C strings

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Recall Last Lecture

- pointers to pointers
- 2D array and double pointers
  - Pointer ← → 1D array
  - Pointer to pointer ← → 2D array

Today Lecture

- String in C

String in C

- It is one dimensional array of type char terminated by '\0' (ASCII nul),

- The size of the array to hold the string must include room for the '\0'

String Constant in C

- Written between double quotes.
- char s[] = "ABC"; is equivalent to:
- char s[] = { 'A', 'B', 'C', '\0' };

- Show demo code
  - sstrDemo1.c, sstrDemo3.c
  - strDemo4.c

String functions in string.h

- strcpy(s1, s2);
  - Copies string s2 into string s1.
- strncpy(s1, s2, n);
  - Copies up to **n** characters from the string pointed to by *s1* to *s2*.
- strcat(s1, s2);
  - Concatenates string s2 onto the end of string s1.
- strlen(s1);
  - Returns the length of string s1.

String functions in string.h

- strcmp(s1, s2);
  - Returns 0 if s1 and s2 are the same; less than 0 if s1<s2; greater than 0 if s1>s2.

- strchr(s1, ch);
  - Returns a pointer to the first occurrence of character ch in string s1.

- strstr(s1, s2);
  - Returns a pointer to the first occurrence of string s2 in string s1.

string.h

Link to functions in string.h

http://www.tutorialspoint.com/c_standard_library/string_h.htm

String Related Functions

In string.h

- void *memcpy(void *dest, const void *src, size_t n)

  – Copies n characters from src to *dest*.

- void *memset(void *str, int c, size_t n)

  – Copies the character c (an unsigned char) to the first n characters of the string pointed to by the argument *str*.

String Related Functions

In stdio.h

- int sprintf(char *str, const char *format, …)

  – Sends formatted output to a string.

- int sscanf(const char *str, const char *format, …)

  – Reads formatted input from a string.

String Related Functions

In stdlib.h

- double atof(const char *str)
  - Converts the string pointed to by the argument *str* to a floating-point number (type double).

- int atoi(const char *str)
  - Converts the string pointed to by the argument *str* to an integer (type int).

Related functions in C

- Show demo code strFun.c and strCast.c

Summary

- String in C is a one dimensional char array, with a '\0' as terminated character.

- Built-in functions in string.h

- Works with char pointer