

A Gentle Guide to Genetic Algorithms

Mimicking Mother Nature

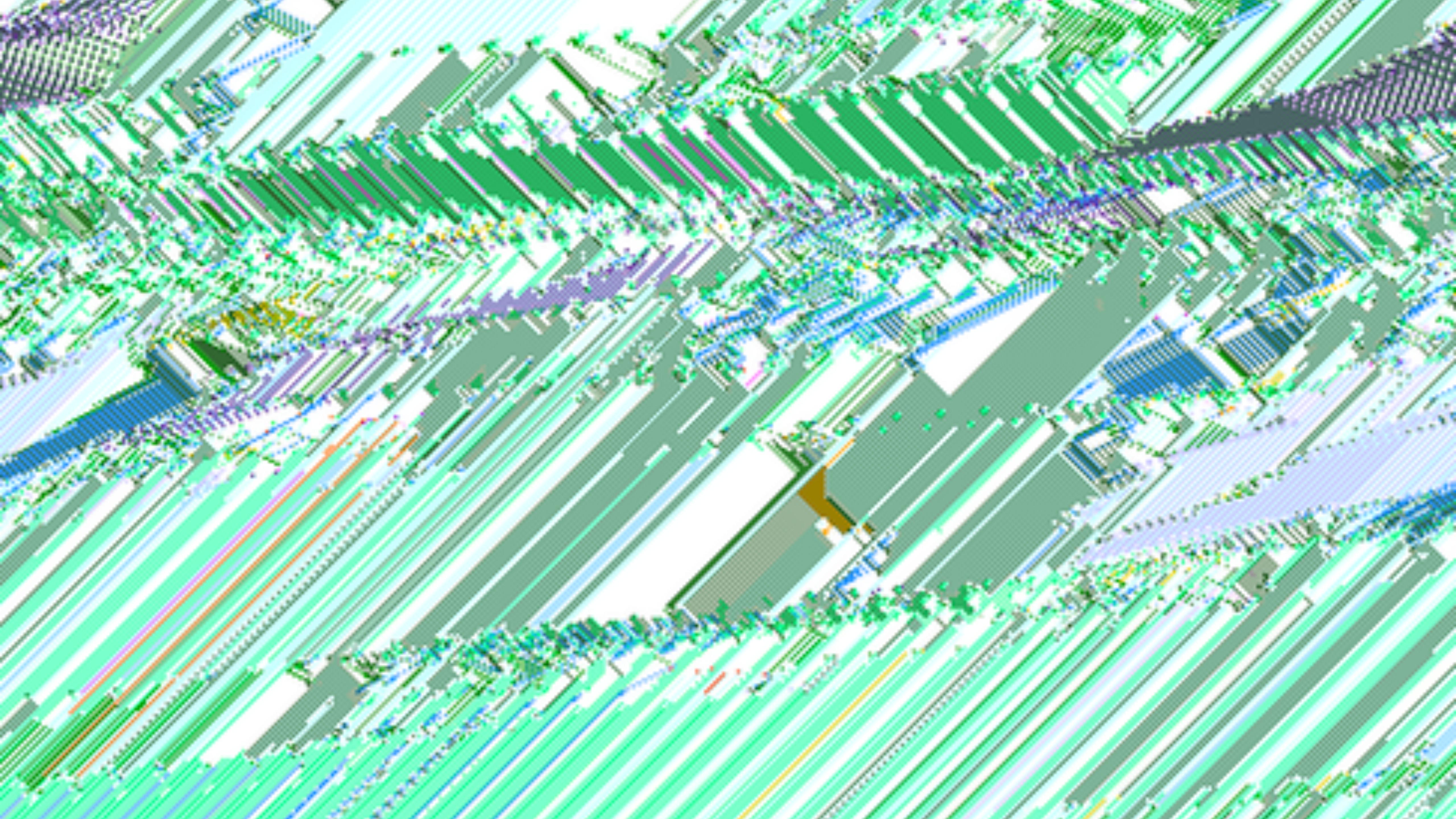
What does @captainsafia do?

