

Understanding Visual Perception To Create Effective Visualizations

By Coriano Harris

What is visual perception?

Visual perception is the ability to interpret the surrounding environment using light in the visible spectrum reflected by the objects in the environment.

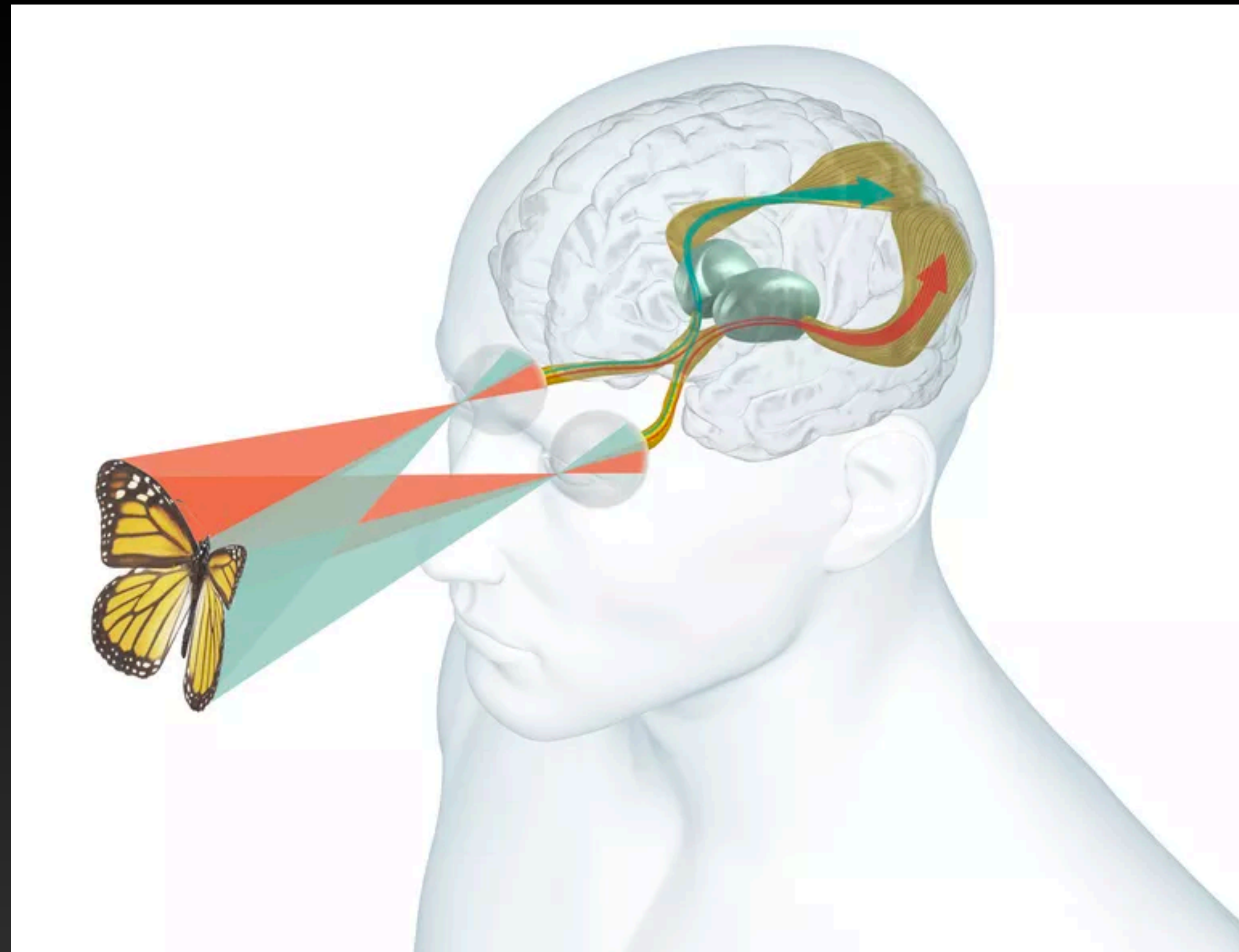
It's the brain's process for organizing and interpreting visual information to give it meaning.



How does it work?

- the eye focuses light on the *retina*.
- Within the retina, there is a layer of photoreceptor (light-receiving) cells (cones) which are designed to change light into a series of *electrochemical signals* to be transmitted to the brain
- the electrochemical signals get there by traveling through the optic nerve and the thalamus.
- the brain's *cerebral cortex is where processing and interpreting happens*.

