

CPSC 3720  
Lesson 31


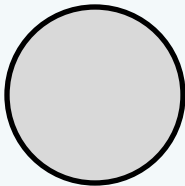
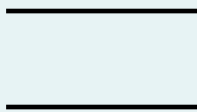



Connie Taylor  
Professor of Practice

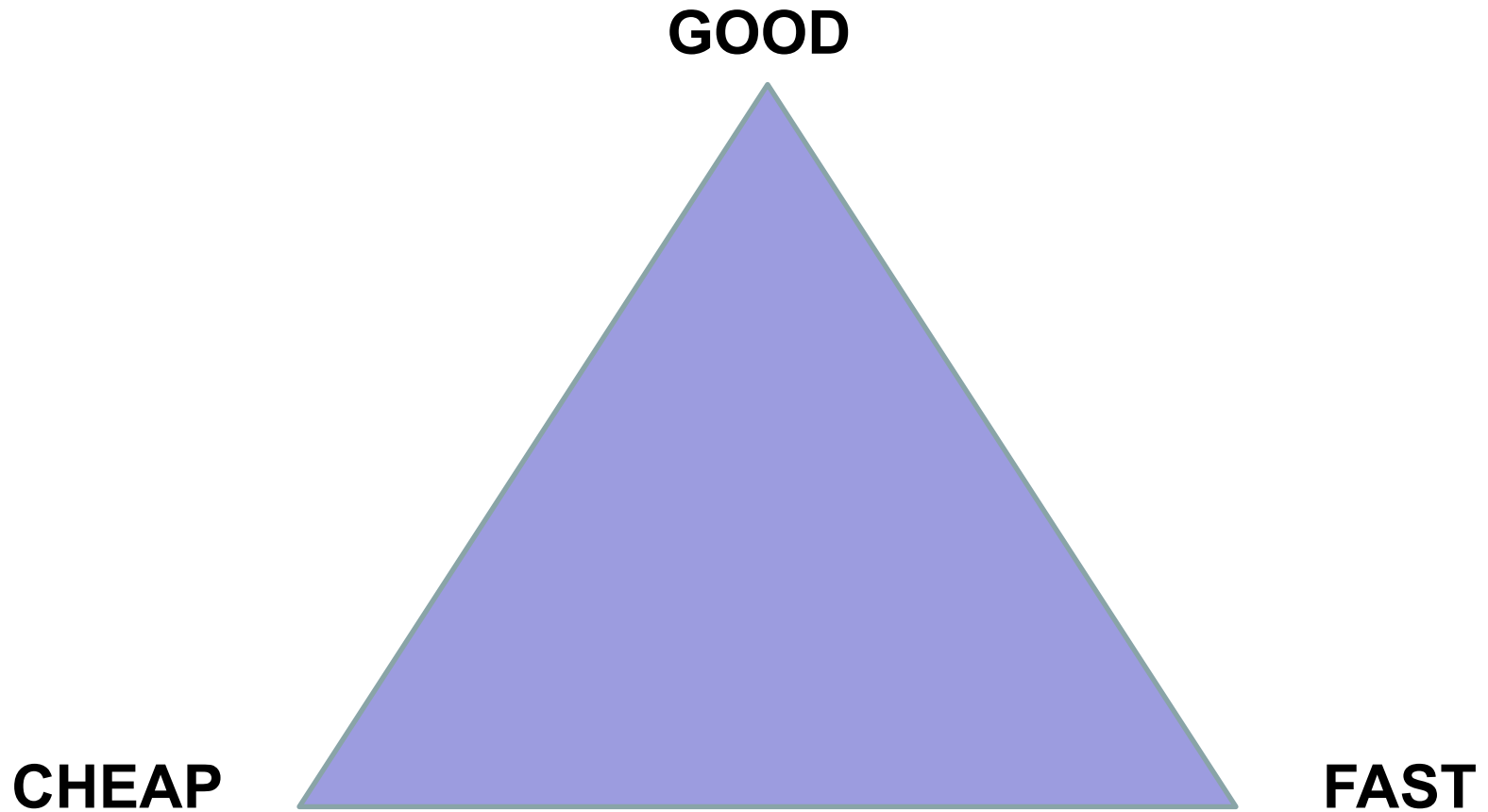


School of  
**COMPUTING**

# DFD Notation

Entity	Yourdon/De Marco	Definition
External Entity		An external entity can represent a human, system or subsystem. It is where certain data comes from or goes to. It is external to the system we are designing.
Process		A process is a business activity or function where the manipulation and transformation of data takes place. A process can be decomposed to finer levels of detail.
Store		A data store represents the storage of persistent data required and/or produced by the process.
Flow		A data flow represents the flow of information, with its direction represented by an arrowhead that shows at the end(s) of flow connector.

