

Behold the following program in C:

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

int main()
{
    char s[20];
    int i;

    for (i = 0; i < 15; i++) s[i] = '0' + i % 10;
    s[i] = '\0';

    printf("%s\n", s+11);           /* First line. */

    for (i = 0; i < 15; i += 4) s[i] = '\0';

    for (i = 0; i < 15; i += 3) {
        printf("%d-%s\n", i, s+i); /* Lines two through six */
    }

    strcat(s+7, s+13);
    printf("%s\n", s+6);         /* Last line */

    return 0;
}
```

This program has seven lines of output. Each clicker question asks for a line of output.

- **Question 1** What is line 1?
- **Question 2** What is line 2?
- **Question 3** What is line 3?
- **Question 4** What is line 4?
- **Question 5** What is line 5?
- **Question 6** What is line 6?
- **Question 7** What is line 7?

Remember, it's:

**strcat(destination, source).**

## Answer to Clicker questions

You should write down your work to answer this question. It's easiest to do in a text editor, but if you don't have access to a text editor while doing this, then use a piece of paper. Trying to do this in your head will be confusing.

Start with writing down the characters in `s`, using an asterisk for the null character:

```
s: 012345678901234*
```

**Question 1:** Let's label where `s+11` is:

```
s: 012345678901234*
      |
      s+11
```

That lets us answer the first question: "1234".

**Questions 2-6:** Now, let's set every fourth character to the null character, starting with character zero:

```
s: *123*567*901*34*
```

And let's label the pointers at `s`, `s+3`, `s+6`, `s+9` and `s+12`:

```
s: *123*567*901*34*
  | | | | |
  0 3 6 9 12
```

This lets us answer the next five questions:

**Question 2:** 0-  
**Question 3:** 3-3  
**Question 4:** 6-67  
**Question 5:** 9-901  
**Question 6:** 12-

**Question 7:** Now, let's label `s+7` and `s+13`:

```
s: *123*567*901*34*
      |       |
      s+7    s+13
```

The `strcat()` will find the first null character after (`s+7`). That's at `s+8`. It then copies the characters from `s+13` to the null character, and null terminates. The string now looks like:

```
s: *123*56734*1*34*
      |       |
      s+7    s+13
```

When we print starting at `s+6`, we get the characters "6734".

Summarizing:

**Question 1:** 1234  
**Question 2:** 0-  
**Question 3:** 3-3  
**Question 4:** 6-67  
**Question 5:** 9-901  
**Question 6:** 12-  
**Question 7:** 6734