- Our eyes sense reflective light off surfaces of objects
- Then the signals are sent to our brain cerebral cortex for processing



**“ In truth, we don’t see with our eyes;
we see with our brains.”**

Visual Perception on Memory

3 Types

- Iconic Memory
- Working Memory
- Long-term Memory

Iconic Memory

- Known as Sensory register
- Subconscious information processing which is called pre-attentive processing

It is similar to the keyboard memory buffer of a computer. A place where input is briefly held until it moves into RAM (Random Access Memory).



Working Memory

- Conscious processing occurs
- Information remains from seconds to a few hours
- Limited capacity
- Temporary

It is similar to RAM (Random Access Memory) where memory resides while being processed by the CPU (Central Processing Unit).



Long-term Memory

- Stored permanently
- Where Information is recalled
- Temporary moved back into working memory where it is consciously processed.

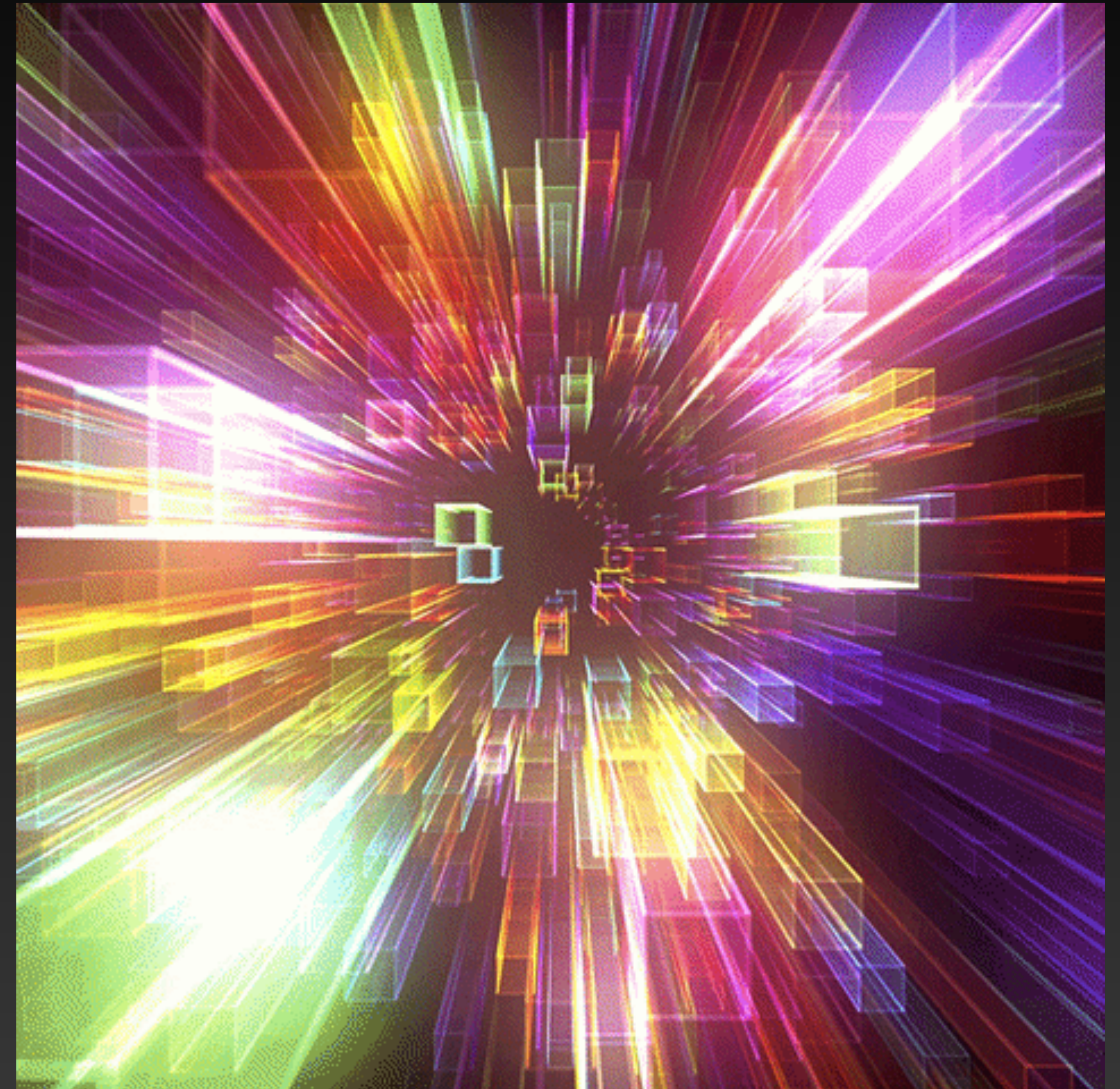
It is similar to a hard drive in a computer.



