

Problem 1.c

```
1
2 /**
3  * String concatenation and String length
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5  */
6
7 #include <stdio.h>
8
9 /**
10 * Returns length of given string (str)
11 */
12 size_t _strlen(const char *str) {
13     if (str == NULL) return 0;
14
15     size_t len = 0;
16     char *lptr = (char *) str;
17
18     while (*lptr++ != '\0') len++;
19     return len;
20 }
21
22 /**
23 * Returns a pointer to the final concatenated string
24 * @dst: The destination string
25 * @src: The source string
26 * @n: Number of bytes of src to copy, typically strlen(src)
27 *
28 * The destination string is guaranteed to be null terminated but
29 * should have atleast (strlen(dst) + n + 1) bytes.
30 */
31 char * _strncat(char *dst, const char *src, size_t n) {
32     size_t dlen = _strlen(dst);
33     size_t i;
34
35     for (i = 0; i < n && src[i] != '\0'; ++i)
36         dst[dlen + i] = src[i];
37     dst[dlen + i] = '\0';
38
39     return dst;
40 }
41
42 /** Driver function */
43 int main(int argc, const char *argv[]) {
44     char s1[50] = "Hello, ", s2[50] = "World";
45
46     size_t s2l = _strlen(s2);
47     printf("S1: %s (len: %lu)\nS2: %s (len: %lu)\n", s1, _strlen(s1), s2, s2l);
48
49     // Concatenate
50     _strncat(s1, s2, s2l);
51     printf("\nAfter concatenation: %s (len: %lu)\n", s1, _strlen(s1));
52
53     return 0;
54 }
55
```