Datatypes in C#

https://csci-1301.github.io/about#authors

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Contents

1 Value Types

1.1 Numeric

1.1.1 Signed Integer

Type	Range	Size
`sbyte`	-128 to 127	Signed 8-bit integer
`short`	-32,768 to 32,767	Signed 16-bit integer
`int`	-2,147,483,648 to 2,147,483,647	Signed 32-bit integer
`long`	-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807	Signed 64-bit integer

1.1.2 Unsigned Integer

Type	Range	Size
byte	0 to 255	Unsigned 8-bit integer
ushort	0 to 65,535	Unsigned 16-bit integer
uint	0 to 4,294,967,295	Unsigned 32-bit integer
ulong	0 to 18,446,744,073,709,551,615	Unsigned 64-bit integer

1.1.3 Floating-point Numbers

Type	Approximate Range	Precision
float	±1.5e−45 to ±3.4e38	7 digits
double	±5.0e−324 to ±1.7e308	15–16 digits
decimal	(-7.9 x 1028 to 7.9 x 1028)/(100 to 1028)	28–29 significant digits

1.2 Logical

Type	Possible Values	Size
bool	**true**, **false**	8-bit

1.3 Character

Type	Range	Size
char	U+0000 to U+ffff	Unicode 16-bit character

2 Literals

Name	Corresponding datatype	Examples
Integer Literal	int	40, -39, 291838, 0, …
Float Literal	float	3.5F, -43.5f, 309430.70006F, …
Double Literal	double	28.98, 239.0, -391.089, 0.0, …
Decimal Literal	decimal	8.95m, 3283.9M, -30m, …
Boolean Literal	bool	**true**, **false**
Character Literal	char	'Y', 'a', '0', '\n', '\x0058', '\u0058', …

3 Compatibility

This table is to be read as

> ✓ means that those values or variables from the datatypes in the row and column can be "operated together" (meaning, you can for instance multiply them), ✘ means that those values or variables from the datatypes in the row and column can*not* be "operated together" (meaning, you can*not* for instance multiply them).

	Integer Literal	Float Literal	Double Literal	Decimal Literal
`int`	✓	✘	✘	✘
`float`	✓	✓	✘	✘
`double`	✓	✓	✓	✘
`decimal`	✓	✘	✘	✓

4 Result Type of Operations

This table is to be read as

> Values or variables from the datatypes in the row and column can be "operated together" and will produce the datatype indicated in the cell, or cannot be "operated together" if the value in the cell is "illegal".s

	`int`	**`float`**	**`double`**	**`decimal`**
`int`	`int`	`float`	`double`	`decimal`
`float`	`float`	`float`	`double`	illegal
`double`	`double`	`double`	`double`	illegal
`decimal`	`decimal`	illegal	illegal	`decimal`

References

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