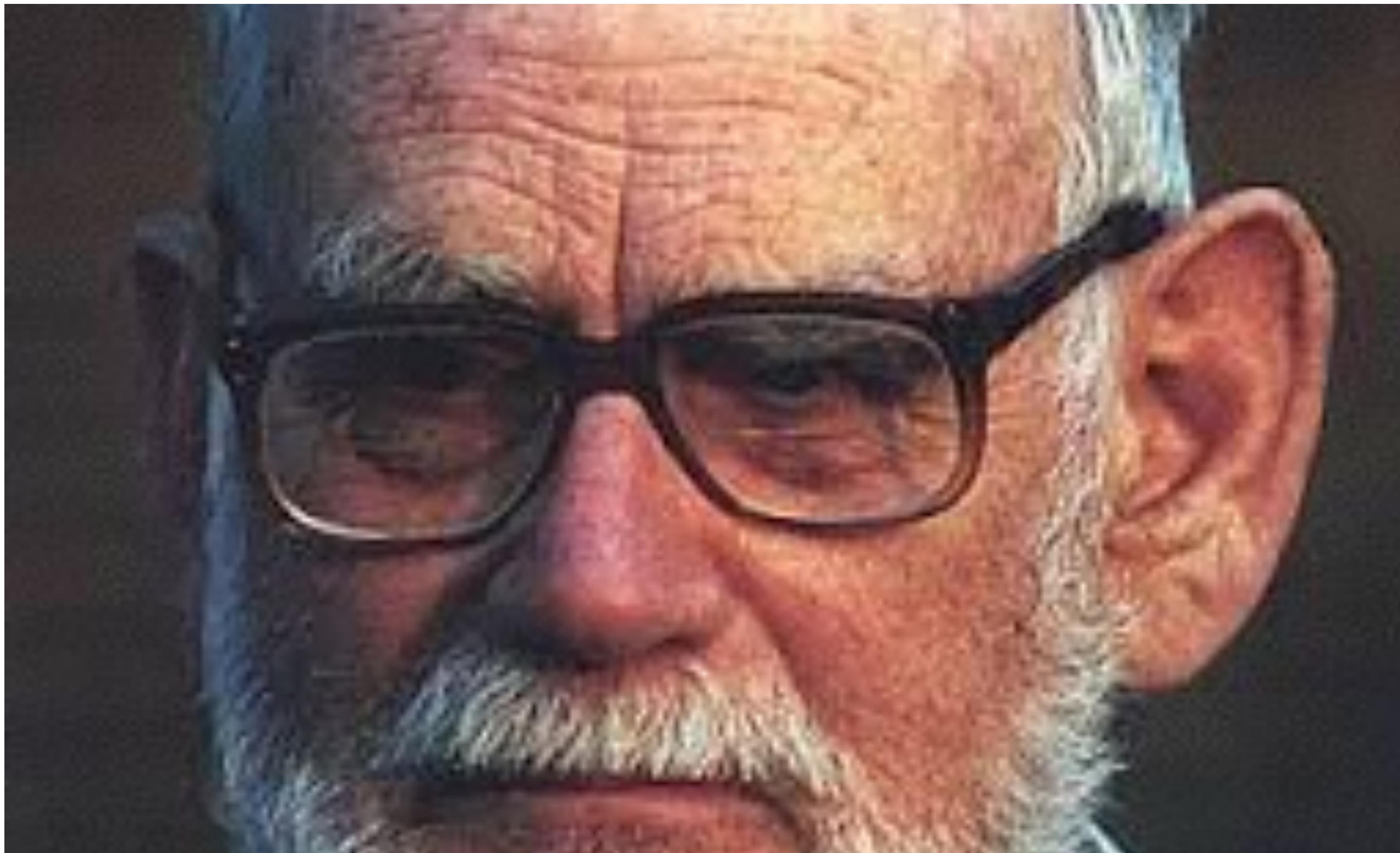
@PyLadiesChicago

@ChickTechChi

@dsfaco

@ProjectJupyter





Computer Models in Genetics

Alex Fraser and Donald Burnell



Adaptation in Natural and Artificial Systems

John Holland



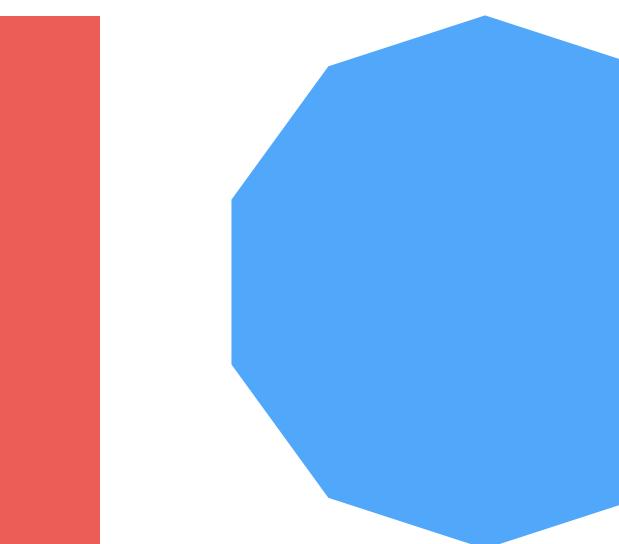
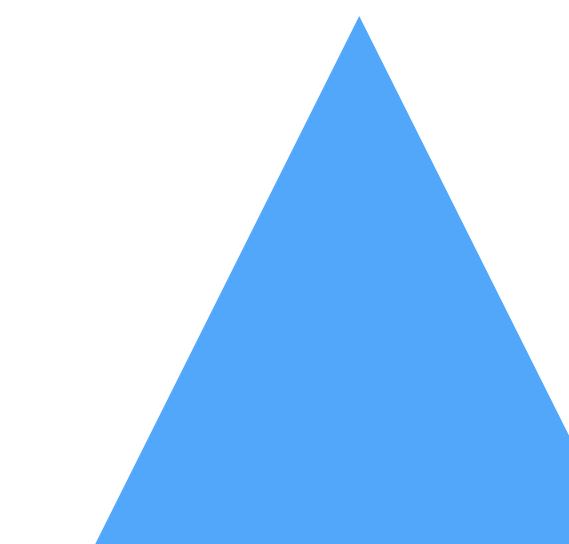
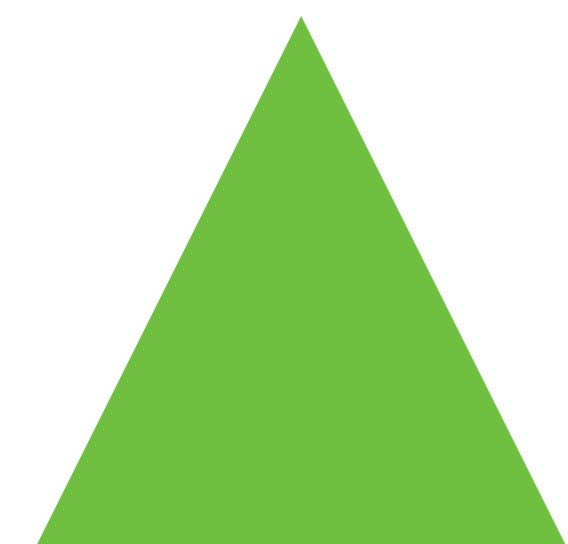
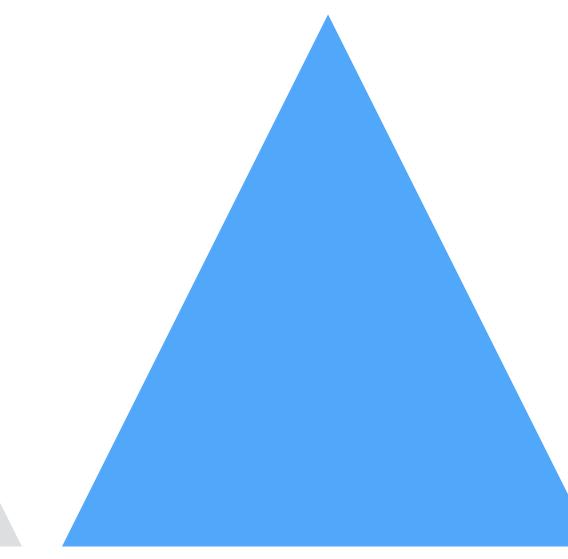