# Software Planning Triangle



**Pick any two...**

# Planning Software Projects is EXTREMELY HARD

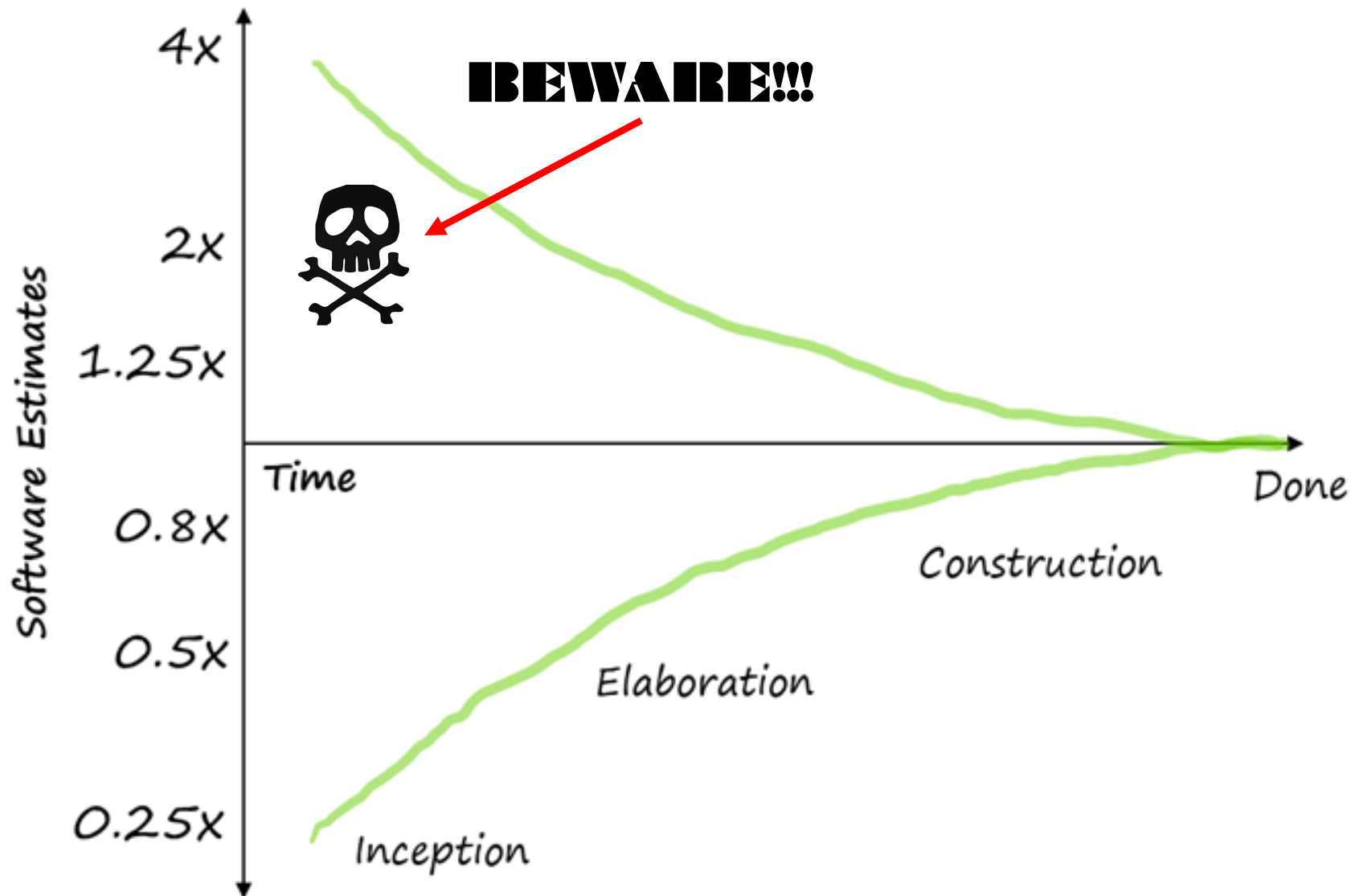
Why is it so hard to plan?