Chunks

- A unit or amount of information
- Store up to 4 chunks at a time in working memory
- Chunks are either moved into long-term memory or erased when working memory is at full capacity.

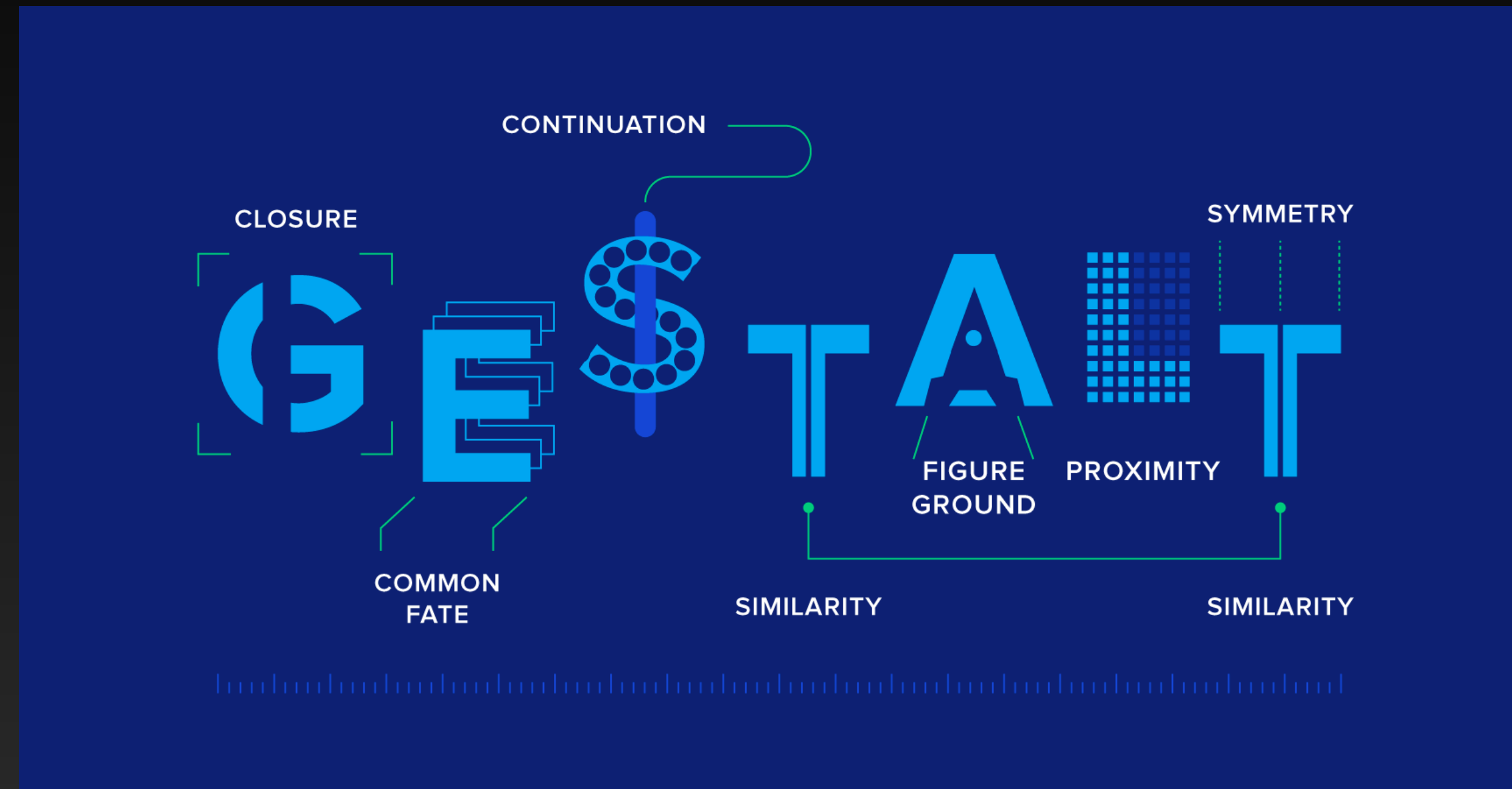
It is similar to network/data packets. A data packet is a single unit of data that travels along a given network path.



