The background features a white surface with vibrant, abstract splatters of blue, purple, and pink. Scattered throughout are small, semi-transparent purple hexagons and faint, light-colored geometric shapes like triangles and squares.

# Image Formats and Optimization



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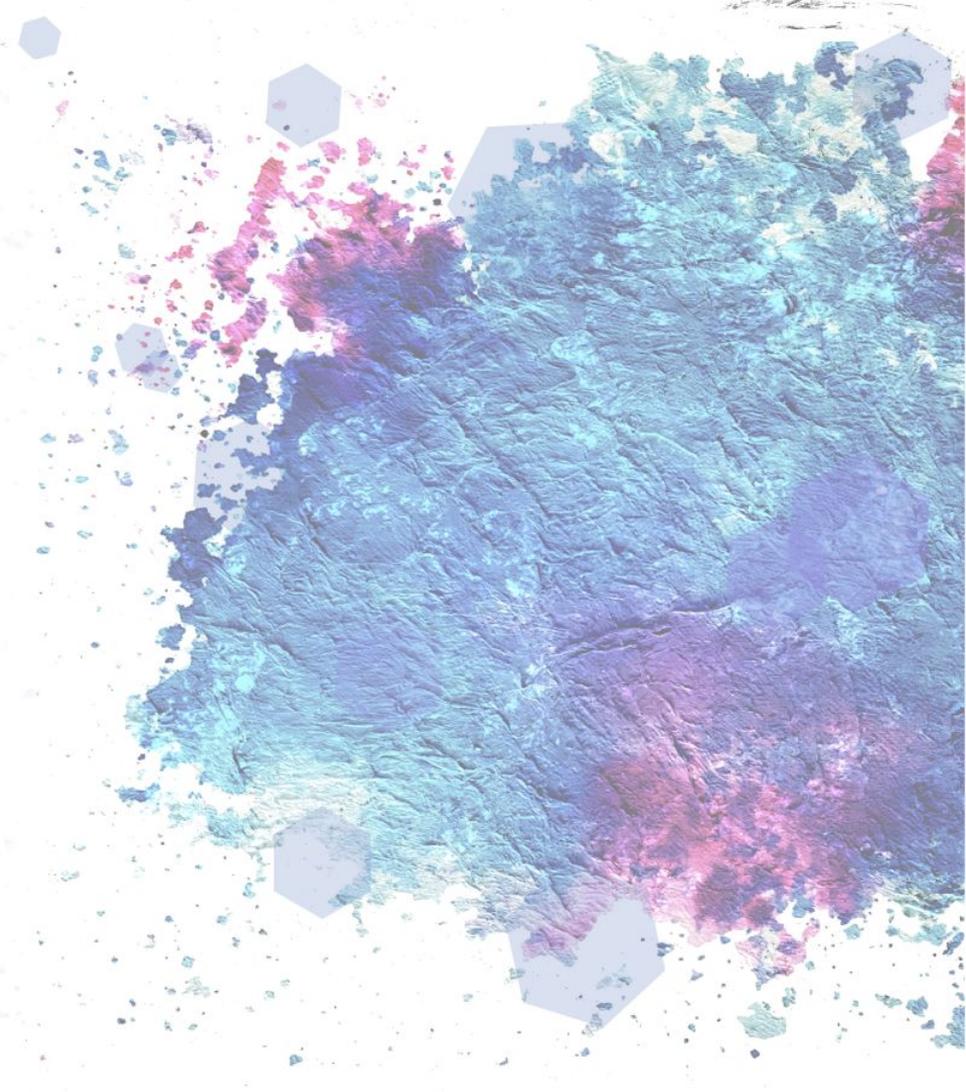


# Tools

Optimizilla.com

The GIMP

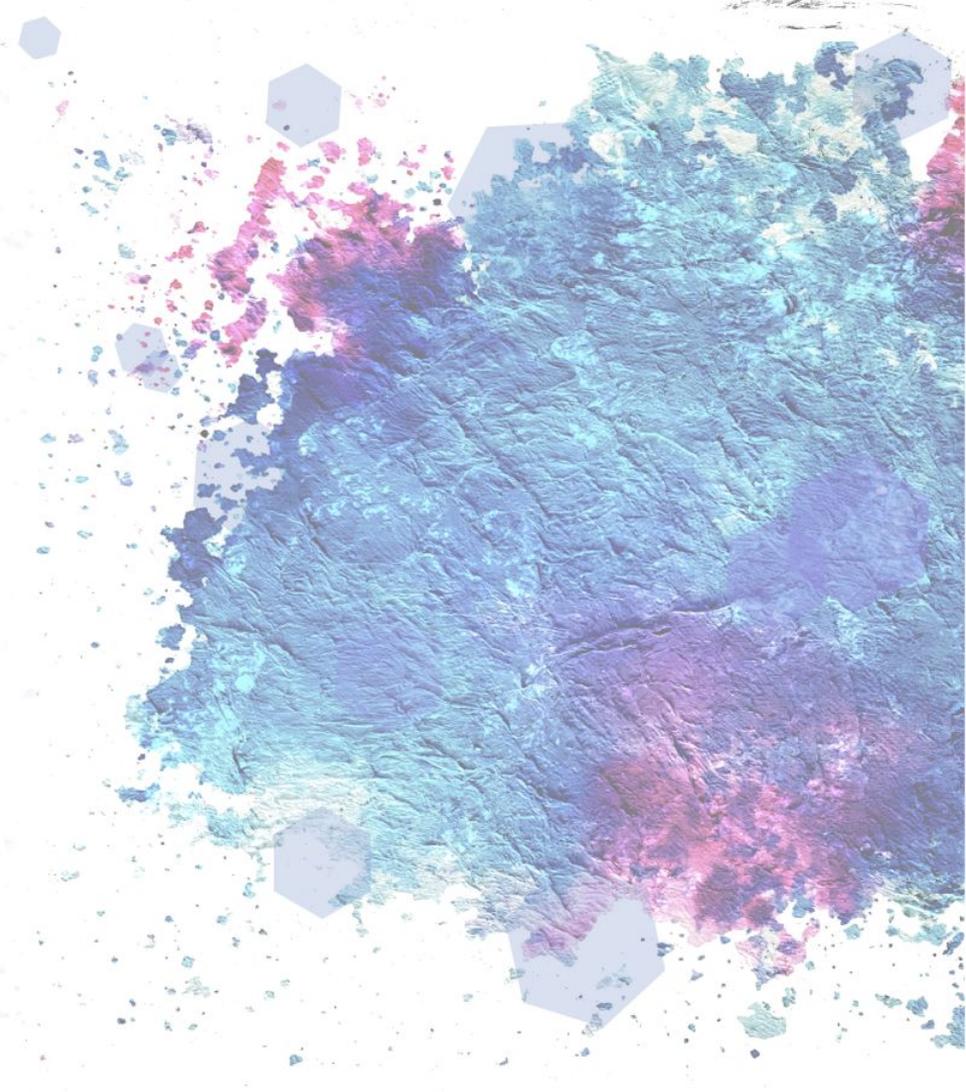
Photoshop



Lossless

Vs.