And why do we need a plan?

## It comes down to Estimation

- Software estimates are typically bad guesses....
- And software engineers are notoriously overly-optimistic...

# The Cone of Uncertainty



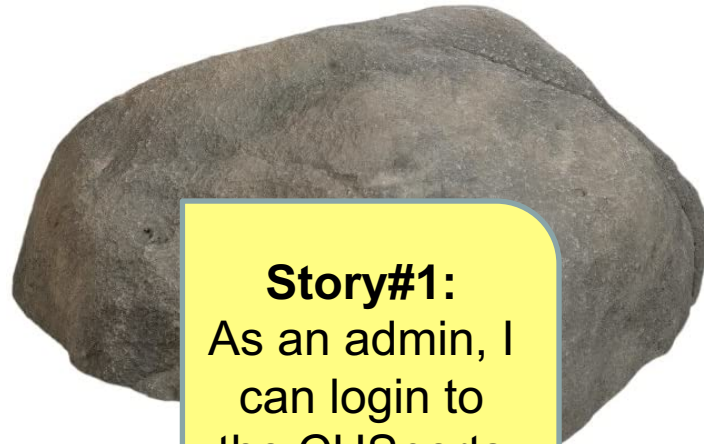
# Don't try to fool yourself..

- Science was attempted: COCOMO, LOC, Function Points; but all are educated guesses in the end.
- Embrace the uncertainty of software development complexities with Agile:
  - Start with a high-level plan and budget
  - Ongoing refinement (reminds us we were guessing)
- How?
  - Keep it Simple
  - Use Relative Sizing