What is Gestalt?

a configuration, pattern, or organized field having specific properties that cannot be derived from the summation of its component parts; a unified whole.

It helps us to perceive relationship between visual information.



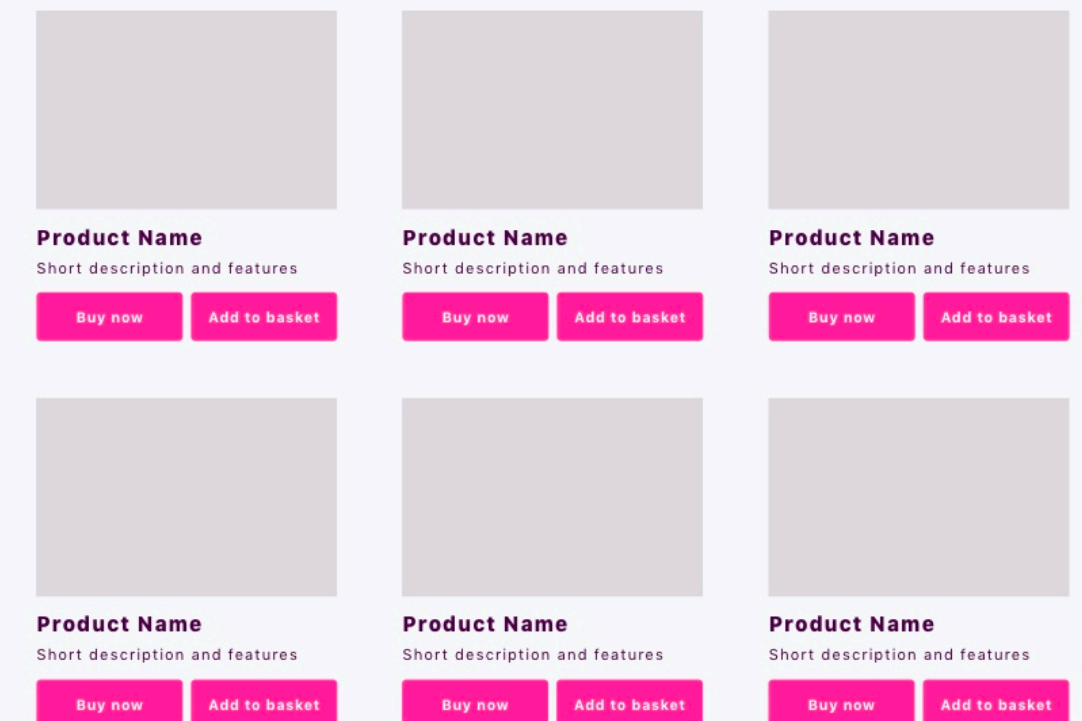
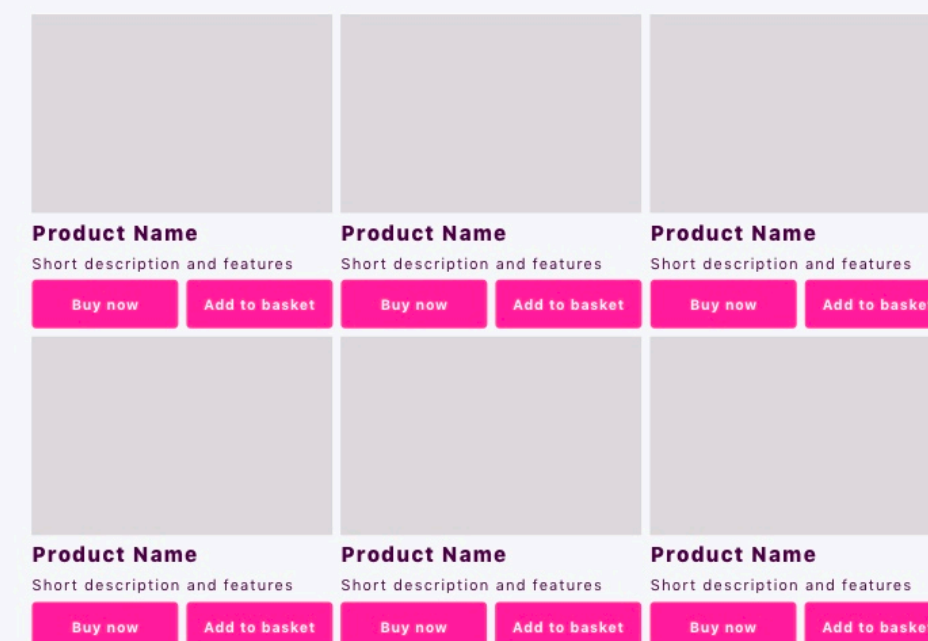
Gestalt Principles

- Proximity
- Similarity
- Enclosure
- Closure
- Continuity
- Connection

Proximity

Objects that are located near one another as belonging to the same group.

