;
int main() {
  int j;
  int one[5];
  int two[10];
  for (j = 0; j < 5; j++)
    one[j] = 5 * j + 3;

  cout << "One contains: ";
  for (j = 0; j < 5; j++)
    cout << one[j] << " ";
  cout << endl;
  for (j = 0; j < 5; j++) {
    two[j] = 2 * one[j] - 1;
    two[j + 5] = one[4 - j] + two[j];
  }

  cout << "Two contains: ";
  for (j = 0; j < 10; j++)
    cout << two[j] << " ";
  cout << endl;

  return 0;
}
```

Listing 3: Question 4 Program

4.1 Solution

```
Placeholder.
```

Listing 4: Question 4 Solution

5 Question 5

Assume that you have the following statements:

```
1 char name[21];
2 char yourName[21];
3 char studentName[31];
```

Mark the following statements as valid or invalid. If invalid, explain why.

A. Placeholder.

B. Placeholder.

C. Placeholder.

D. Placeholder.

E. Placeholder.

F. Placeholder.

G. Placeholder.

H. Placeholder.

5.1 Solution

a. placeholder

b. placeholder

c. placeholder

d. placeholder

e. placeholder

f. placeholder

g. placeholder

h. placeholder

Works Consulted

Malik, D. S. (2015). *C programming: Program design including data structures* (7th ed.). Cengage Learning.