# **SIMPLE – The estimate includes everything**

Testing

Design



**Story#1:**  
As an admin, I  
can login to  
the CUSports  
system.

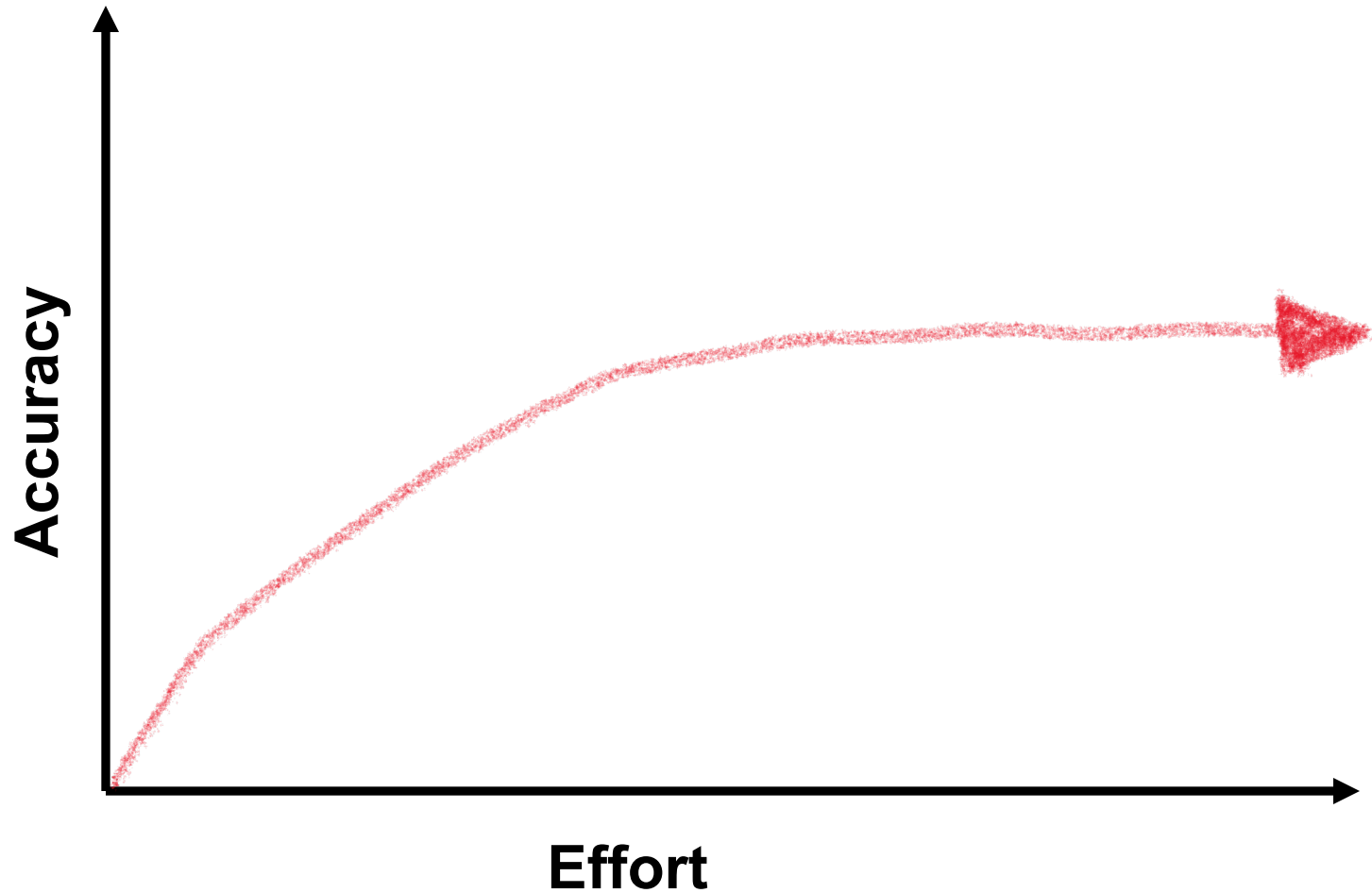
Coding

Documentation

UX



# **SIMPLE – Don't get stuck in analysis paralysis!**



# Use Relative Sizing



**Small Story**

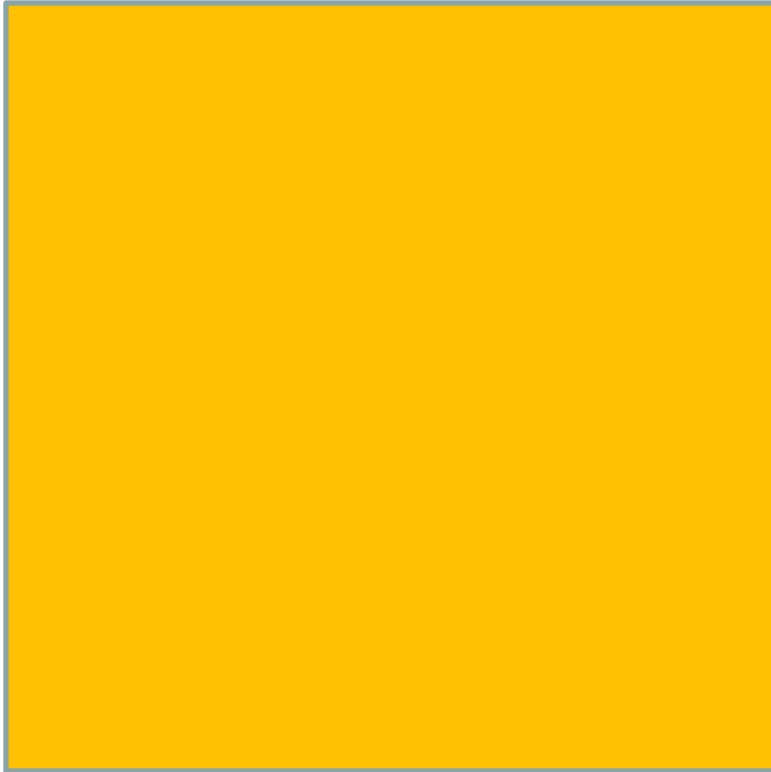