Lossy



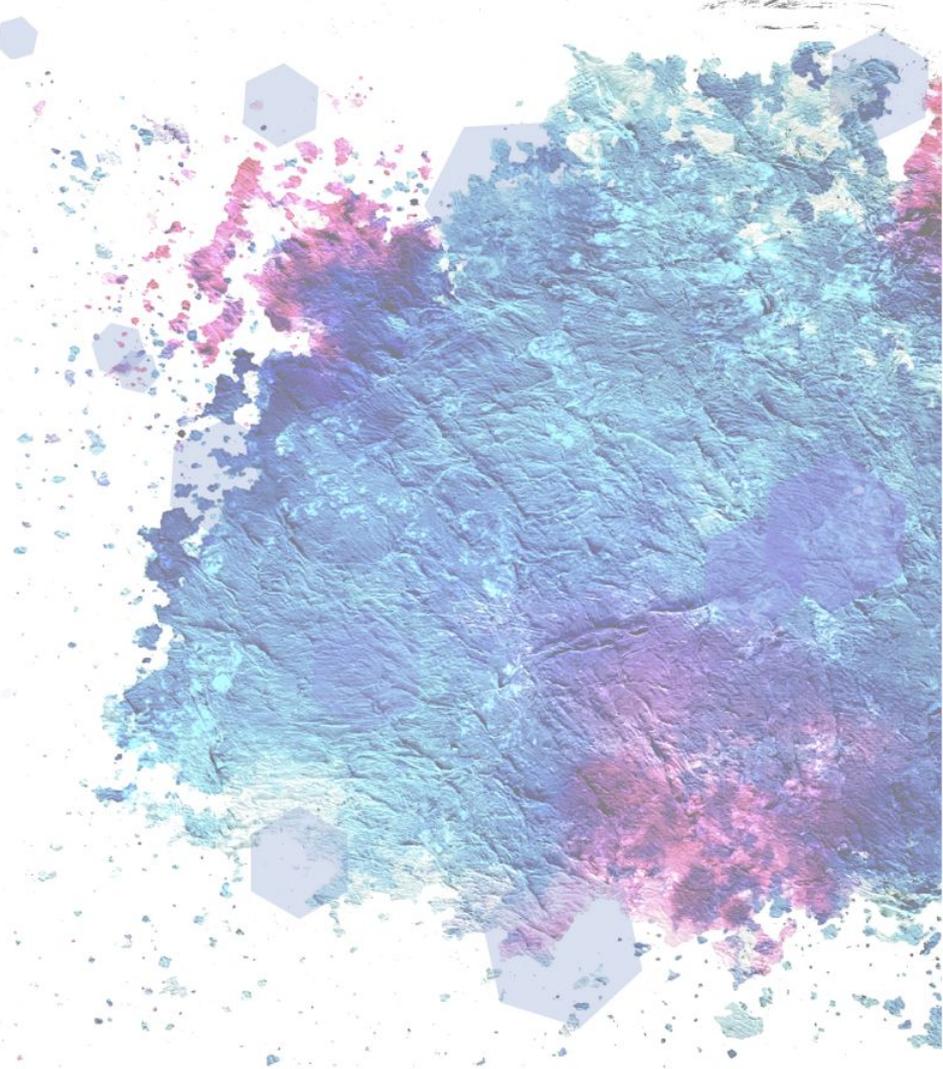
# Lossless

Uses a method of file size compression that does not remove visual quality from the image.



# Lossy

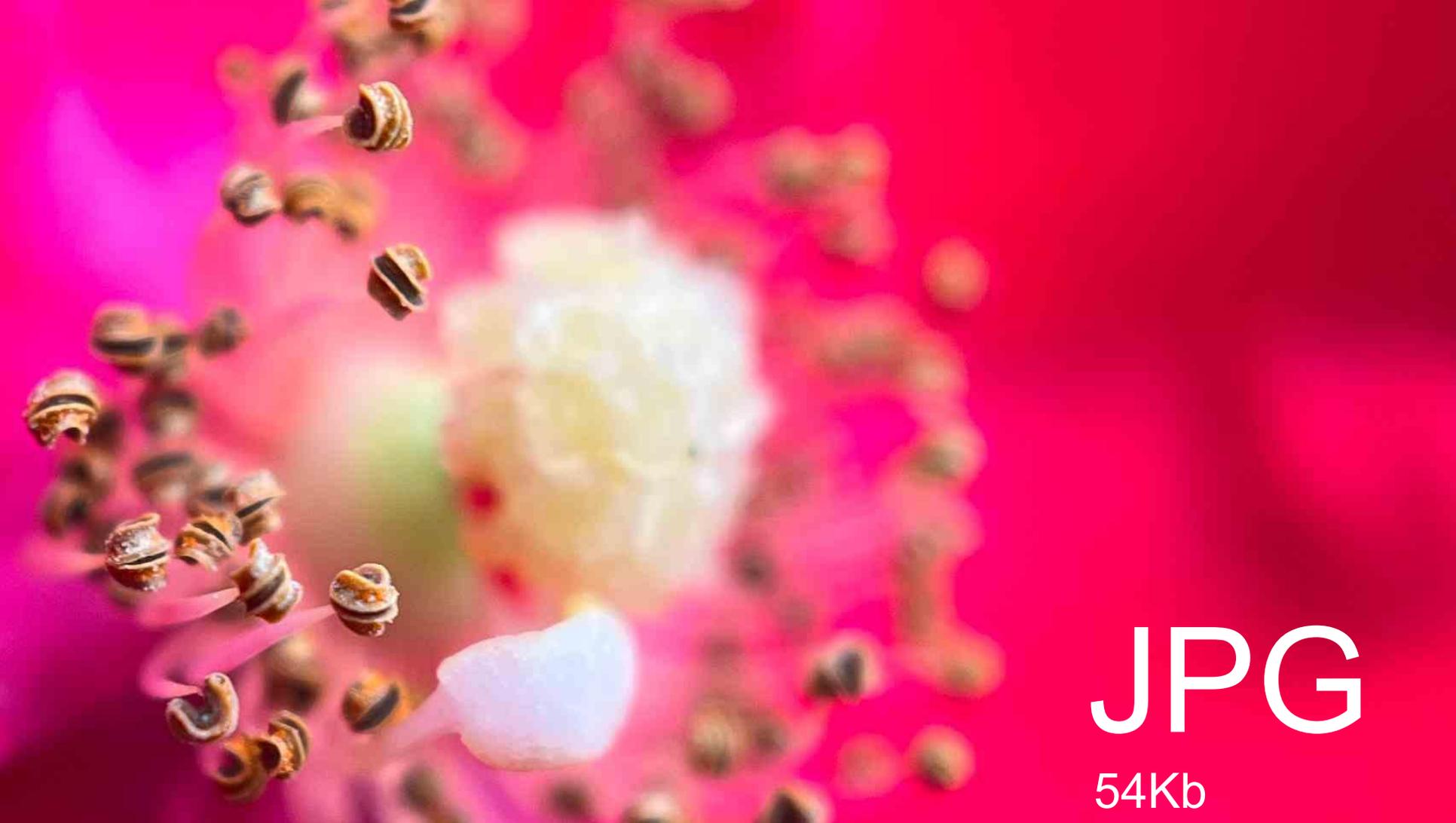
Uses a method of file size compression that removes visual quality from the image.





