C Programming

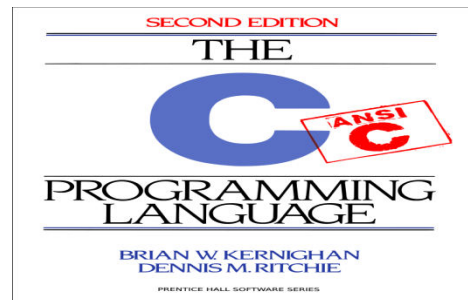Presenter : Learning & Development Team

Day - 10

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- For the preparation of this material we have referred from the below mentioned links or books. Excerpts of these material has been taken where there is no copy right infringements. Some examples and concepts have been sourced from the below links and are open source material

  http://www.gnu.org/software/gnu-c-manual/gnu-c-manual.html

  ANSI C K&R

Day – 10 Agenda

- Standard C library

- math library functions

- String library functions

Standard C Library

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Objectives

- Math library functions

- String library functions

Math library

Math library

- All mathematical functions which take a floating-point argument have three variants,
  - one each for double, float, and long double arguments.

- please refer : http://www.cplusplus.com/reference/cmath/

- "C" math library is widely divided as:
  - Trigonometric functions
  - Hyperbolic functions
  - Exponential and logarithmic functions
  - Power functions
  - Rounding and remainder functions
  - Other functions

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Trigonometric functions

- cos: Compute cosine

- sin : Compute sine

- tan : Compute tangent

- acos : Compute arc cosine

- asin : Compute arc sine

- atan : Compute arc tangent

- atan2 :Compute arc tangent with two parameters

Hyperbolic functions

- cosh : Compute hyperbolic cosine

- sinh : Compute hyperbolic sine

- tanh : Compute hyperbolic tangent

- acosh: Compute arc hyperbolic cosine

- asinh: Compute arc hyperbolic sine

- atanh: Compute arc hyperbolic tangent

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Exponential and logarithmic functions

- exp : Compute exponential function (function)

- log : Compute natural logarithm (function)

- log10:Compute common logarithm (function)

Power functions

- pow : Raise to power (function)

- sqrt : Compute square root (function)

- cbrt : Compute cubic root (function)

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Rounding and remainder functions

- ceil : Round up value

- floor : Round down value

- fmod : Compute remainder of division

- trunc : Truncate value

- round : Round to nearest

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Other math functions

- fabs : Compute absolute value

- abs : Compute absolute value

String library

<string.h>

- **C Strings**

- This header file defines several functions to manipulate *C strings* and arrays.

Copying:

- memcpy : Copy block of memory

- memmove : Move block of memory

- strcpy : Copy string

- strncpy : Copy characters from string

String library

- Concatenation:
  - strcat : Concatenate strings
  - strncat : Append characters from string

- Comparison:
  - memcmp : Compare two blocks of memory
  - strcmp : Compare two strings
  - strncmp : Compare characters of two strings

String library

- Searching:

  - memchr : Locate character in block of memory

  - strchr : Locate first occurrence of character in string

  - strstr : Locate substring

  - strtok : Split string into tokens

Miscellaneous string functions

- memset : Fill block of memory

- strerror: Get pointer to error message string

- strlen : Get string length
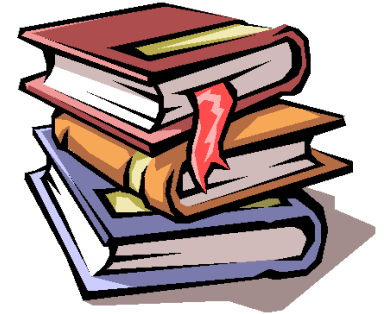
formatted input / output conversion

- Synopsis

#include <stdio.h>

int sprintf(char *str, const char *format, ...);
int snprintf(char *str, size_t size, const char *format, ...);

int sscanf(const char *str, const char *format, ...);

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references

- The GNU C Reference Manual :
  https://www.gnu.org/software/gnu-c-manual/gnu-c-manual.html

- The GNU C Reference Manual :
  http://www.cprogramming.com/

- C Programming Language

by Brian W. Kernighan , Dennis Ritchie

- C: The Complete Reference

by Herbert Schildt

Thank you

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