Lab 12

Raising x to the y power has the following recursive definition:

$$\text{power}(x, y) = \begin{cases} 1 & \text{if } y = 0 \\ \text{x} & \text{if } y = 1 \\ \text{x} * \text{power}(x, y - 1) & \text{if } y > 1 \\ 1 \ / \ \text{power}(x, -y) & \text{if } y < 0 \end{cases}$$

Write a program that implements a recursive function named Power. Your program prompts the user to enter the base (x) and the exponent (y) values, and displays the result of x raise to the power of y.

Here are a few example runs of the program:

Example Program Run 1:

> Please enter the base and exponent values y: 2 3
> 2 raises to the power of 3 equals to 8.

Example Program Run 2:

> Please enter the base and exponent values: -2 -3
> -2 raises to the power of -3 equals to -0.125

Example Program Run 3:

> Please enter the base and exponent values: 200 1
> 200 raises to the power of 1 equals to 200

Example Program Run 4:

> Please enter the base and exponent values: 1.5 3
> 1.5 raises to the power of 3 equals to 3.375