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BINARY

MANIPULATING BINARY

BACKGROUND

The history of manipulating binary can be traced back to the early 18th century when Gottfried Leibniz, a German mathematician, proposed the binary number system as a way to represent numbers. However, it was not until the mid-20th century that binary became widely used in computing. In 1937, George Stibitz, an American mathematician, used binary digits to transmit signals over a telephone line and perform calculations remotely. In 1945, John von Neumann, a Hungarian-American mathematician, proposed the use of binary digits in computer design, leading to the development of binary-coded decimal (BCD) and binary arithmetic logic units (ALUs). Today, binary manipulation is an essential component of computer programming and engineering, and the use of binary code is universal in modern computing and telecommunications.

CONCEPT Binary is a number system that uses only two digits, 0 and 1, to represent numbers.

EXAMPLES

BINARY DIGITS: The two digits used in the binary number system, 0 and 1.

BINARY NUMBERS: Numbers that are expressed using only binary digits.

DECIMAL NUMBERS: Numbers expressed in the base-10 number system, which are commonly used in everyday life.

CONVERSION CHARTS/TABLES: Reference charts or tables that help in converting decimal numbers to binary and vice versa.

LOGICAL OPERATORS: Symbols used in binary arithmetic operations such as AND, OR and NOT.

ARITHMETIC OPERATORS: Symbols used in binary arithmetic operations such as addition, subtraction, multiplication and division.

BITWISE OPERATORS: Special operators that operate on individual bits of binary numbers.

BINARY CALCULATORS: Tools that can perform arithmetic and logical operations on binary numbers.

BINARY CODE: A system of representing data using only two digits, 0 and 1, which is widely used in computing and telecommunications.

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