Proximity



Similarity

Similarity

Product Name
Description and features

Edit Remove

Product Name
Description and features

Edit Remove

Product Name
Description and features

Edit Remove

Product Name
Description and features

Edit Remove

Product Name
Description and features

Edit Remove

Product Name
Description and features

Edit Remove

Product Name
Description and features

Edit Remove

Product Name
Description and features

Edit Remove

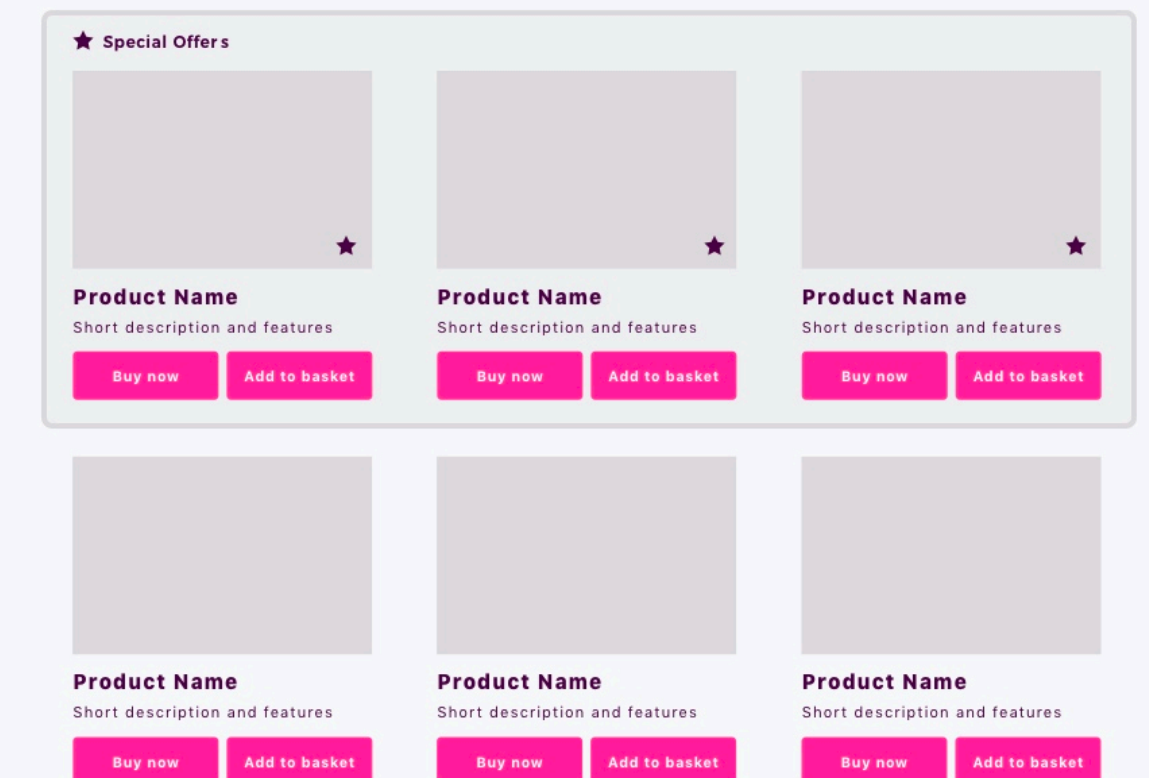
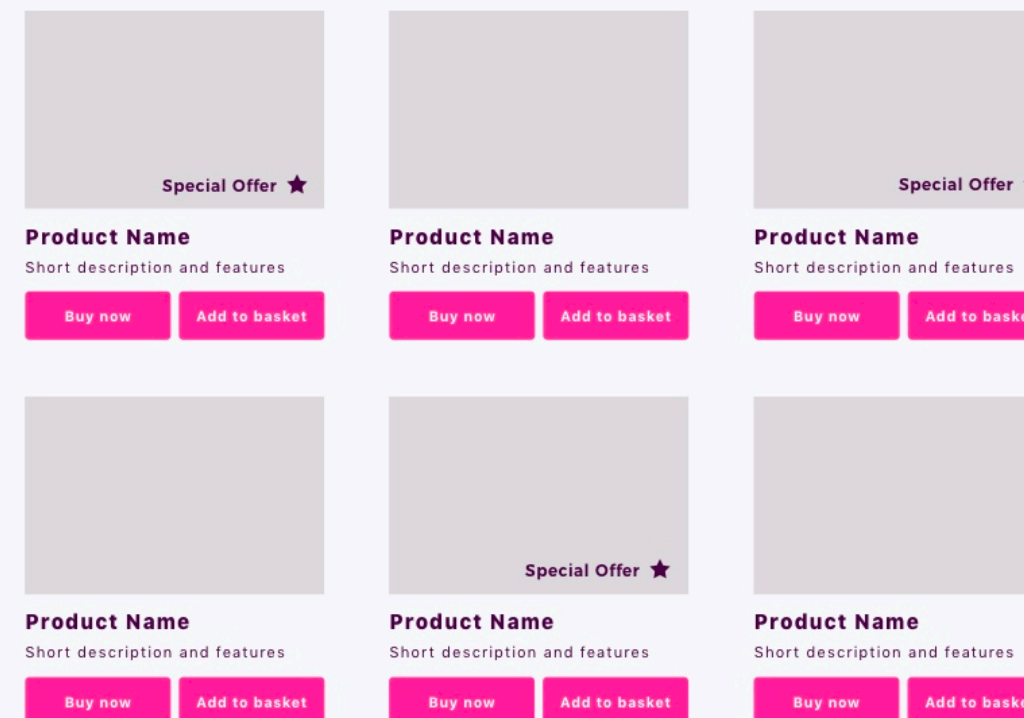