PNG

2400Kb



JPG

54Kb

# Image Formats

JIF

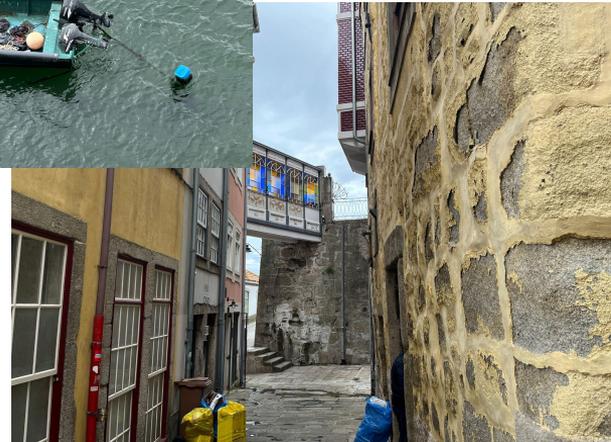
SVG

GIF

PNG

WebP

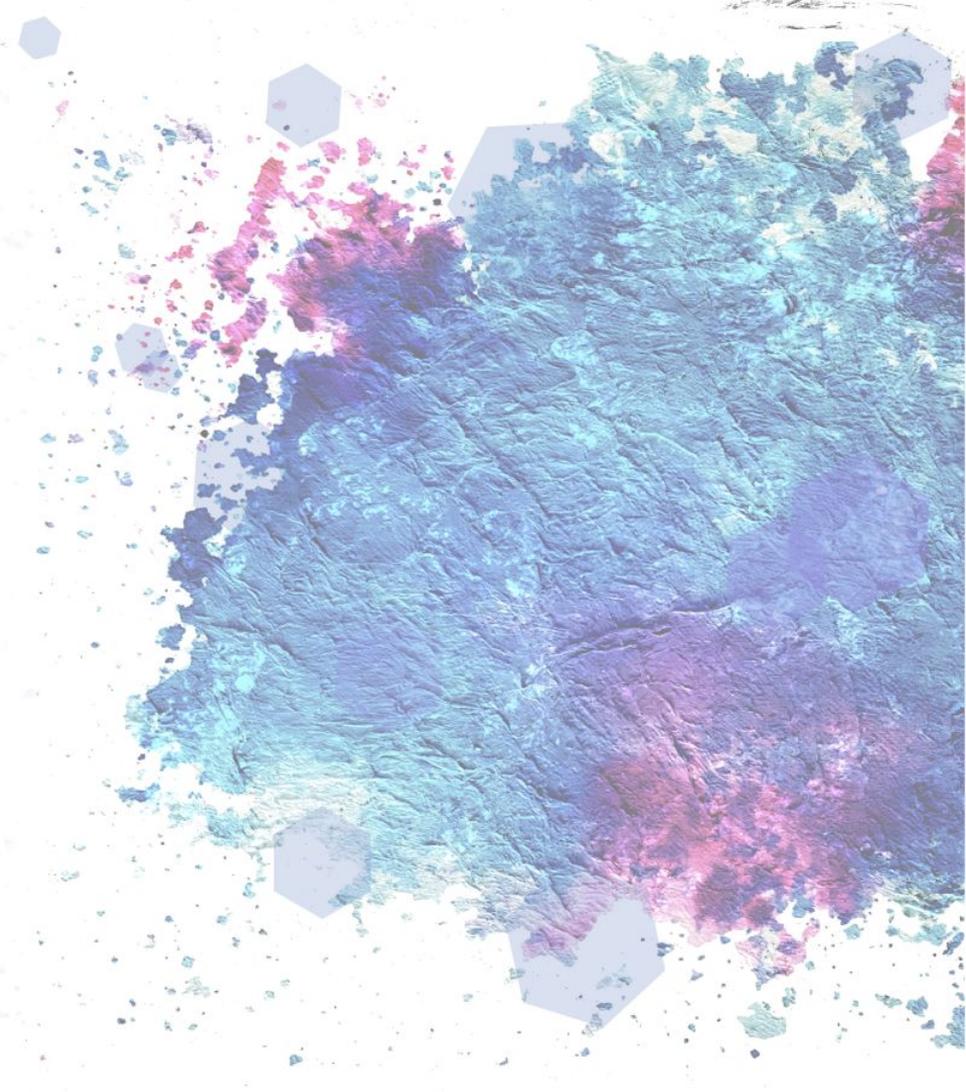
JPG



# GIF

## History

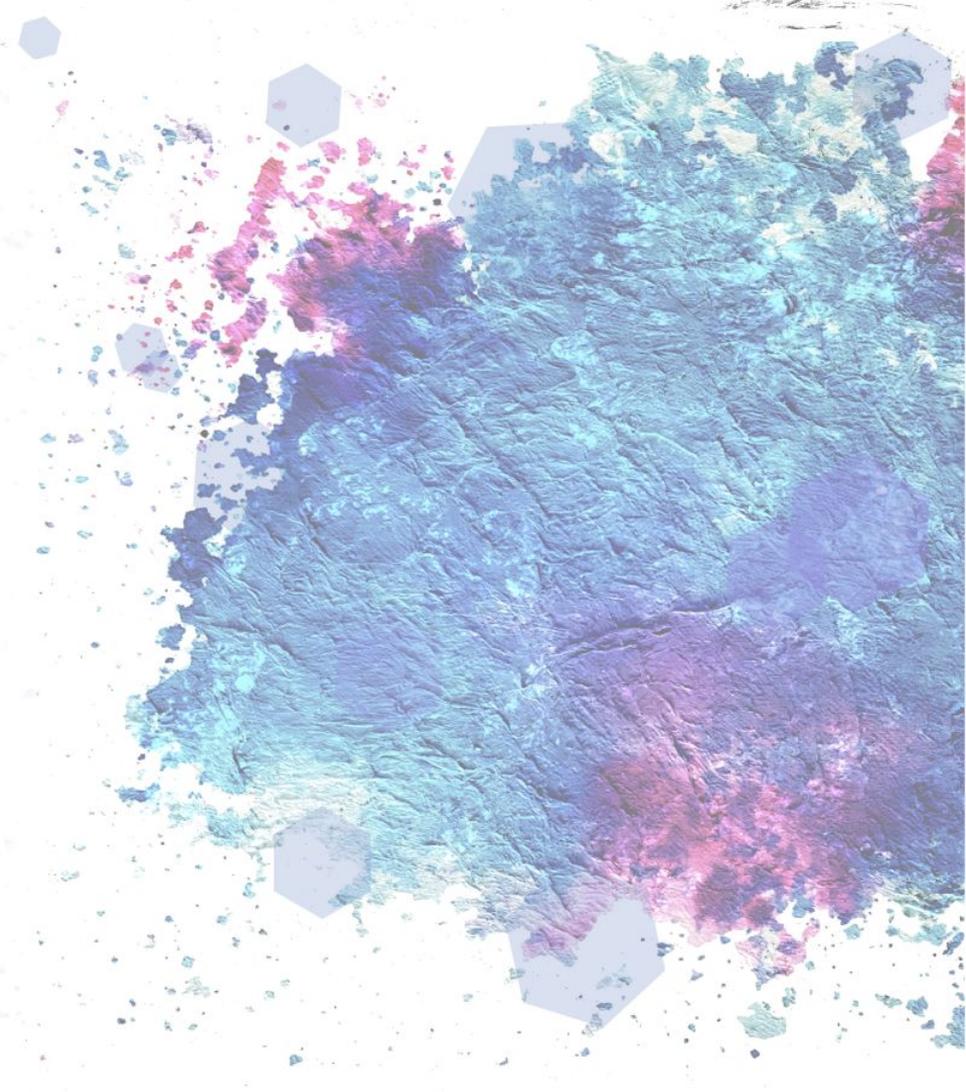
- Created by CompuServe as the Graphics Interchange Format
