C library function - atan2()

Description

The C library function **double atan2(double y, double x)** returns the arc tangent in radians of **y/x** based on the signs of both values to determine the correct quadrant.

Declaration

Following is the declaration for atan2() function.

```
double atan2(double y, double x)
```

Parameters

- **x** − This is the floating point value representing an x-coordinate.
- **y** − This is the floating point value representing a y-coordinate.

Return Value

This function returns the principal arc tangent of y/x, in the interval [-pi,+pi] radians.

Example

The following example shows the usage of atan2() function.

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

#define PI 3.14159265

int main () {
   double x, y, ret, val;

   x = -7.0;
   y = 7.0;
   val = 180.0 / PI;

   ret = atan2 (y,x) * val;
   printf("The arc tangent of x = %lf, y = %lf ", x, y);
   printf("is %lf degrees\n", ret);

   return(0);
}
```

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

```
The arc tangent of x = -7.000000, y = 7.000000 is 135.000000 degrees
```