Suppose that after the prompt

```
Enter a sentence:
```

the user enters the line

```
To C, or not to C: that is the question.
```

`scanf` will store the string `"To"` in `sentence`. The next call of `scanf` will resume reading the line at the space after the word `To`.

Now suppose that we replace `scanf` by `gets`:

```
gets(sentence);
```

When the user enters the same input as before, `gets` will store the string

```
"  To C, or not to C: that is the question."
```

in `sentence`.

As they read characters into an array, `scanf` and `gets` have no way to detect when it's full. Consequently, they may store characters past the end of the array, causing undefined behavior. `scanf` can be made safer by using the conversion specification `%`*n*`s` instead of `%s`, where *n* is an integer indicating the maximum number of characters to be stored. `gets`, unfortunately, is inherently unsafe: `fgets` is a much better alternative.

`fgets` function ➤ 22.5

Reading Strings Character by Character

Since both `scanf` and `gets` are risky and insufficiently flexible for many applications, C programmers often write their own input functions. By reading strings one character at a time, these functions provide a greater degree of control than the standard input functions.

If we decide to design our own input function, we'll need to consider the following issues:

- Should the function skip white space before beginning to store the string?
- What character causes the function to stop reading: a new-line character, any white-space character, or some other character? Is this character stored in the string or discarded?
- What should the function do if the input string is too long to store: discard the extra characters or leave them for the next input operation?

Suppose we need a function that doesn't skip white-space characters, stops reading at the first new-line character (which isn't stored in the string), and discards extra characters. The function might have the following prototype:

```
int read_line(char str[], int n);
```