- Held captive by copyright for many years
- The first widely accepted image format on the web



# GIF

## History

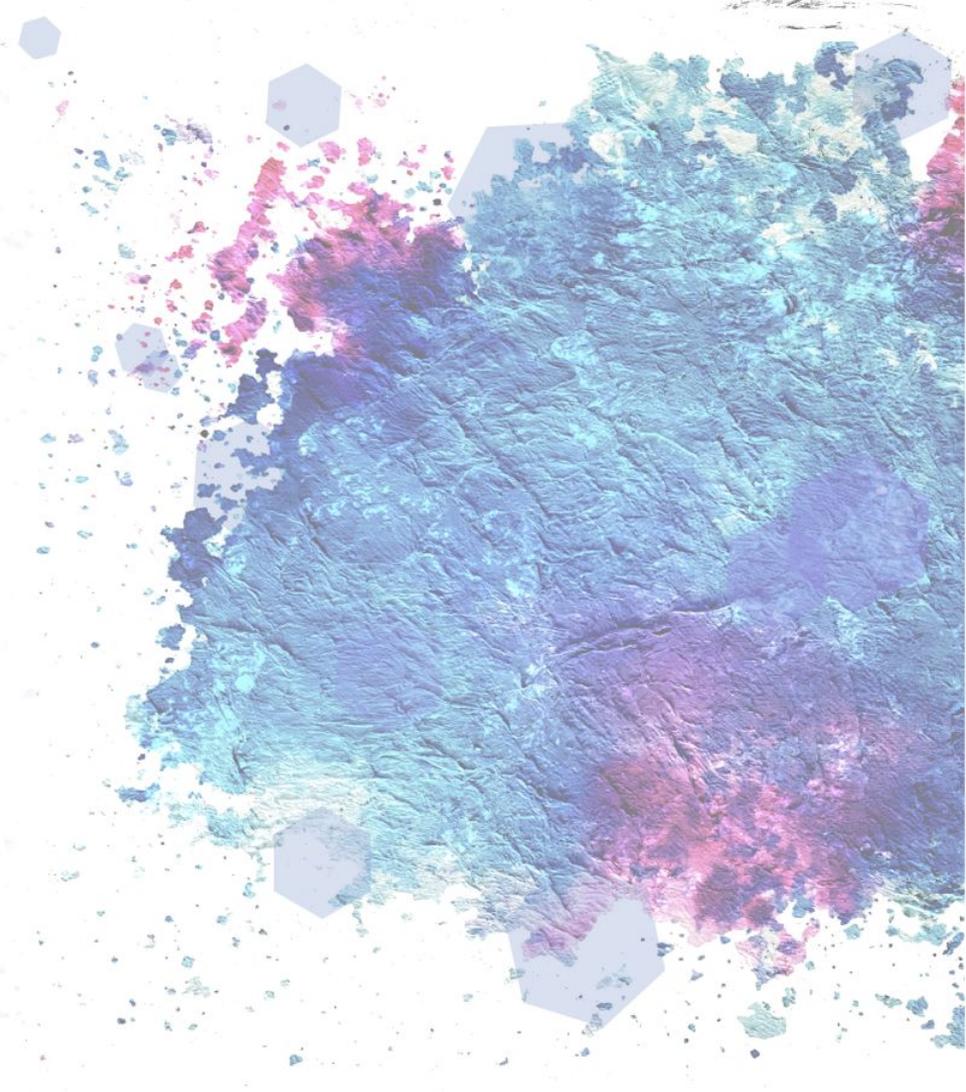
- Current iteration is “Gif89a” which includes transparency (an “alpha” channel) and animation