**Medium Story**



**Large Story**

**Estimate absolutely**

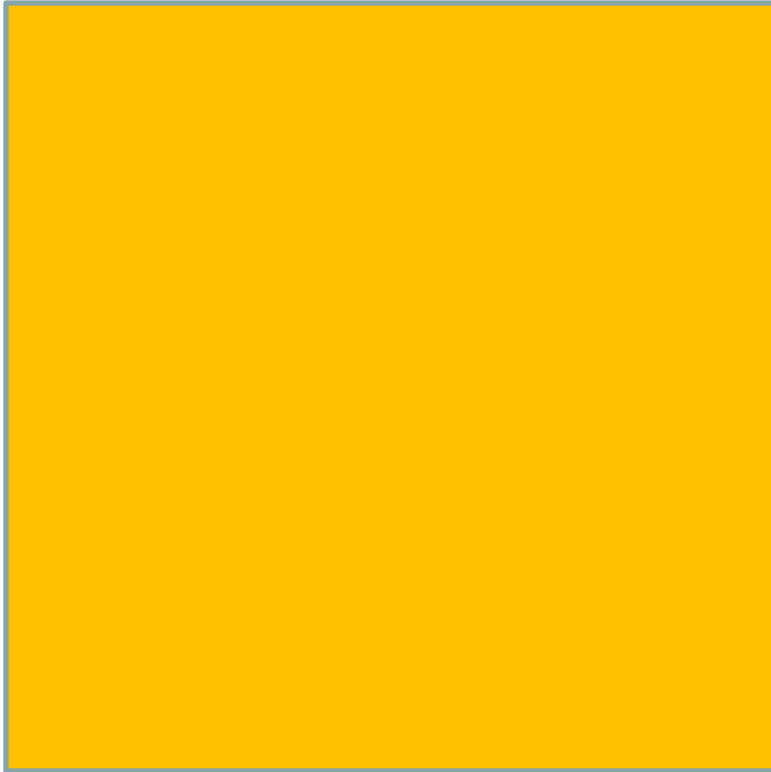


$X \text{ in}^2$



$Y \text{ in}^2$

# Estimate relatively

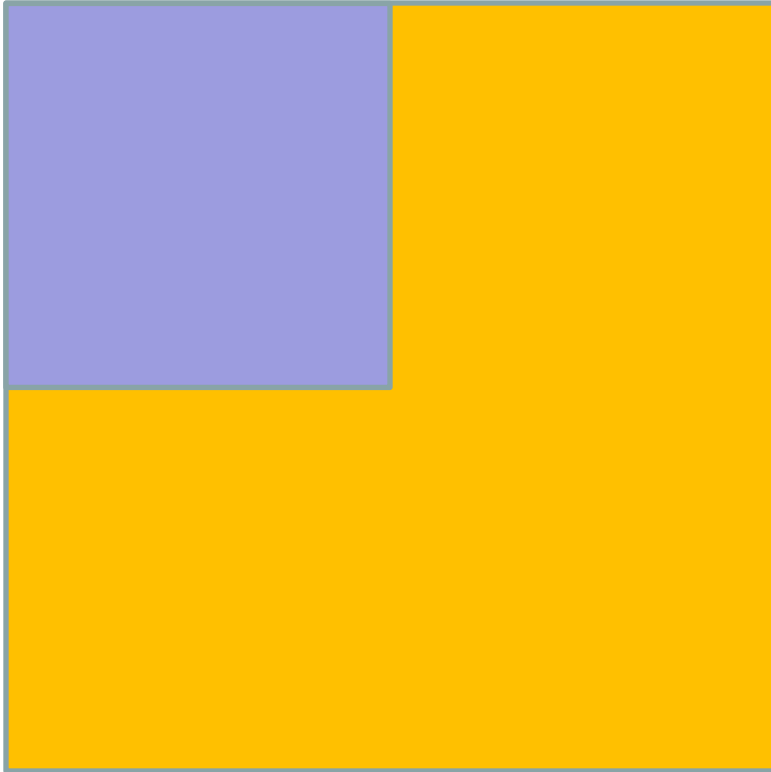


$X \text{ in}^2$



$Y \text{ in}^2$

# Which is easier?



**4x**

## Relative sizing is a cornerstone of Agile planning

Think about “bigness” of a story  
and not “time”

