Module 3 Chapter 6 Homework

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Contents

Listings

1 Question 1

Determine the value of each of the following expressions:

A. `static_cast<char>(toupper('7'))`

B. `static_cast<char> (toupper('@'))`

C. `static_cast<char> (toupper('s'))`

D. `static_cast<char> (toupper('J'))`

E. `static_cast<char> (tolower('*'))`

F. `static_cast<char> (tolower(';'))`

G. `static_cast<char> (tolower('w'))`

H. `static_cast<char> (tolower('('))`

1.1 Solution

a. Placeholder.

b. Placeholder.

c. Placeholder.

d. Placeholder.

e. Placeholder.

f. Placeholder.

g. Placeholder.

h. Placeholder.

2 Question 2

Consider the following function

```
1 int mystery(int x, double y, char ch) {
2   if (x == 0 && ch > 'A')
3     return(static_cast<int>(pow(y, 2)) + static_cast<int> (ch));
4   else if (x > 0)
5     return(x + static_cast<int>(sqrt(y)) - static_cast<int> (ch));
6   else
7     return(2 * x + static_cast<int>(y) - static_cast<int> (ch));
8 }
```

Listing 1: Question 1 Problem

What is the output of the following statements?

A. `cout << mystery(0, 6.5, 'K') << endl;`

B. `cout << mystery(4, 16.0, '#') << endl;`

C. `cout << 2 * mystery(-11, 13.8, '8') << endl;`

2.1 Solution

a. Placeholder.

b. Placeholder.

c. Placeholder.

3 Question 3

Consider the following program:

```
1  #include <iostream>
2  using namespace std;
3
4  void func1();
5  void func2();
6
7  int main() {
8    int num;
9
10   cout << "Enter 1 or 2: ";
11   cin >> num;
12   cout << endl;
13
14   cout << "Take ";
15
16   if (num == 1)
17     func1();
18   else if (num == 2)
19     func2();
20   else
21     cout << "Invalid input. You must enter a 1 or 2" << endl;
22   return 0;
23 }
24
25 void func1() {
26 cout << "Programming I." <<endl;
27 }
28
29 void func2() {
30 cout << "Programming II." <<endl;
31 }
```

Listing 2: Question 3 Problem

A. What is the output if the input is `1`?

B. What is the output if the input is `2`?

C. What is the output if the input is `3`?

D. What is the output if the input is `-1`?

3.1 Solution

a. Placeholder.

b. Placeholder.

c. Placeholder.

d. Placeholder.

4 Question 4

Consider the following program:

```
1  #include <iostream>
2  #include <cmath>
3  #include<iomanip>
4
5  using namespace std;
6
7  void traceMe(double x, double y);
8
9  int main() {
10   double one, two;
11
12   cout << "Enter two numbers: ";
13   cin >> one >> two;
14   cout << endl;
15
16   traceMe(one, two);
17   traceMe(two, one);
18   return 0;
19 }
20
21 void traceMe(double x, double y) {
22   double z;
23
24   if (x != 0)
25     z = sqrt(y) / x;
26   else {
27     cout << "Enter a nonzero number: ";
28     cin >> x;
29     cout << endl;
30     z = floor(pow(y, x));
31   }
32   cout << fixed << showpoint << setprecision(2);
33   cout << x << ", " << y << ", " << z << endl;
34 }
```

Listing 3: Question 4 Problem

A. What is the output if the input is `3 625`?

B. What is the output if the input is `24 1024`?

C. What is the output if the input is `0 196`?

4.1 Solution

a. Placeholder.

b. Placeholder.

c. Placeholder.

5 Question 5

Consider the following function definition:

```
1 void defaultParam(int num1, int num2 = 7, double z = 2.5) {
2   int num3;
3
4   num1 = num1 + static_cast<int>(z);
5   z = num2 + num1 * z;
6   num3 = num2 - num1;
7   cout << "num3 = " << num3 << endl;
8 }
```

Listing 4: Question 5 Problem

What is the output of the following function calls?

a	`defaultParam(7);`
b	`defaultParam(8, 2);`
c	`defaultParam(0, 1, 7.5);`
d	`defaultParam(1, 2, 3.0);`

5.1 Solution

a. Placeholder.

b. Placeholder.

c. Placeholder.

d. Placeholder.

Works Consulted

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