# GIF

## Color Palette

- No more than 256 colors, chosen from a 24bit color palette
- 255 colors if one bit is set to transparent



# GIF

## Compression Format

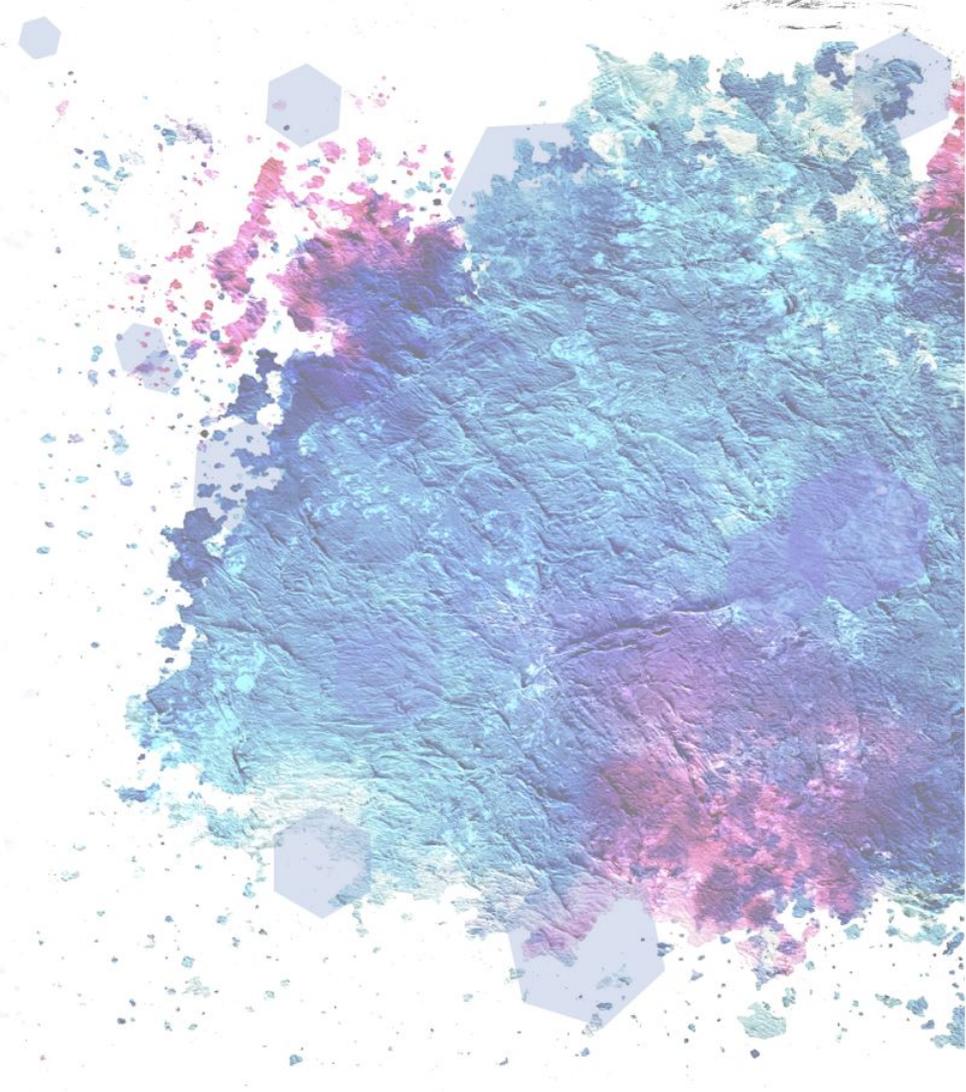
- Lossless
- Lempel–Ziv–Welch (LZW) data compression
- Cutting edge when released because it made images over modems practical



# GIF

## Unique Features

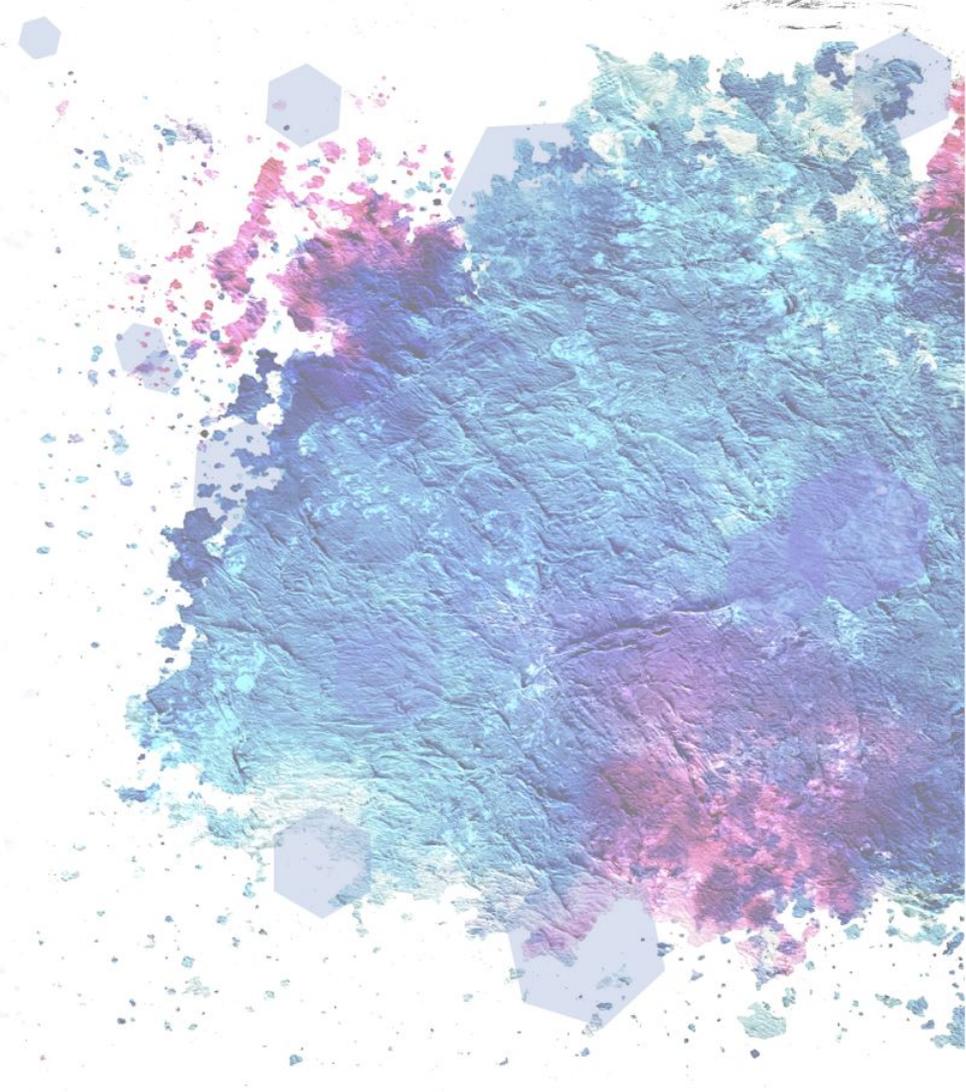
- Animation
- Transparency (see PNG)
- Small file size



