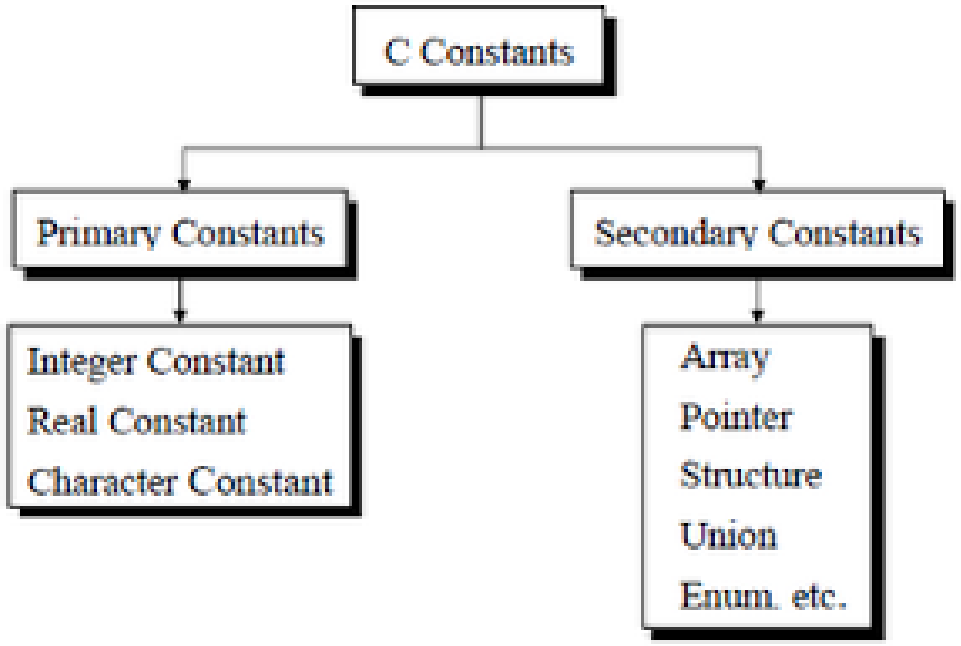
C Constants

- A constant value is the one which does not change during the execution of a program
- Constants are classified as shown in the picture



Integer Constant:

- An integer constant must have atleast one digit.
- It can be either positive or negative.If no sign precedes then it is assumed to be positive(unsigned).
- No decimal point,commas or blanks are allowed in an integer constant
- The range of integer constant depends upon the compiler. For a 16 bit compiler like Turbo C or Turbo C++ the range is -32768 to 32767
- Example 100,-200,+500
- If an integer is too big to fit in to an integer range then it will taken as a long. A **long constant** is written with a terminal l (or) L. **Example 123456789L**
- **Unsigned constants** are written with a terminal u (or) U**.**
- **Unsigned long constants** are written with a terminal ul (or) UL.
- The value of an integer can be specified in octal or hexadecimal instead of decimal. A leading 0(zero) on an integer constant means octal. A leading 0x (or) 0X on an integer constant means hexadecimal.
- For example decimal 32 can be written as 040 in octal and 0x20 in hexadecimal.
- unsigned(u) and long(l) can also be applied to octal and hexadecimal constants. for example 0xFUL is an unsigned long constant with decimal value 15.

Real Constant (or) Floating Point Constant

- A real constant must have atleast one digit.
- It must have a decimal point. No commas or blanks are allowed.

- It could be either positive or negative. Default sign is positive.
- It can be written in a **fractional form**(123.4) or an**exponential form**($1e^{-2}$).In exponential form the part appearing before 'e' is called **mantissa** and the part following 'e' is called **exponent**.
- The suffixes f (or) F indicate a float constant.l or L indicate a long double.
- **Example:** +123.45,500.0,-300.25,$10e^{-5}$,$-200e^{-25}$

Character Constant

- A character constant is an integer, written as a single alphabet,a single digit or a single special symbol enclosed within single quotes.
- Example 'A','5','z','='
- The value of a character constant is the numeric value of the character in the machines character set.
- The maximum length of a character constant can be 1 character.
- Escape sequences are character constants.They look like 2 characters but they are single character only.Example: \n->newline and \t->horizontal tab

String Constant

- Sequence of 0 or more characters surrounded by double quotes
- Example "I am a String",empty string " "
- The double quotes are not part of the string but used to delimit the string
- String constants can be concatenated at compile time. for example "hello" "world" is equivalent to "hello world". This is useful for spliting long strings across several source lines.
- The string constant is an array of characters. The internal representation of a string has a null character '\0' at the end.
- strlen() function returns the number of characters in a string excluding '\0'

Enumeration Constant

- An enumeration is a list of constant integer values. Example: enum bool{yes,no};
- The first name in an enum has value 0, the next one has 1 and so on unless explicit values are specified.
- If not all the values are specified, unspecified values continue the value from the last specified value.
- Enumeration provide a convenient way to associate constant values with names.
- Enumeration is an alternative to #define. In enum the values automatically defined.and easy to define large number of constants

Source:

http://datastructuresprogramming.blogspot.in/2010/02/c-constants.html