Day15 A

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Outline

1. Based on

2. C Strings (2) String Library Functions
   - Overview
   - Examples

Based on

"C How to Program",
Paul Deitel and Harvey Deitel

A. Character Handling Functions

isdigit	is the character a digit?
isalpha	is the character an alphabet?
isalnum	is the character an alphabet or a number?
isxdigit	is the character a hexa digit?
islower	is the character a lowercase letter?
isupper	is the character a uppercase letter?
tolower	convert to a lowercase letter
toupper	convert to a uppercase letter
isspace	is the character a white space?
iscntrl	is the character a control character?
ispunct	is the character a punctuation character?
isprint	is the character a printable character?
isgraph	is the character a grphic character?

B. String Conversion Functions

strtod	string to double
strtol	string to long
strtoul	string to unsigned long

C. Standard Input/Output Library Functions

fgets	get a string
putchar	put a character
getchar	get a character
sprintf	printf to a string
sscantf	scanf from a string

D. String Manipulation Functions

strcpy	string copy
stcncpy	string copy only n characters
strcat	string concatenate
strncat	string concatenate only n characters

E. String Compare Functions

strcmp	string compare
strncmp	string compare only n characters

F. String Search Functions

strchr	search a character in the string (1st occurrence)
strrchr	search a character in the string (last occurrence)
strspn	the length of a span only with the characters in the string
strcspn	the length of a span not with the characters in the string
strpbrk	the break point with the characters in the string
strstr	search a substring in the string
strtok	break the string by the token (delimeter)

strchr, strrchr : r reverse

stspn, strcspn : c complementry strspn

strpbrk : string pointer break

G. Memory Functions

memcpy	copy memory elements
memmove	move memory elements
memchr	character in memory elements
memset	set memory elements with the character

- memmove
  - using a temporary buffer while copying
  - can handle overlapped src and dst memories
  - a little bit slower than memcpy

H. Other String Functions

strerror
strlen

int isspace (int c);

- to check whether c is a *white-space character
- for the "C" locale, white-space characters are any of:

http://www.cplusplus.com/reference/cctype/isspace/

```
  |------+--------+---------------------|
  | ' '  | (0x20) | space (SPC)         |
  | '\t' | (0x09) | horizontal tab (TAB) |
  | '\n' | (0x0a) | newline (LF)        |
  | '\v' | (0x0b) | vertical tab (VT)   |
  | '\f' | (0x0c) | feed (FF)           |
  | '\r' | (0x0d) | carriage return (CR) |
  |------+--------+---------------------|
```

int iscntrl (int c);

- to check whether c is a control character.
- a control character
  - does not occupy a printing position on a display
  - the opposite of a printable character (isprint)
- for the standard ASCII character set (used by the "C" locale)
  - between ASCII codes 0x00 (NUL) and 0x1f (US),
  - 0x7f (DEL)

http://www.cplusplus.com/reference/cctype/iscntrl/

int isprint (int c);

- to check whether c is a printable character.
- a printable character is a character
  - occupies a printing position on a display
  - the opposite of a control character (iscntrl).
- for the standard ASCII character set (used by the "C" locale),
  - greater than 0x1f (US),
  - except 0x7f (DEL).
- Space (0x20)
  - isprint(' ') returns true
  - isgraph(' ') returns false

http://www.cplusplus.com/reference/cctype/isprint/

int isgraph (int c);

- to check whether c is a character with graphical representation
- the characters with graphical representation
  - all printable characters except the space character (' ').

http://www.cplusplus.com/reference/cctype/isgraph/

int ispunct (int c);

- to check if the given character is a punctuation character as classified by the current C locale.
- The default C locale classifies the punctuation characters
  - #$%&’()*+,-./:;<=>?@[\]^_‘{|}~
- the standard "C" locale considers punctuation characters
  - all graphic characters (as in isgraph)
  - that are not alphanumeric (as in isalnum).

http://www.cplusplus.com/reference/cctype/ispunct/
http://en.cppreference.com/w/cpp/string/byte/ispunct