# GIF

## Positives

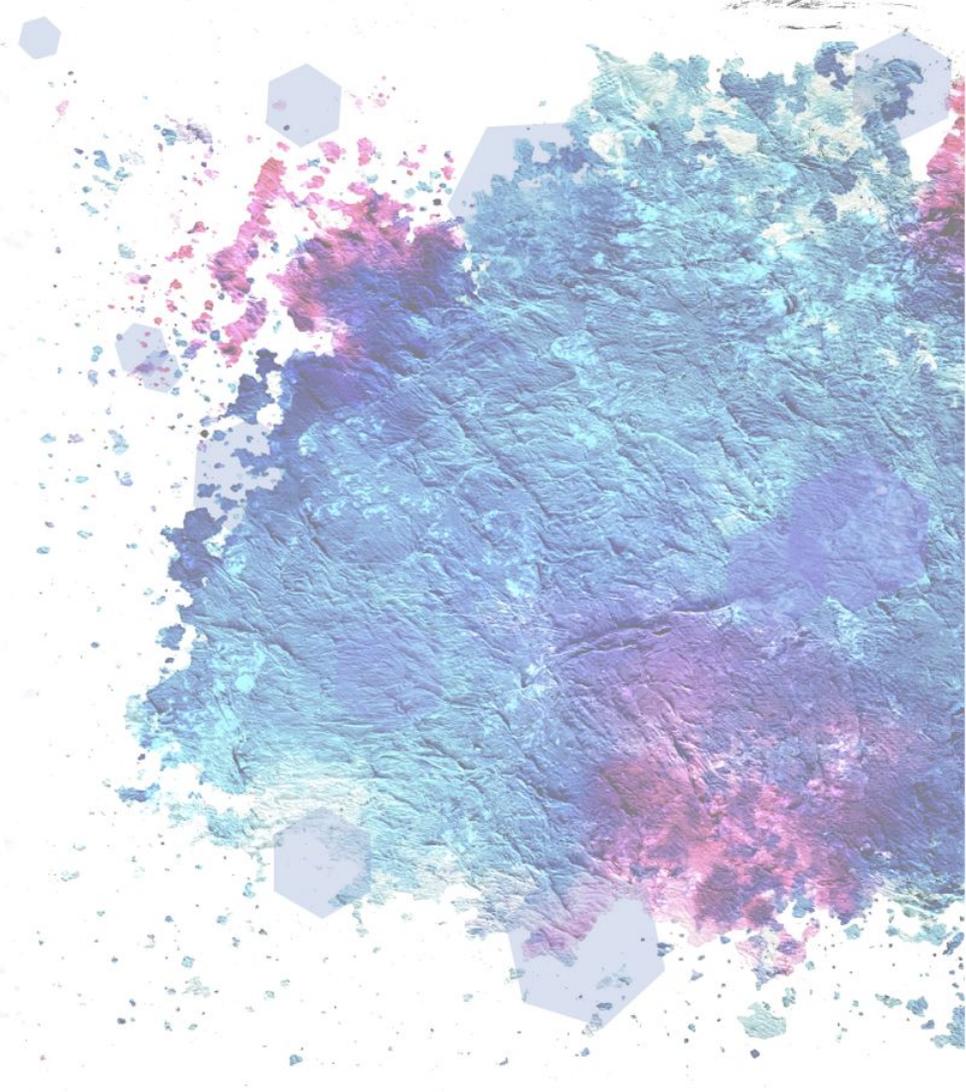
- Extremely well supported in editors and renderers
- Very small file size
- Animated gifs!



# GIF

## Negatives

- Only 256 colors
- Compressed video CAN be smaller than a gif (see all Twitter “gifs”)