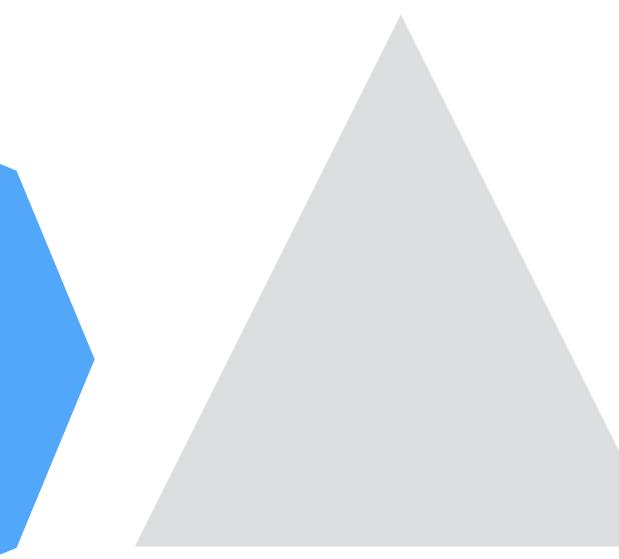
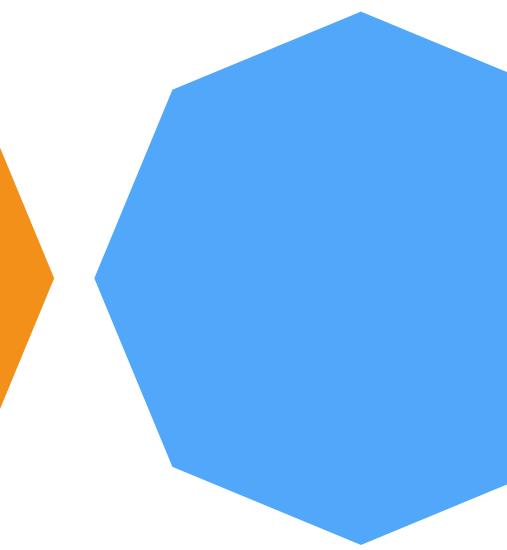
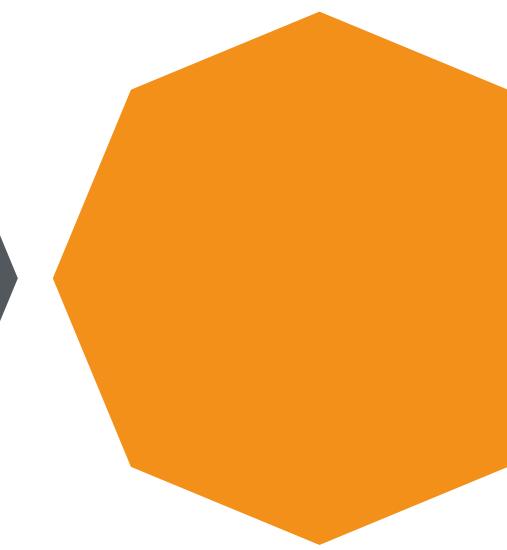
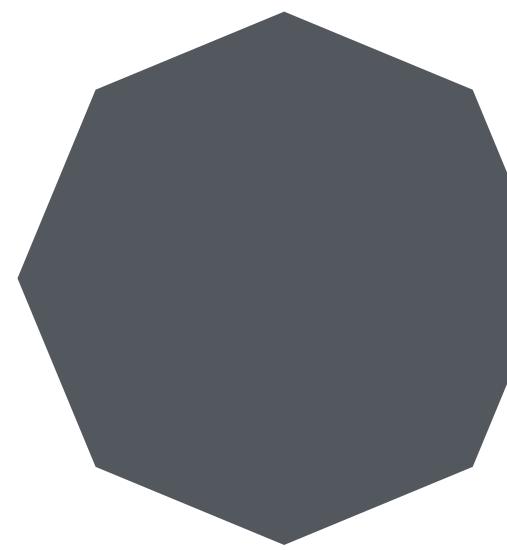
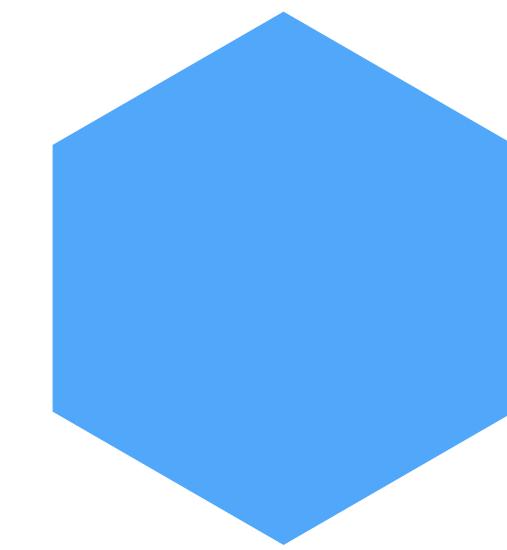
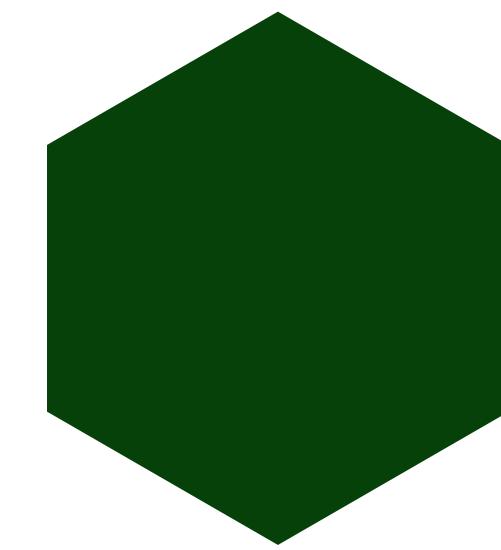
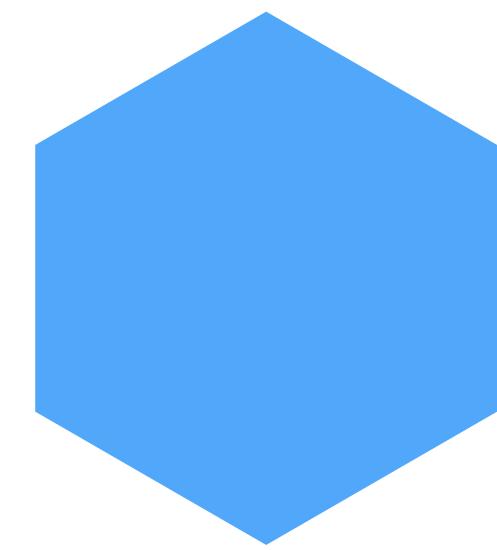
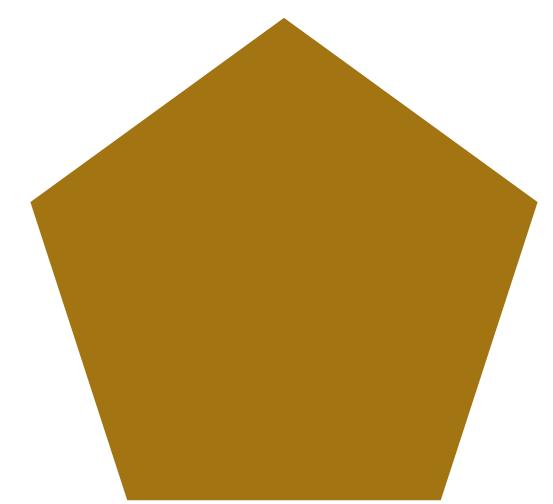
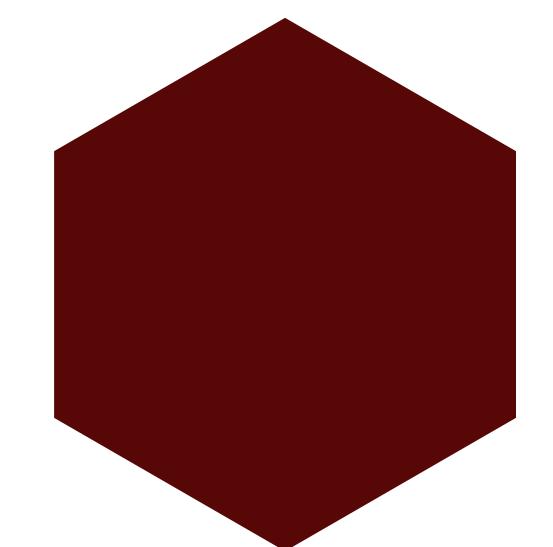
