

Exercises

1)

Text answer

Old exam question

Consider the following program fragment:

```
1  int x;  
2  int y;  
3  int z;  
4  int* w;  
5  int* q;  
6  
7  x = 0;  
8  y = 1;  
9  z = 2;  
10 w = &x;  
11 q = &y;  
12 *w = y;  
13 *q = z;  
14 *w = x + y + z + *q;  
15 *q = x + y + z + *w;  
16  
17 printf("x=%d, y=%d, z=%d\n", x, y, z);
```

? Question

What does the program print when it is executed?

x=7, y=18, z=2

- (c) What does the following code do when executed? (i.e. does the code fulfill the post condition? If not, what happens?)

```
1  void printout(node *l) {  
2      // pre: head points to the first, empty element.  
3      //      The last element's next is NULL  
4      // post: The values of the list are printed out  
5      node *p = l->next;  
6      while (p != NULL) {  
7          printf("%d, ", p->data);  
8      }  
9      printf("\n");  
10 }
```

The problem is that there is no code that advances the p pointer to the next element in the list. As a result, the while loop will run indefinitely, and the program will not terminate as expected. It will print the value of the current element repeatedly, causing an infinite loop.