# GIF

## Editor Support

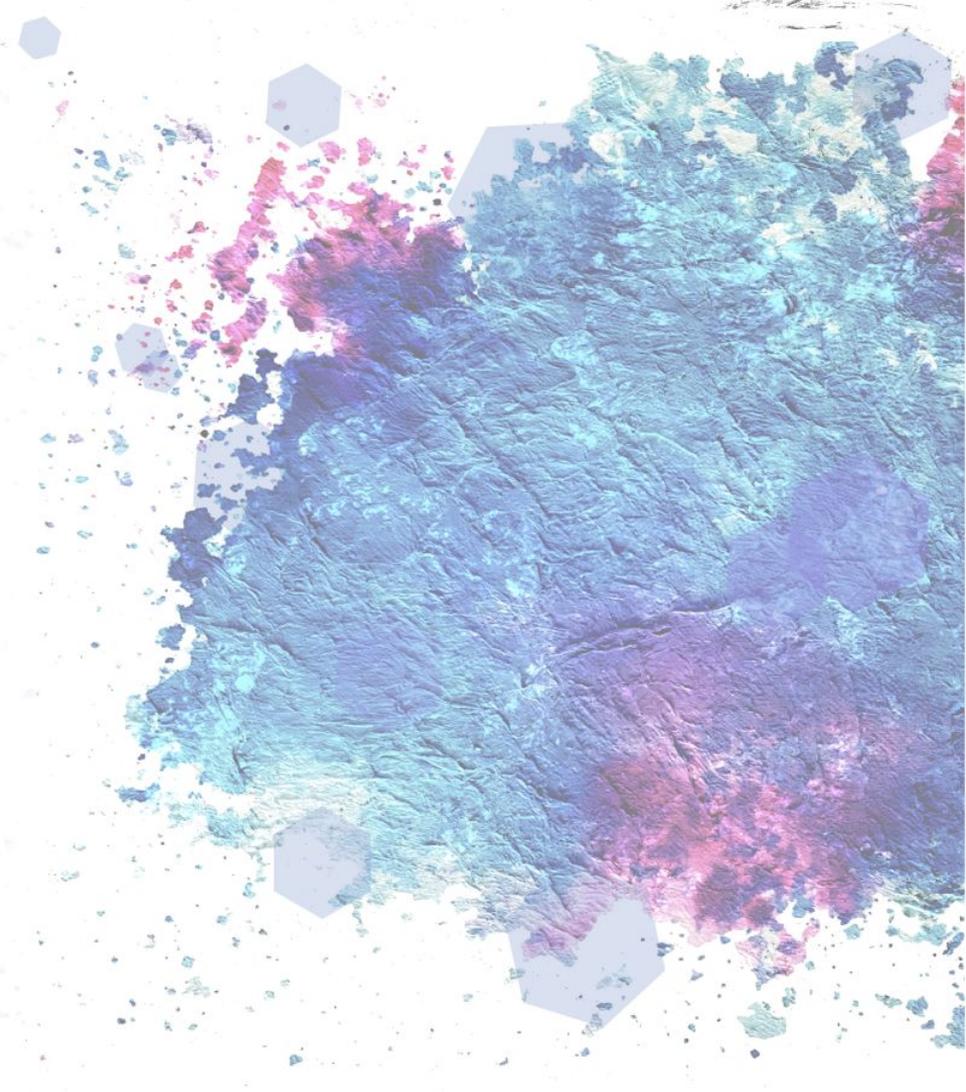
- Comprehensive for still images
- Animated gifs often require different software
- These days animated gifs are usually simply converted videos



# GIF

## Best use case

- When file size is very important
- When you need animation and you don't want to use video
- When its transparency works just as well as PNG



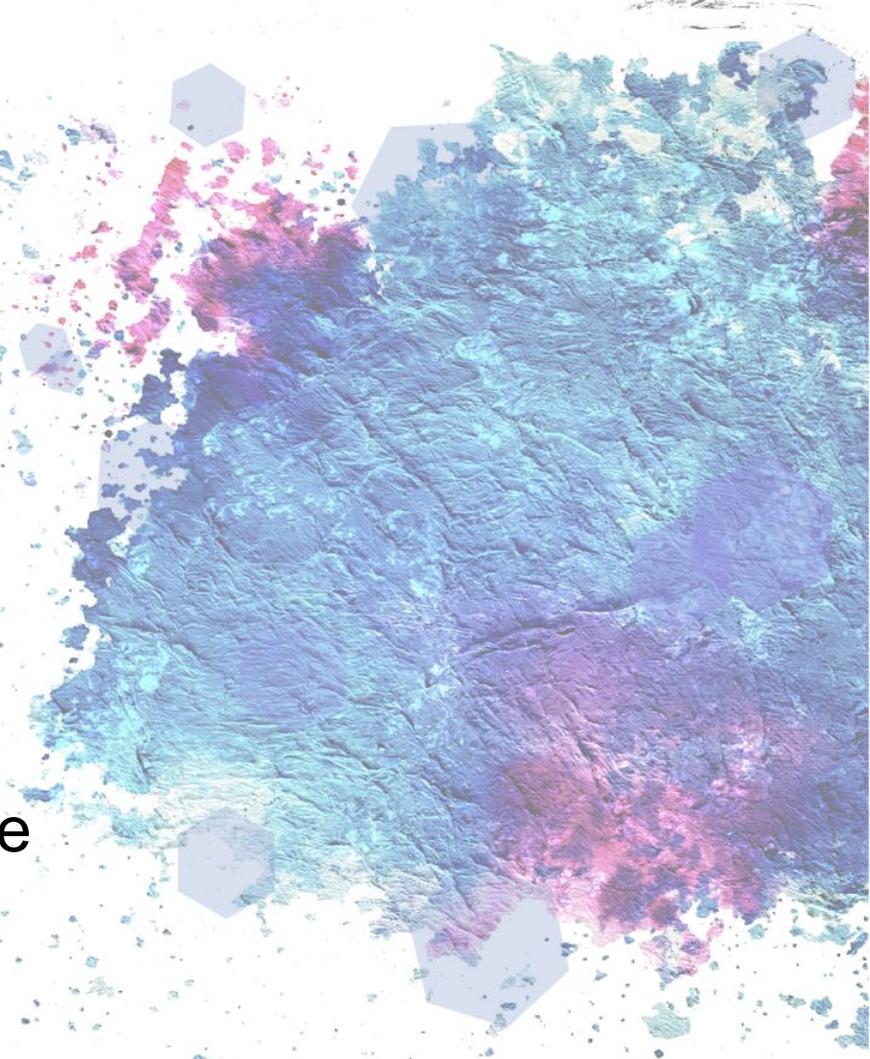
The background is white with abstract, colorful splatters in shades of blue, purple, and pink. There are also several semi-transparent purple hexagons scattered across the page. The word "Questions?" is centered in a black serif font.

Questions?

