C LIBRARY FUNCTION - FREXP

Description

The C library function **double frexp***doublex, int * exponent* return value is the mantissa, and the integer pointed to by **exponent** is the exponent. The resultant value is **x = mantissa * 2 ^ exponent**.

Declaration

Following is the declaration for frexp function.

```
double frexp(double x, int *exponent)
```

Parameters

- **x** − This is the floating point value to be computed.
- **exponent** − This is the pointer to an **int** object where the value of the exponent is to be stored.

Return Value

This function returns the normalized fraction. If the argument x is not zero, the normalized fraction is **x** times a power of two, and its absolute value is always in the range 1/2 *inclusive* to 1 *exclusive*. If **x** is zero, then the normalized fraction is zero and zero is stored in exp.

Example

The following example shows the usage of frexp function.

```
#include <stdio.h>
#include <math.h>

int main ()
{
   double x = 1024, fraction;
   int e;

   fraction = frexp(x, &e);
   printf("x = %.2lf = %.2lf * 2^%d\n", x, fraction, e);

   return(0);
}
```

Let us compile and run the above program to produce the following result −

```
x = 1024.00 = 0.50 * 2^11
```