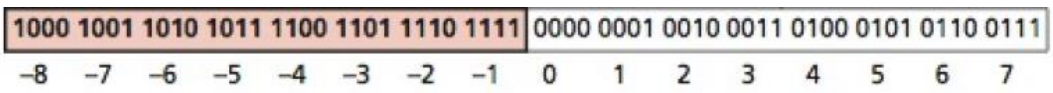
1. A **bit** (binary digit) is the smallest unit of data that can be stored in a computer and has a value of 0 or 1. A bit represents the state of a device that can take one of two states. Computers us various two-state devices to store data.
   位是存储在计算机中的最小单位，它的值是 0 或 1。位代表设备的某一状态，这些设备只能处于两种状态之一。计算机使用各种各样的双态设备来存储数据。
2. A **bit pattern** is used to represent different types of data. By tradition a bit pattern with eight bits is called a **byte**. Sometimes the term **word** is used to refer to a longer bit pattern.
   位模式用于表示数据的不同类型。通常，长度为 8 的位模式被称为 1 个**字节**。有时用**字**指代更长的位模式。
3. An **unsigned integer** is an integer that can never be negative and can take only 0 or positive values. Its range is between 0 and positive infinity.
   无符号整数就是非负整数，取值为 0 或正值。它的范围介于 0 到无穷大之间。
4. The **ones' complement** of a binary number is defined as the value obtained by inverting all the bits in the binary representation of the number. The ones' complement of the number then behaves like the negative of the original number in some arithmetic operations.
   将二进制数所有数位反转，得到的数即为原二进制数的**反码**。一个数的反码在很多算术运算中的表现与这个数的相反数很相似。
5. Almost all computers use **two's complement** representation to store a signed integer in a *n*-bit memory location. The leftmost bit defines the sign of the integer. If it is 0, the integer is positive. If it is 1, the integer is negative.
   几乎所有的计算机都使用**二进制补码**表示法来存储位于 *n* 位存储单元中的有符号整数。最左位（首位）决定符号，如果最左位是 0，该整数为非负数；如果最左位是 1，该整数为负数。



6. The American National Standards Institute (ANSI) developed a code called **American Standard Code for Information Interchange (ASCII).** This code uses seven bits for each symbol. This means that 2^7=128 different symbols can be defined in this code.
   美国国家标准协会（ANSI）开发了一种代码，称为**美国信息交换标准码（ASCII）。**该代码使用 7 位表示每个符号，即该代码可以定义 2^7=128 种不同的符号。
7. **Unicode** uses 32 bits and can therefor represent up to 2^{32}=4294967296 symbols. Different sections of the code are allocated to symbols from different languages in the world. Some parts of the code are used for graphical and special symbols.
   Unicode 使用 32 位，最多能表示 2^{32}=4294967296 个符号。代码的各部分被分配用于表示来自世界上不同语言的符号，其中还有一些部分用于表示图形和特殊符号。
8. A **number system (numeral system)** defines how a number can be represented using distinct symbols. A number can be represented differently in different systems.
   数字系统（数码系统）定义了如何用独特的符号表示一个数字。一个数字在不同的系统中可能有不同的表示方法。
9. A **binary** number is a number expressed in the binary numeral system or base-2 numeral system which represents numeric values using two different symbols: typically 0 (zero) and 1 (one).
   二进制数是指用二进制记数系统，即以 2 为基数的记数系统表示的数字。这一系统中，数通常用两个不同的符号 0（代表零）和 1（代表一）来表示。