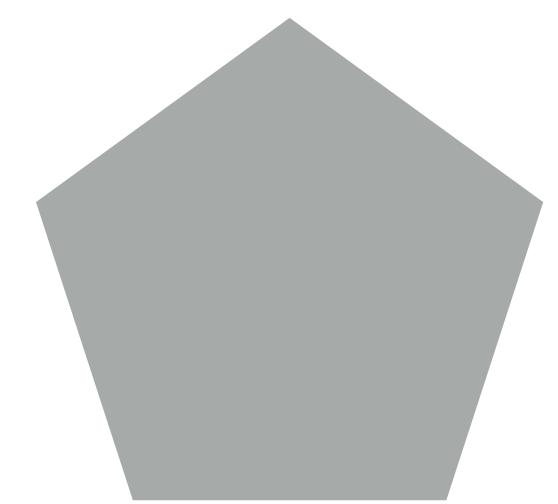
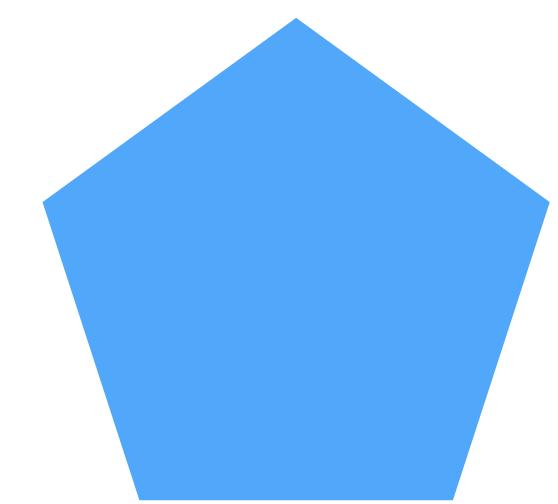
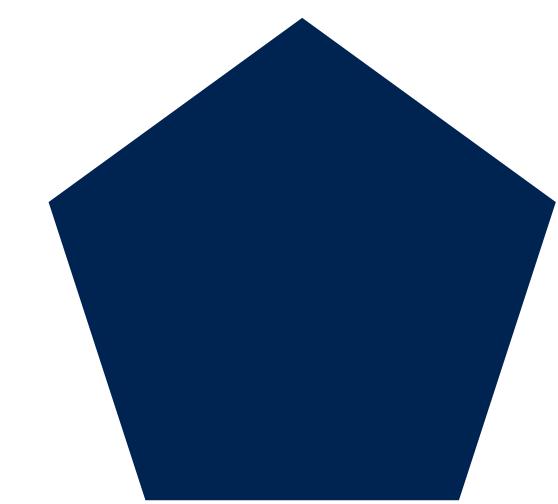
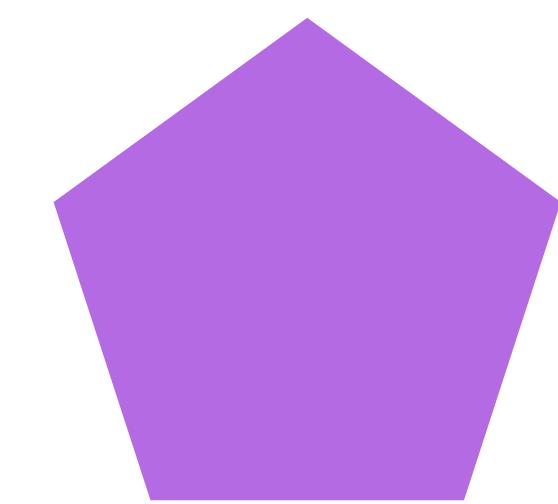
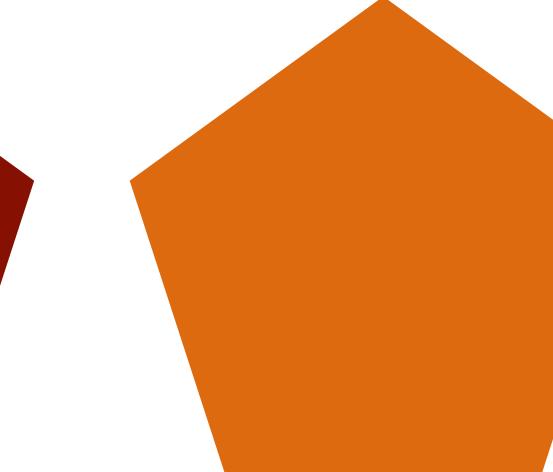
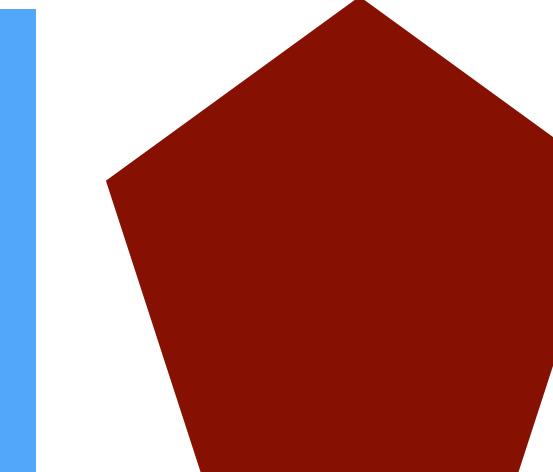
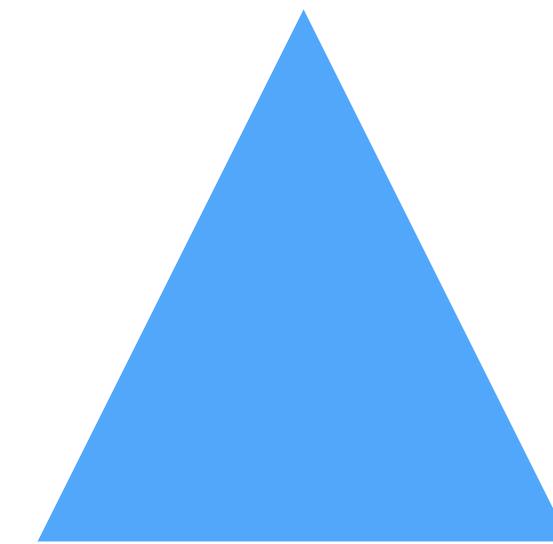
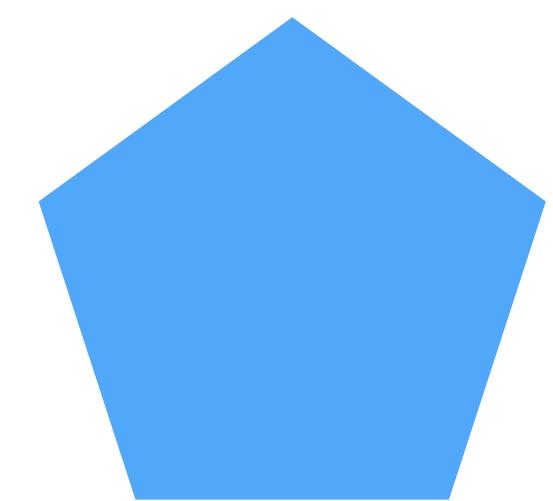
Find the Best Solutions to any Optimization Problem

