## **Finding Fibonacci**

Applying Fibonacci in art, finance and the world

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**Objective:**

* Evaluate the image for an “aesthetically pleasing” score.
* Stock market analysis and prediction.
* Applying Fibonacci in finding happiness.

**Expected Output:**

The final project will consist of a website that will offer options to explore the multiple applications of the golden ratio.

**What is Fibonacci:**

In [mathematics](https://en.wikipedia.org/wiki/Mathematics), the **Fibonacci numbers** are the numbers in the following [integer sequence](https://en.wikipedia.org/wiki/Integer_sequence), called the **Fibonacci sequence**, and characterized by the fact that every number after the first two is the sum of the two preceding ones:

0, 1, 1 ,2 ,3, 5 ,8 ,13, 21, 34, 55, 144…etc.

Fibonacci numbers appear unexpectedly often in mathematics, so much so that there is an entire journal dedicated to their study, the [*Fibonacci Quarterly*](https://en.wikipedia.org/wiki/Fibonacci_Quarterly).

Fibonacci arrangement minimize space and maximize energy.

**Plan to proceed:**

We will start with the first objective and proceed in stages.

**More on Fibonacci:**

* Engineering Connection: The Fibonacci sequence is widely used in engineering applications including computer data structures and sorting algorithms, financial engineering (Stock price prediction), audio compression, and architectural engineering. The Fibonacci sequence can be seen in nature in the spirals of a sunflower's seeds and the shape of a snail's shell. The Fibonacci sequence is also the basis for the golden ratio, which is a classical proportion used in architecture and design.
* Biological Connection: Fibonacci series is useful at modeling growth of animal populations, plant cell growth, snowflake shape, plant shape, cryptography, and of course computer science along with DNA pattern of nature.

* Other Connections: Applications of Fibonacci numbers include computer algorithms such as the [Fibonacci search technique](https://en.wikipedia.org/wiki/Fibonacci_search_technique) and the [Fibonacci heap](https://en.wikipedia.org/wiki/Fibonacci_heap) data structure, and graphs called [Fibonacci cubes](https://en.wikipedia.org/wiki/Fibonacci_cube) used for interconnecting parallel and distributed systems. They also appear in biological settings,[[11]](https://en.wikipedia.org/wiki/Fibonacci_number#cite_note-S._Douady_and_Y._Couder_1996_255%E2%80%93274-11) such as branching in trees, [phyllotaxis](https://en.wikipedia.org/wiki/Phyllotaxis) (the arrangement of leaves on a stem), the fruit sprouts of a [pineapple](https://en.wikipedia.org/wiki/Pineapple),[[12]](https://en.wikipedia.org/wiki/Fibonacci_number#cite_note-Jones_2006_544-12) the flowering of an [artichoke](https://en.wikipedia.org/wiki/Artichoke), an uncurling [fern](https://en.wikipedia.org/wiki/Fern) and the arrangement of a [pine cone](https://en.wikipedia.org/wiki/Pine_cone)'s bracts.