

| Data Type | Statistic(s) | Explanation |
|---|--|---|
| <code>int</code> (32-bit) | 1. U.S. population: 333 million 2. Facebook daily users: 2 billion | Fits within the 32-bit signed range (−2,147,483,648 to 2,147,483,647). |
| <code>long long int</code> (64-bit) | 1. Earth's population: 8 billion 2. Stars in the Milky Way: 100 billion | Requires a larger range for numbers exceeding 32-bit limits. |
| <code>float</code> (32-bit floating-point) | 9.81 m/s ² | Used for real-world measurements with decimals (e.g., gravitational acceleration). |
| <code>double</code> (64-bit floating-point) | 149,597,870.7 km | Illustrates precision needed for scientific calculations (e.g., Earth-Sun distance). |
| <code>char</code> (8-bit) | 26 | Represents the number of letters in the modern English alphabet. |
| <code>long double</code> (extended precision) | $\pi \approx 3.14159265358979323846$ | Provides extra digits for mathematical constants requiring high precision. |
| <code>unsigned short int</code> (16-bit) | 65,536 | Represents the total number of distinct colors in a 16-bit palette. |
| <code>unsigned int</code> (32-bit) | 4,294,967,295 bytes | Maximum number of bytes addressable in a 32-bit system (just under 4 GB). |
| <code>unsigned long long int</code> (64-bit unsigned) | 7.5×10^{18} | Estimated number of grains of sand on all the Earth's beaches. |
| <code>short int</code> (16-bit signed) | 7,000 | Estimated number of distinct languages spoken worldwide. |
| <code>_Bool</code> | 0 or 1 | Represents a binary state (e.g., a light switch's off/on). |
| <code>unsigned char</code> (8-bit unsigned) | 256 | Can represent 256 unique values (e.g., levels in an 8-bit grayscale image or extended ASCII). |
| <code>signed char</code> (8-bit signed) | -128 to 127 | Ideal for a sentiment score range, covering negative and positive values. |
| <code>long int</code> | 2,147,483,647 | Maximum Unix timestamp on many 32-bit systems, linked to the Year 2038 problem. |
| <code>size_t</code> | 18.4 exabytes (approx. 18.4×10^{18} bytes) | The theoretical upper limit of addressable memory on a 64-bit system. |
| <code>wchar_t</code> | 1,114,112 | Represents the total number of distinct Unicode code points. |