Wouldn't you like to know the best allocation of your limited resources to maximize your profits? Or the most efficient schedule to minimize costs? Or the most efficient remediation strategy to minimize environmental damage?

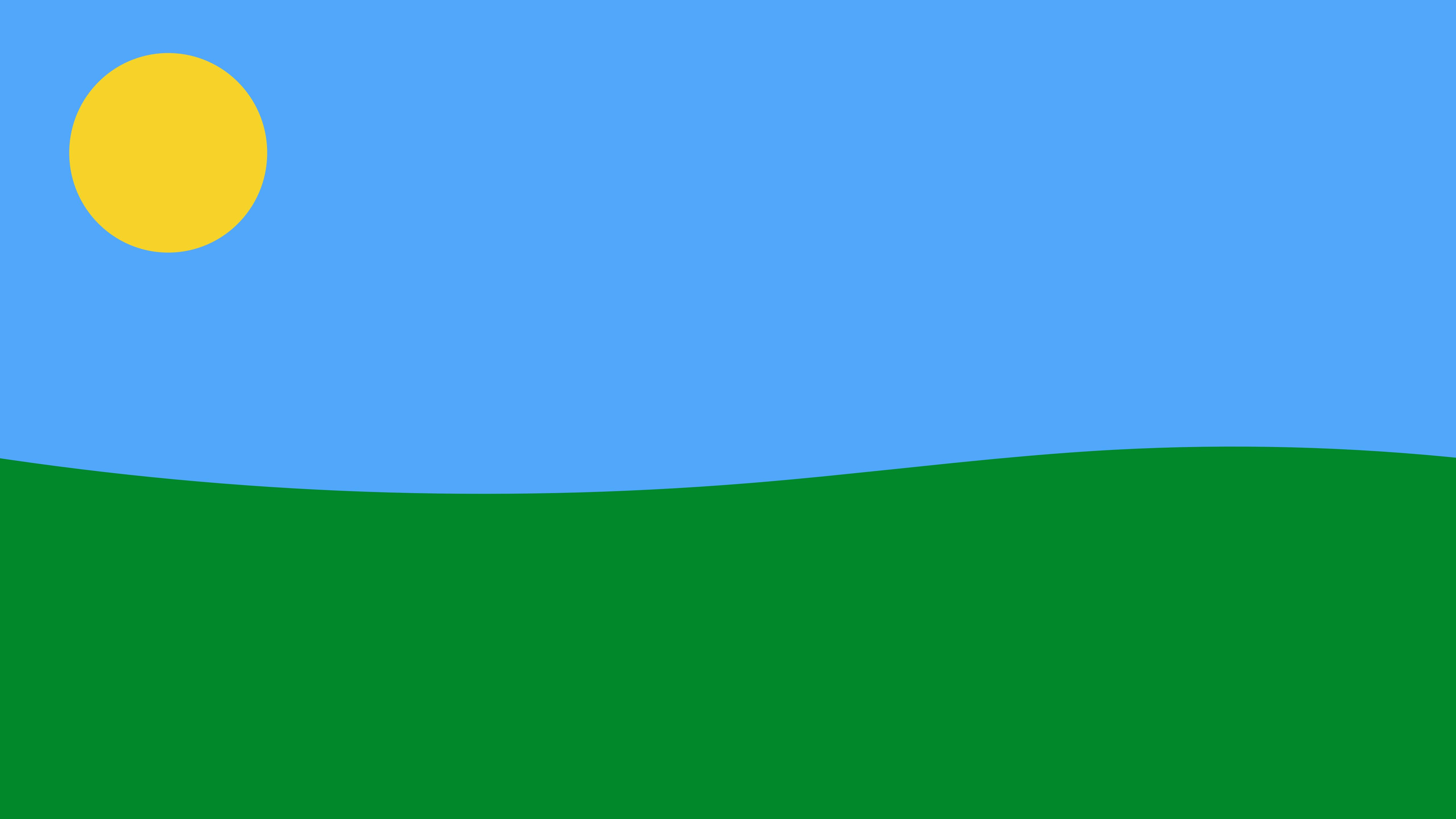
With Evolver, you can tackle tough problems like these, and much more. Evolver is an advanced, yet simple-to-use optimization add-in for Microsoft Excel. Evolver uses innovative genetic algorithm (GA), OptQuest (Industrial edition only), and

