Float and Double Data Types

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Float:

The float (f) data type is a mechanism which would handle real numbers and convert the real-world data into binary and stores it in the computer's memory.

It is denoted by 'f'. The float data type is allocated with 4 bytes of memory in the ram.

Declaring the float data type:

float x;

x=3.14f;

Range of data handled by float data type:

Float gives 6-7 decimal digits precision. It is used if we want to use memory effectively because it takes less memory in comparison to double data type. It consists of one sign bit (S), eight exponent bits (E), and twenty-three mantissa bits (M).

Hence, the range of float is 3.4e-038 to 3.4e+038

Double:

The double (d) data type is a mechanism which would handle real numbers and convert the real-world data into binary and stores it in the computer's memory.

It is denoted by 'd'. The double data type is allocated with 8 bytes of memory in the ram.

Double is more precise than float as it gives 15 digits precision. Double is preferred to float when more precise values are to be stored.

Declaring the double data type:

double y;

y=3.14173692d;

Range of data handled by double data type:

The double data type is a 64-bit double-precision. It means that it gives 15-16 decimal digits precision. It consumes more memory in comparison to the float data type. It is used to store decimal values. Its default value is 0.0d. It is optional to add suffix d or D.

It consists of one sign bit (S), eleven exponent bits (E), and fifty-two mantissa bits (M).

Hence, the range of float is 1.7e-308 to 1.7e+308

Number of digits allocated for float and double after the decimal point:

1. Float has the precision of 7 digits after the decimal point.
2. Double has the precision of 15 digits after the decimal point.