# Units of Measure Don't Matter!

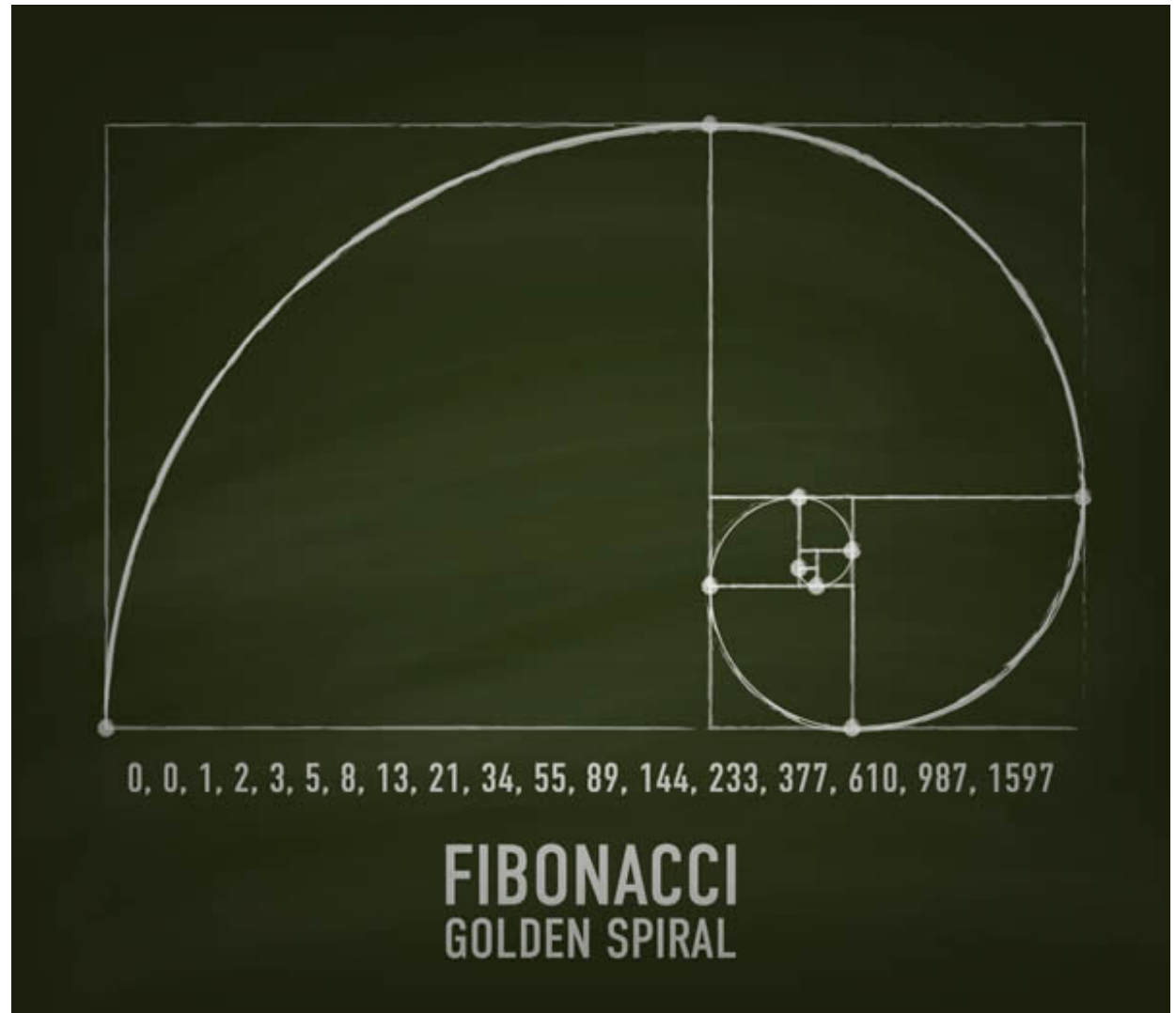


**Medium Story**



**3 Story Points**

## Estimation using Fibonacci Numbers





## Let's Practice!

Estimation using Fibonacci Numbers  
– make a copy of below file

<https://drive.google.com/file/d/1kFhSloATUVq3A-9GdV0Md0vZi2fhIvD3/view?usp=sharing>

# Ch. 2 of the Mythical Man Month (O'Reilly book)

“The Mythical Man Month”

Also, we will play Poker on Friday!