C Library - <ctype.h>

The **ctype.h** header file of the C Standard Library declares several functions that are useful for testing and mapping characters.

All the functions accepts **int** as a parameter, whose value must be EOF or representable as an unsigned char.

All the functions return non-zero (true) if the argument c satisfies the condition described, and zero(false) if not.

Library Functions

Following are the functions defined in the header ctype.h −

Sr.No.	Function & Description
1	int isalnum(int c) This function checks whether the passed character is alphanumeric.
2	int isalpha(int c) This function checks whether the passed character is alphabetic.
3	int iscntrl(int c) This function checks whether the passed character is control character.
4	int isdigit(int c) This function checks whether the passed character is decimal digit.
5	int isgraph(int c) This function checks whether the passed character has graphical representation using locale.
6	int islower(int c) This function checks whether the passed character is lowercase letter.
7	int isprint(int c) This function checks whether the passed character is printable.
8	int ispunct(int c) This function checks whether the passed character is a punctuation character.
9	int isspace(int c) This function checks whether the passed character is white-space.
10	int isupper(int c) This function checks whether the passed character is an uppercase letter.
11	int isxdigit(int c) This function checks whether the passed character is a hexadecimal digit.

The library also contains two conversion functions that accepts and returns an "int".

Sr.No.	Function & Description
1	int tolower(int c) This function converts uppercase letters to lowercase.
2	int toupper(int c) This function converts lowercase letters to uppercase.

Character Classes

Sr.No.	Character Class & Description
1	**Digits** This is a set of whole numbers { 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 }.
2	**Hexadecimal digits** This is the set of { 0 1 2 3 4 5 6 7 8 9 A B C D E F a b c d e f }.
3	**Lowercase letters** This is a set of lowercase letters { a b c d e f g h i j k l m n o p q r s t u v w x y z }.
4	**Uppercase letters** This is a set of uppercase letters {A B C D E F G H I J K L M N O P Q R S T U V W X Y Z }.
5	**Letters** This is a set of lowercase and uppercase letters.
6	**Alphanumeric characters** This is a set of Digits, Lowercase letters and Uppercase letters.
7	**Punctuation characters** This is a set of ! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [\ ] ^ _ ` {	} ~
8	**Graphical characters** This is a set of Alphanumeric characters and Punctuation characters.
9	**Space characters** This is a set of tab, newline, vertical tab, form feed, carriage return, and space.
10	**Printable characters** This is a set of Alphanumeric characters, Punctuation characters and Space characters.
11	**Control characters** In ASCII, these characters have octal codes 000 through 037, and 177 (DEL).

12	**Blank characters**
	These are spaces and tabs.
13	**Alphabetic characters**
	This is a set of Lowercase letters and Uppercase letters.