Fibonacci Sequence

As part of my CTE research for my SQL Saturday presentation in Redmond in 2 weeks I decided to take on some classic computer science algorithms with CTE's. Here is what I cam up with.

Any math geek can tell you what the **Fibonacci Sequence** is, but do you know how to calculate it with a query?

First, what is the Fibonacci Sequence?

By definition, the first two numbers in the Fibonacci sequence are 0 and 1, and each subsequent number is the sum of the previous two.

For instance, the following are Fibonacci Numbers:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657, 46368, 75025, 121393, 196418, 317811, 514229, 832040, 1346269, 2178309, 3524578, 5702887, 9227465, 14930352, 24157817, 39088169, 63245986, 102334155, 165580141, 267914296, 433494437, 701408733 ...

Fibonacci Sequence as a Computer Science Challenge

Often times calculating the **Fibonacci Sequence** is used as a computer science puzzle, or programming interview question to see if you understand recursion. It is very simple to do in any programming language that supports recursion.

So what is recursion... Recursion is a method of programming where a function ends up calling back into itself.

Writing a query to calculate the Fibonacci Sequence

In order to do this you need to understand recursion and CTE's.

The following query uses a recursive CTE query to generate the fibonacci sequence.

```
-- Calculating the Fibonacci sequence WITH Fibonacci (PrevN, N) AS

( SELECT 0, 1

UNION ALL

SELECT N, PrevN + N

FROM Fibonacci

WHERE N
```