

C Program Structure

| | |
|---|--|
| <code>/* multi-line */</code> | comment |
| <code>// single-line</code> | comment |
| preprocessing commands | includes header files, define constants and enum |
| global declarations | declare global variables |
| prototype functions | declare functions under main |
| <code>int main (void)</code> { | start of program execution |
| local declarations; executable statements; | the program |
| return 0; | end of program |
| } | |
| user function() { | user defined functions referenced in main |
| function definition; | |
| } | |

C Data Keywords

| Original K&R Keywords | C90 K&R Keywords | C99 Keywords |
|-----------------------|------------------|--------------|
| int | signed | _Bool |
| long | void | _Complex |
| short | | _Imaginary |
| unsigned | | |
| char | | |
| float | | |
| double | | |

scanf() Specifiers

| | |
|---|-------------------------------|
| <code>%c</code> | character |
| <code>%d</code> | signed decimal integer |
| <code>%e, %f, %g, %a^{C99}</code> | floating-point number |
| <code>%E, %F, %G, %A^{C99}</code> | floating-point number |
| <code>%i</code> | signed decimal integer |
| <code>%o</code> | signed octal integer |
| <code>%p</code> | pointer ^{an} address |
| <code>%s</code> | string ¹ |
| <code>%u</code> | unsigned decimal integer |

scanf() Specifiers (cont)

| | |
|---------------------|--|
| <code>%x, %X</code> | signed hexadecimal integer |
| ¹ | begins with first non-whitespace character and ends with the next whitespace character |

printf() Specifiers

| | |
|-----------------|---|
| <code>%a</code> | floating-point number, hexadecimal digit and P-notation C99/C11 |
| <code>%A</code> | floating-point number, hexadecimal digit and P-notation C99/C11 |
| <code>%c</code> | single character |
| <code>%d</code> | signed decimal integer |
| <code>%e</code> | floating-point number, exponent is less than -4 or greater than or equal to the precision |
| <code>%E</code> | floating-point number, exponent is less than -4 or greater than or equal to the precision |
| <code>%f</code> | floating-point number, decimal notation |
| <code>%g</code> | use %f or %e, depending on the value |
| <code>%G</code> | use %f or %E, depending on value |
| <code>%i</code> | signed decimal integer <small>same as %d</small> |
| <code>%o</code> | unsigned octal integer |
| <code>%p</code> | pointer |
| <code>%s</code> | character string |
| <code>%u</code> | unsigned decimal integer |
| <code>%x</code> | unsigned hex integer, using hex digits 0f |
| <code>%X</code> | unsigned hex integer, using hex digits 0F |
| <code>%%</code> | prints a % sign |