Objects that are we group by size, color, shape, or orientation.

Enclosure

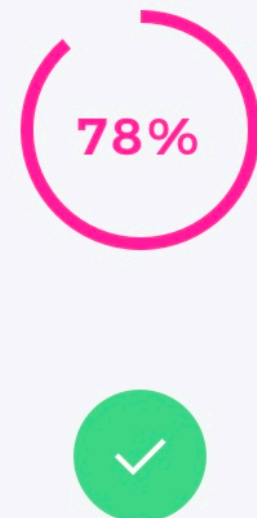
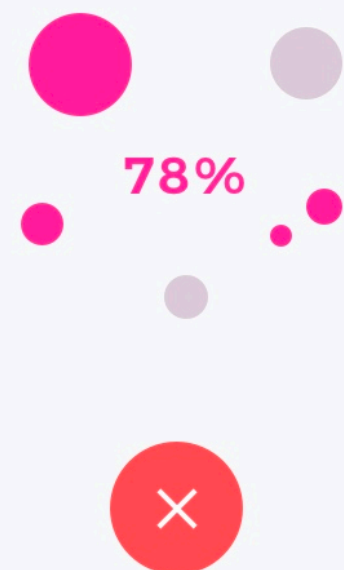
Objects that are we perceive belonging together when enclosed by anything that forms a border.

Common Region



Closure

Closure



Objects that are open, incomplete, and in unusual forms as closed, whole, and regular shapes.

Continuity

Objects that are perceived belonging together as part of a single whole when aligned or appear to continue one another.