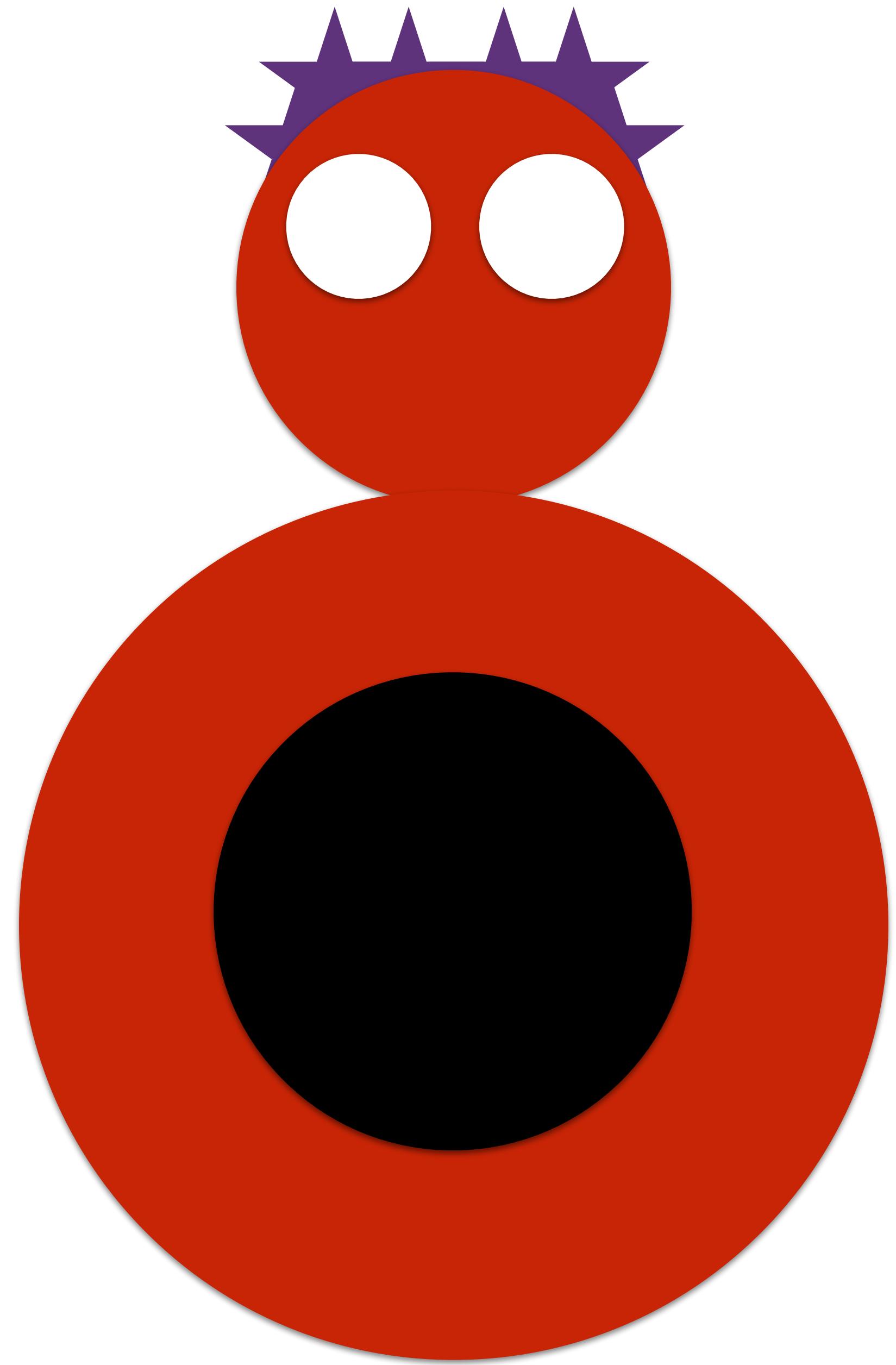
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But how does it work?

