**1)** (5 pts) DSN (Dynamic Memory Management in C)

There is something terribly wrong with the code given below: it has two memory leaks. After carefully inspecting the code, answer the questions below.

```
1:    int main(void)
2:    {
3:       char *str1 = malloc(sizeof(char) * 16);
4:       char *str2 = malloc(sizeof(char) * 16);
5:
6:       str1[0] = 'p';
7:       str1[1] = 'a';
8:       str1[2] = 's';
9:       str1[3] = 's';
10:      str1[4] = ',';
11:      str1[5] = '\0';
12:
13:      printf("%s ", str1);
14:      str2 = str1;
15:      printf("%s ", str2);
16:      str2 = NULL;
17:      strcpy(str1, "pass the exam!");
18:      printf("%s\n", str1);
19:
20:      free(str1);
21:      free(str2);
22:
23:      return 0;
24:   }
```

(a) (3 pts) Draw a picture that indicates the relevant state of memory *__after__* line 14 has completed. (Draw a rectangular box to indicate dynamically allocated memory.)

(b) (1 pt) Explain why line 14 causes a memory leak.

(c) (1 pt) Why is it possible for the code to crash on line 21?