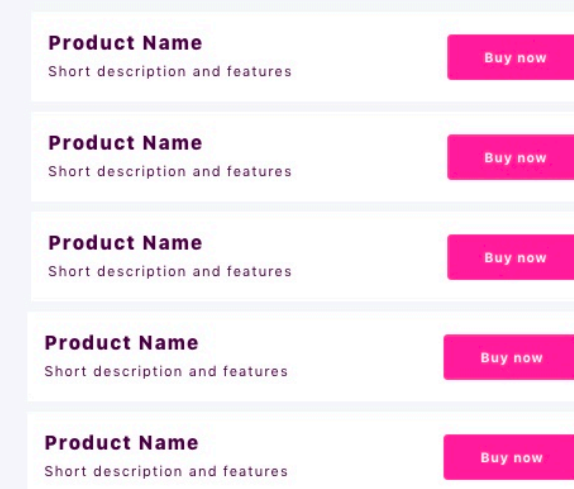
Continuation



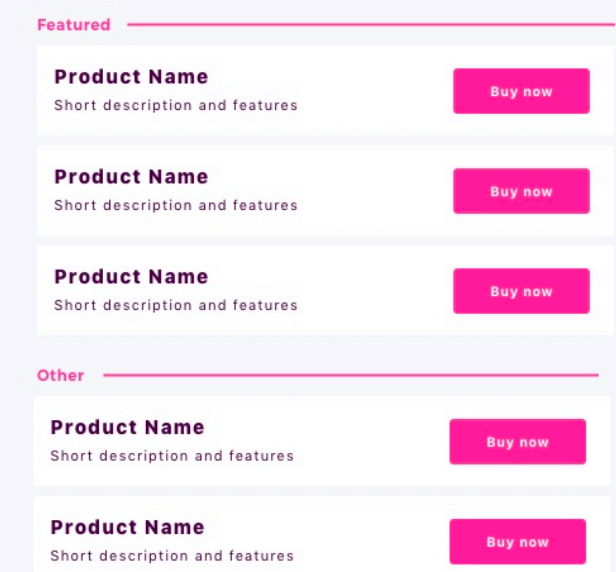
Connection

Objects that are connected to one another.