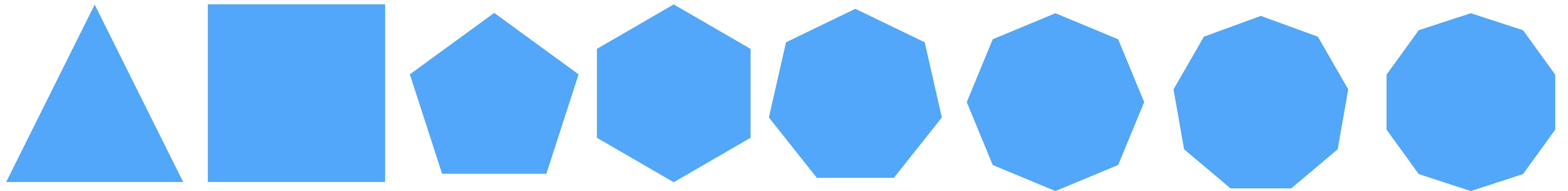


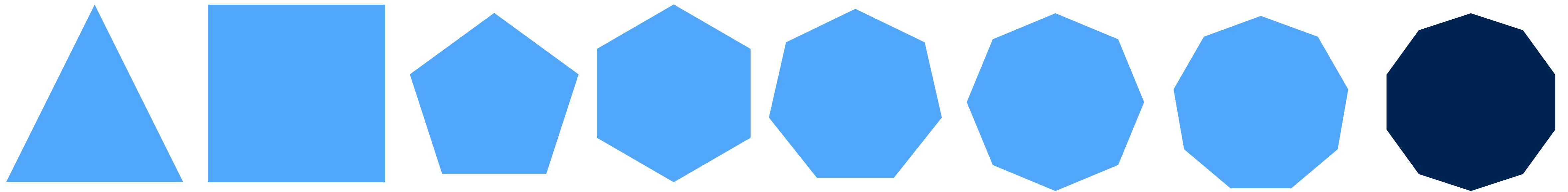
dsfa | data works

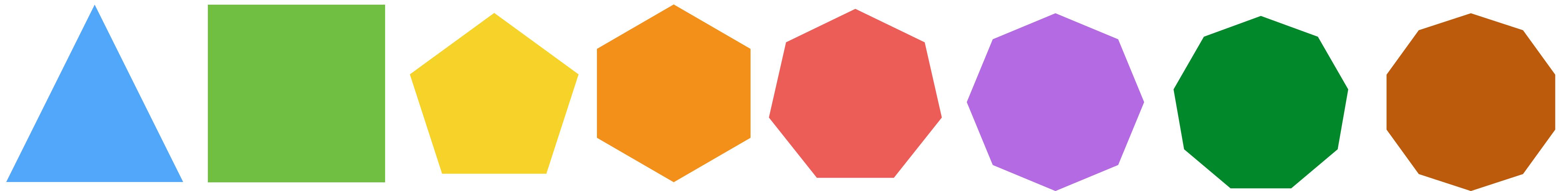


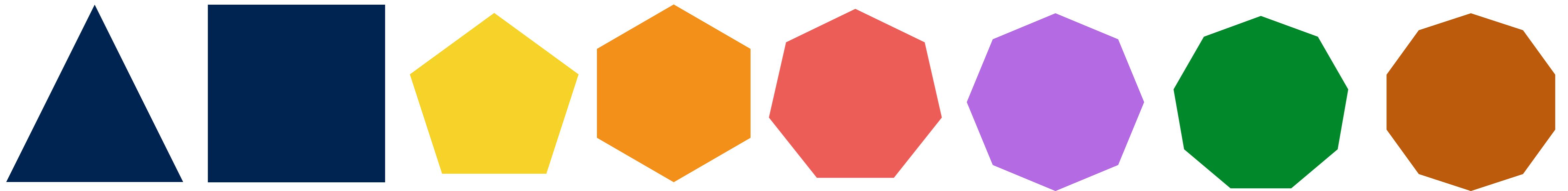


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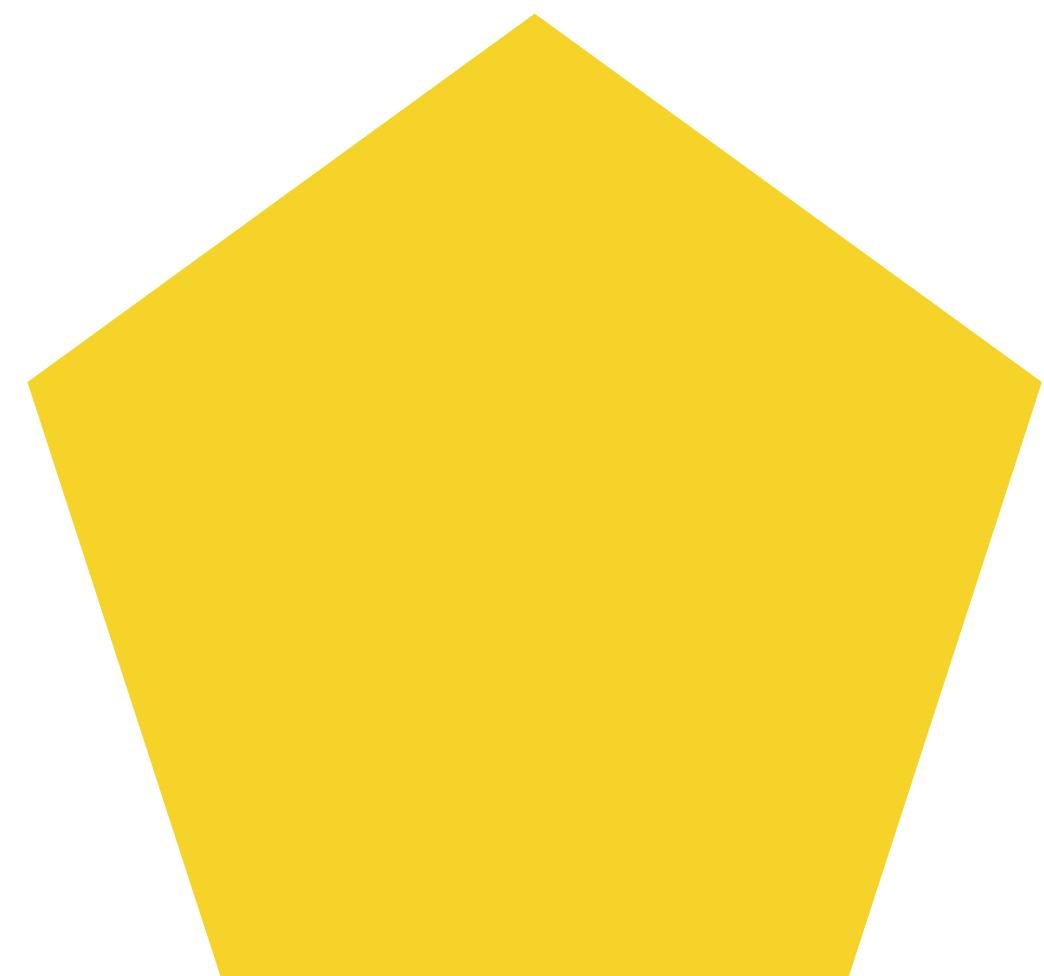




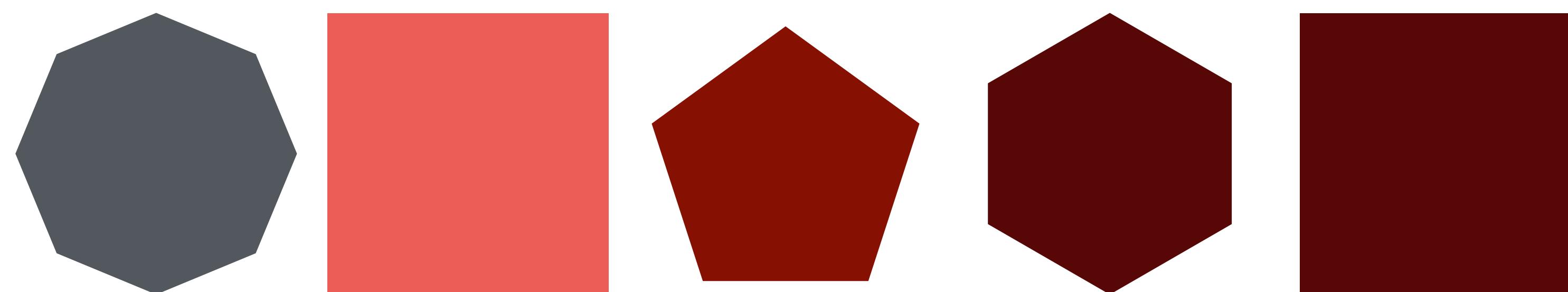
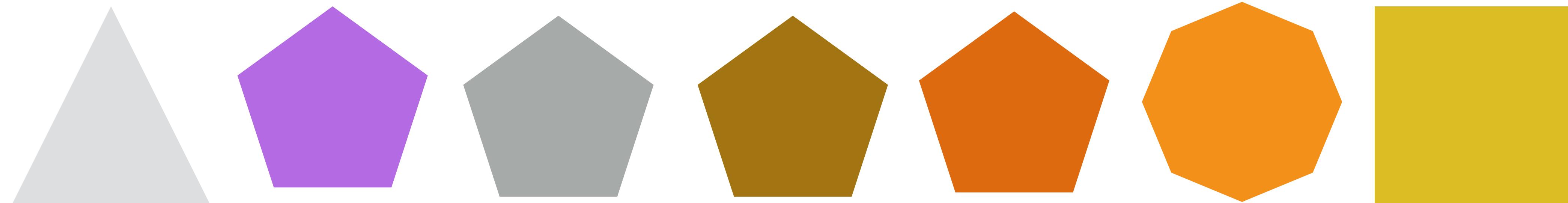
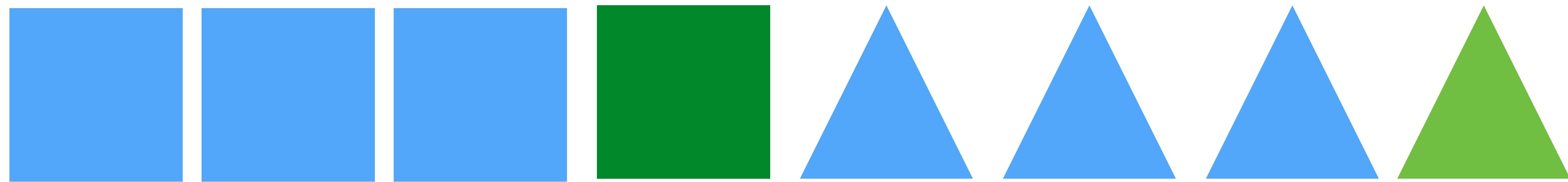
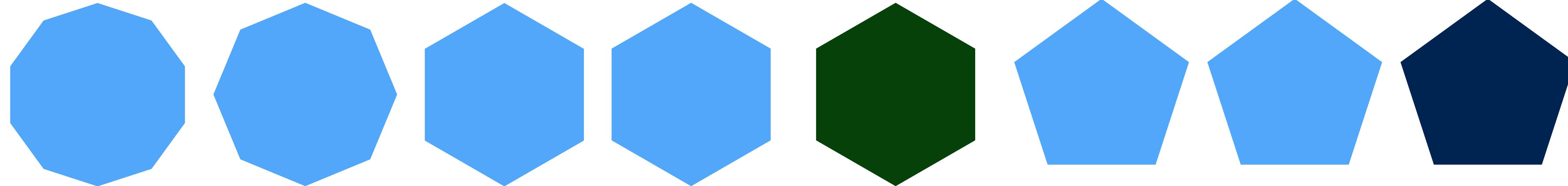


