Strings

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A string is a sequence of characters that ends with a special character called the *null terminator*, which can be written with the character literal '\0' (pronounced “backslash zero”) that signals the end of the string. A string is referred to by the location of the first character in memory and each 8-bit character is read until the '\0' is detected. A simple drawing of this concept is shown in the figure below:

Strings are not a basic data type in C, meaning you cannot simply declare and use them as you would an int or a double. To give you a tiny glimpse into the complexity of the matter, consider how large a string should be. Is there pre-defined number of bits that should correspond to a string data type? Since each string has a unique number of characters, this does not seem like a choice that can be made up front. In fact, the size of a string will need to be dynamically determined on a per-string basis. To truly understand how to create and use strings, an understanding of pointers is required. This is one reason why the above figure is deliberately lacking in details—because we haven’t yet explained the concepts necessary to show you how to declare and instantiate them. We will delay further discussions of strings until later in the specialization.