Periodicity



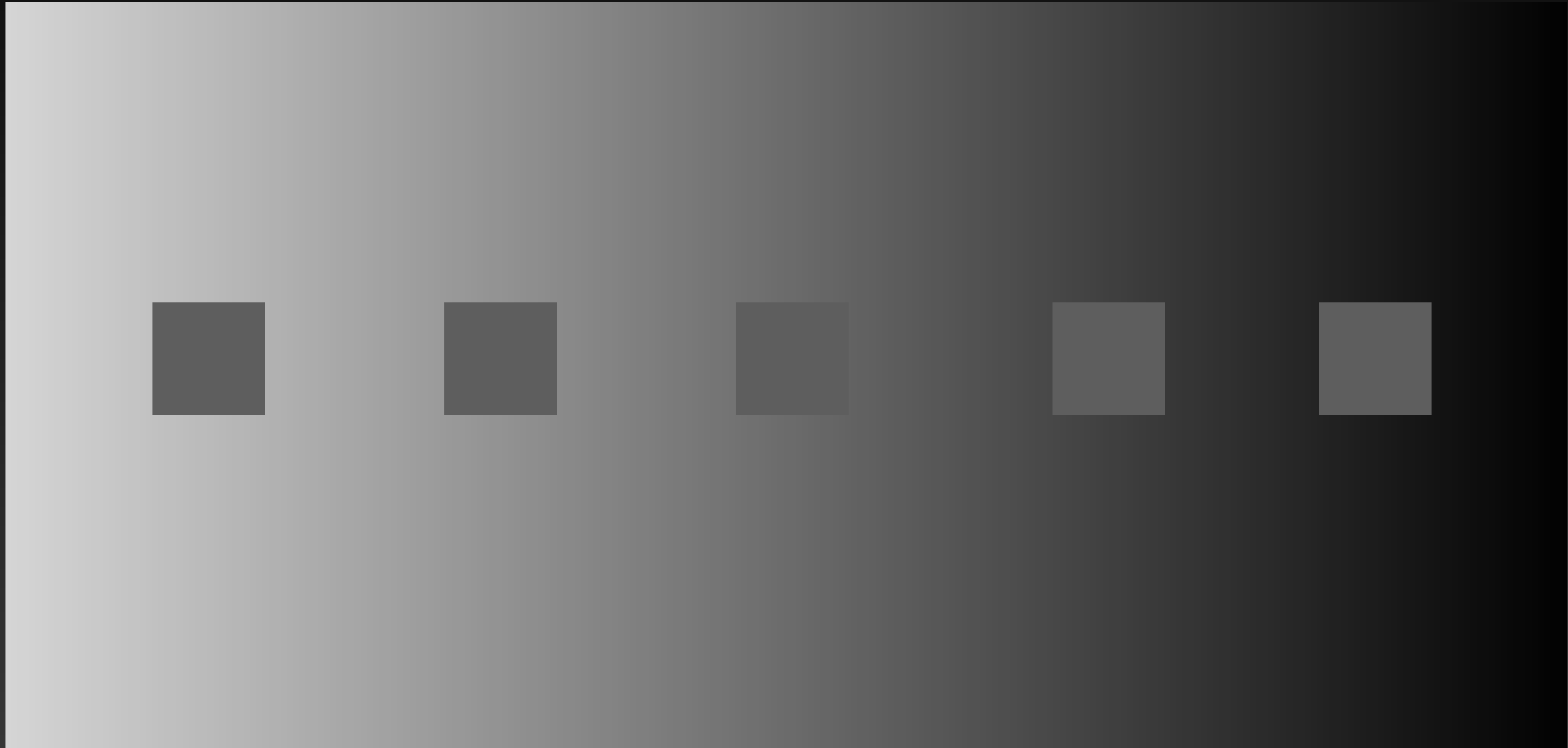
Gestalt Principles

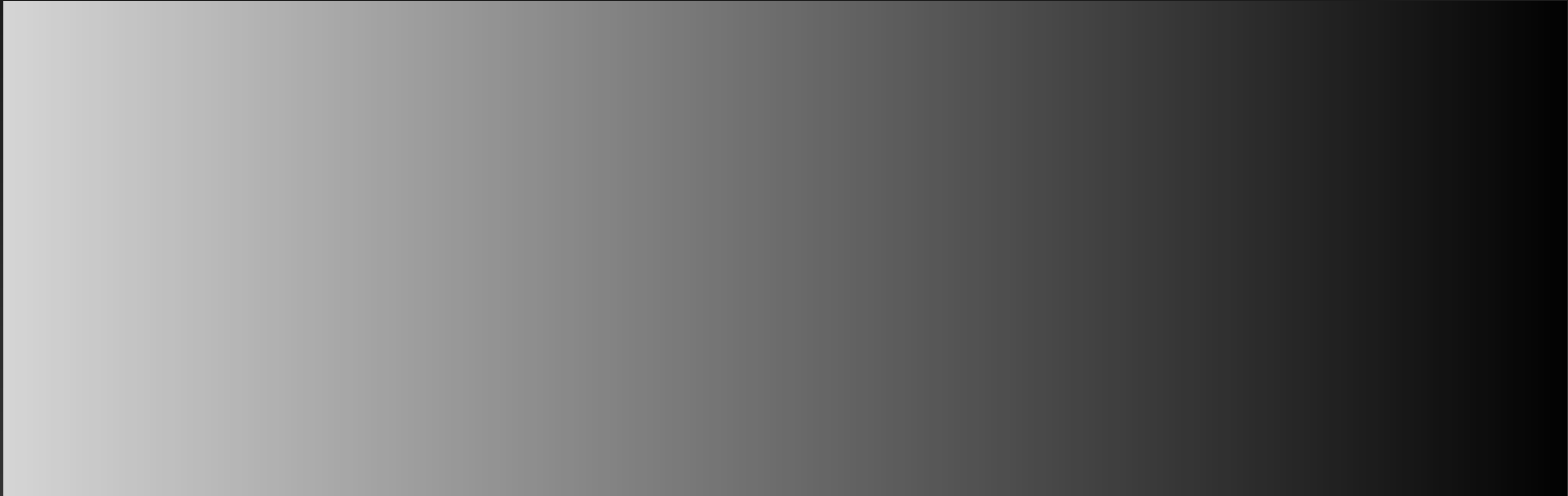
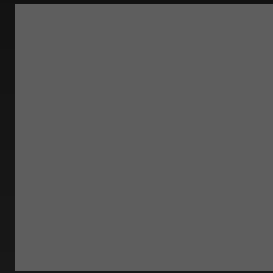
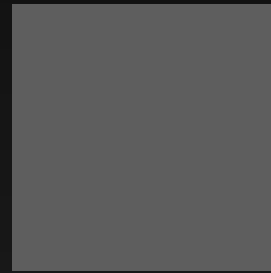
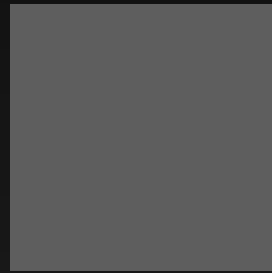
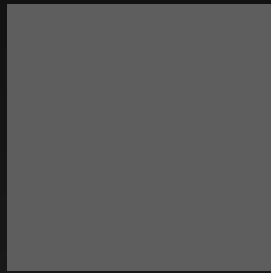


<https://uxmisfit.com>

Examples...

Is this the same shade of grey?





How many times does the number
“5” appear in this list?

97630281753480019
97650281734520013
97630281734805100
576302817348001573

Answer: 6

97630281753480019
97650281734520013
97630281734805100
576302817348001573

What is this?



How to reach me?

Email: corianoharris@gmail.com

CC Slack: @Coriano

linkedIn: <https://www.linkedin.com/in/corianoharris/>

Thanks for you time.