f(x)

**(coefficient * number of sides)
+ (max(blue, green) - red)**



= [5, 240, 207, 64]



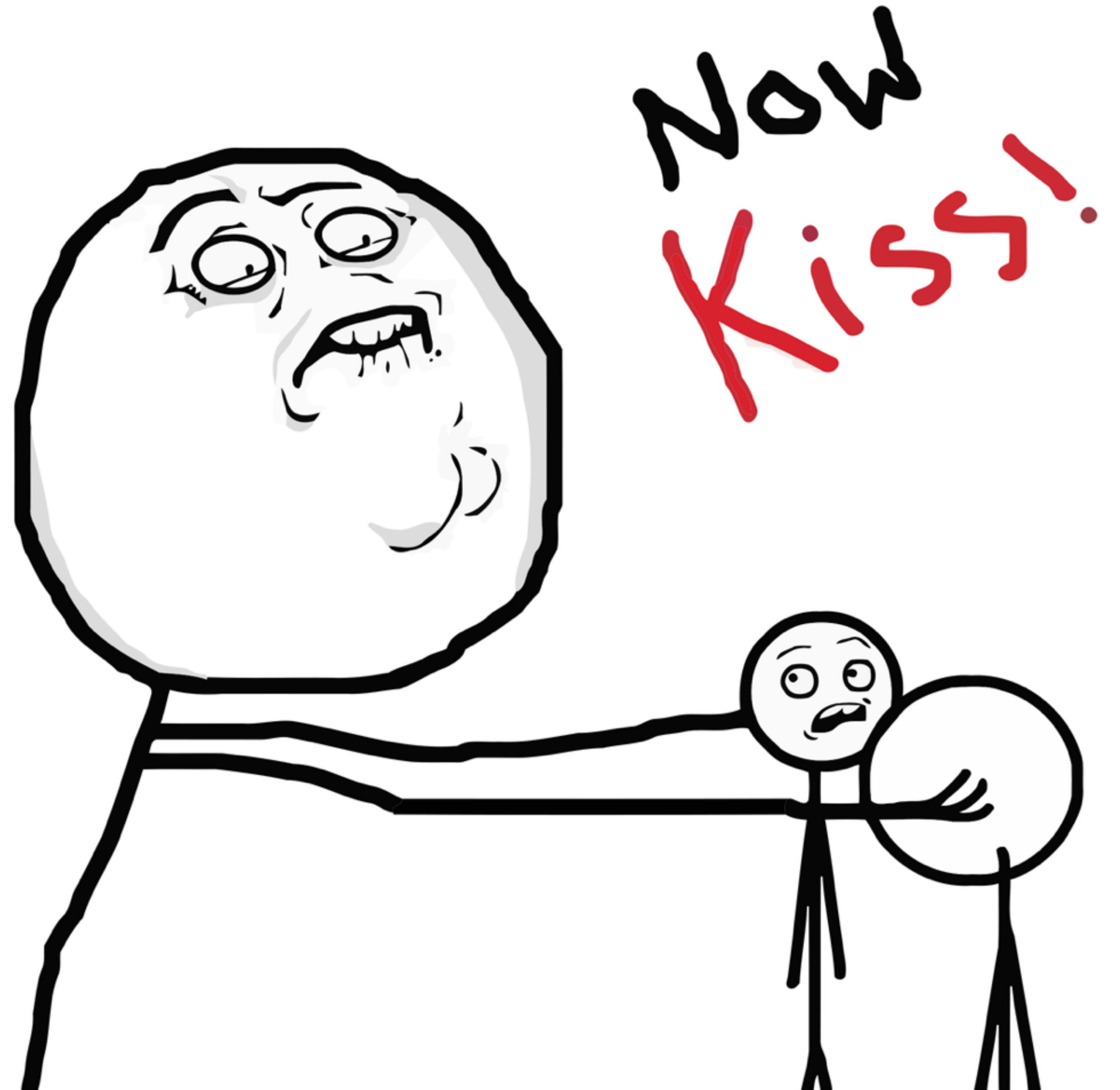
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KILL THEM.

KILL THEM ALL.

memecrunch.com

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Now
Kiss!

Rinse. Repeat.

Tune In

- Mutation rate
- Crossover rate
- Number of organisms to cut off at every iteration
- Coefficients of the fitness function
- Randomization in initial generation
- Generation size

Let's code it!



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Additional Resources

- Printing “Hello world!” using genetic optimization([Gist](#))
- Clever Algorithms by Jason Brownlee ([Book](#))
- Introduction to Evolutionary Computing by Eiben and Smith ([Book](#))
- Live demo code ([Gist](#))