# JPG

## History

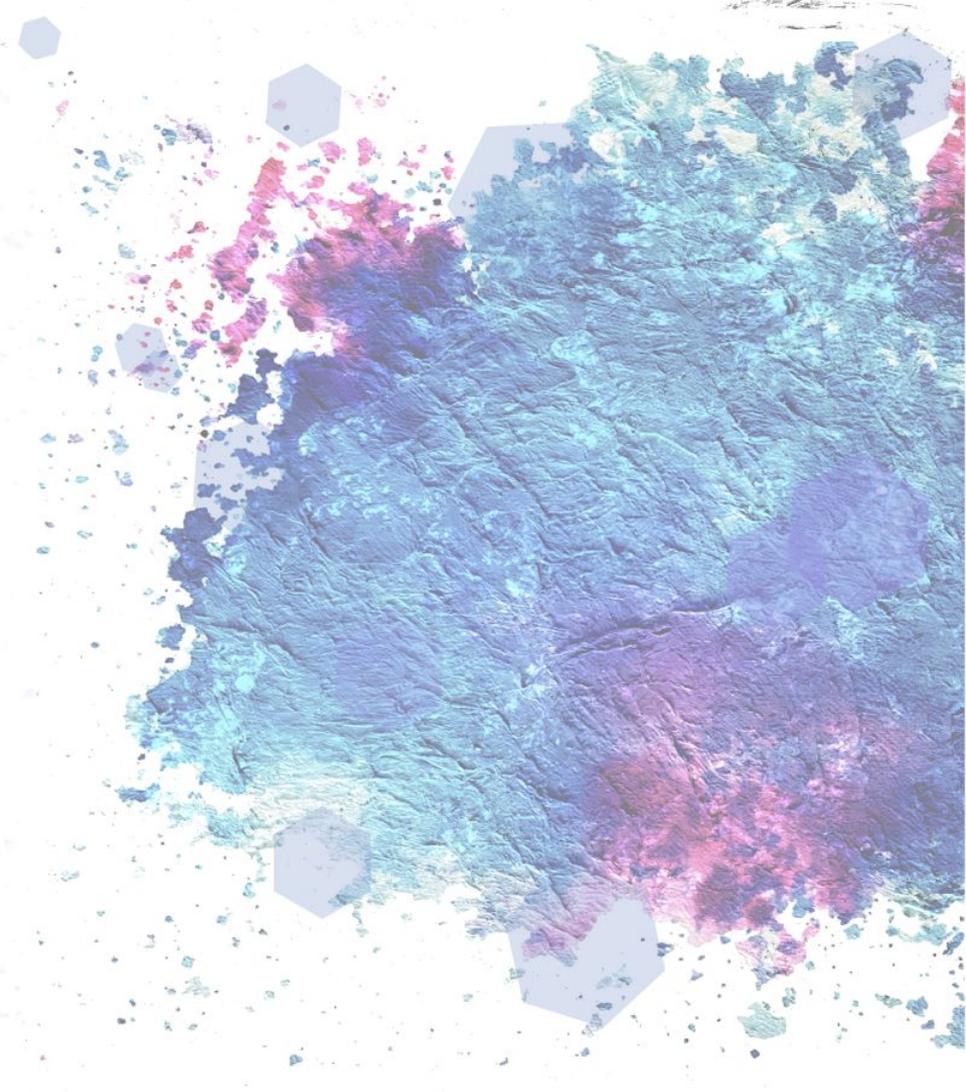
- Created in 1992 by the Joint Photographic Experts Group (JPEG)
- Quickly became the most popular high color format on the web
- JPG2000 is a failed successor



# JPG

## Color Palette

- 16 bit
- 65,535 colors



# JPG

## Compression Format

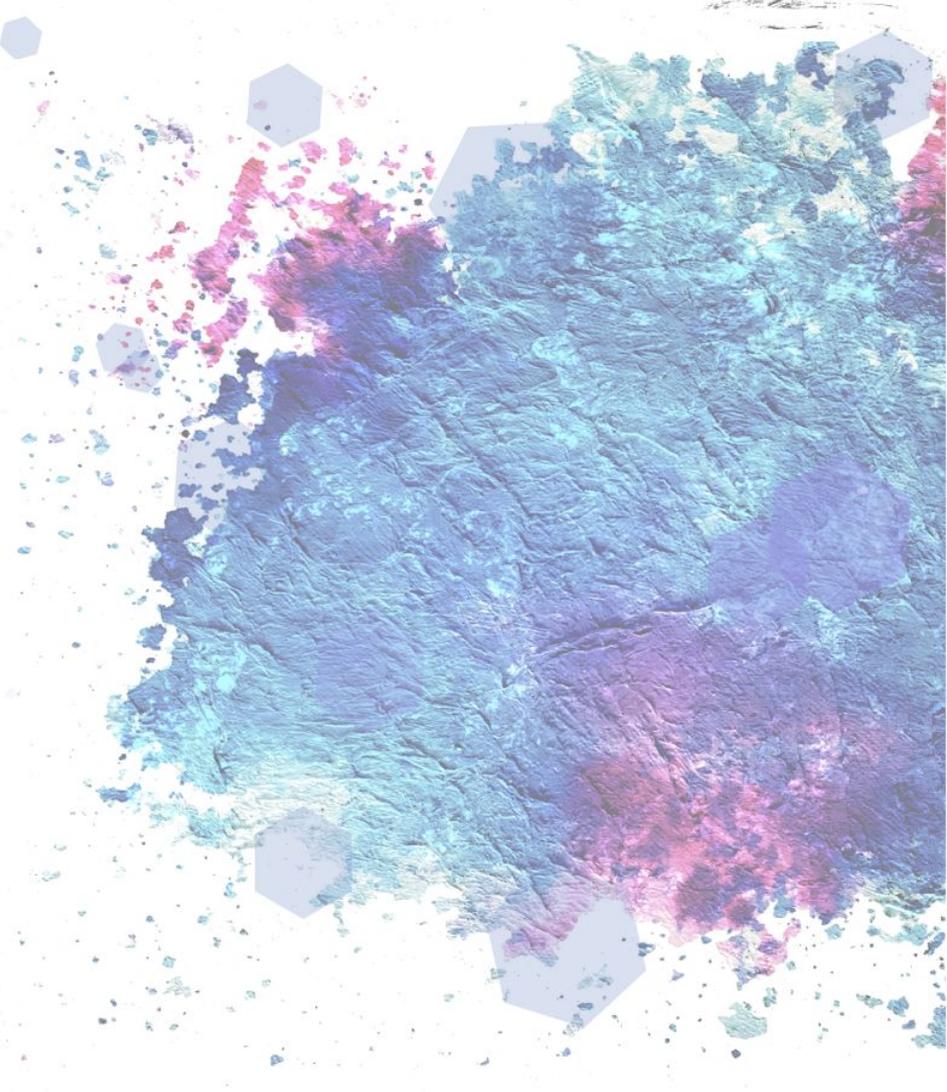
- Lossy
- JPEG is the name of the compression format
- Compression is measured on a scale of 1-100
- WordPress compresses at 80 by default

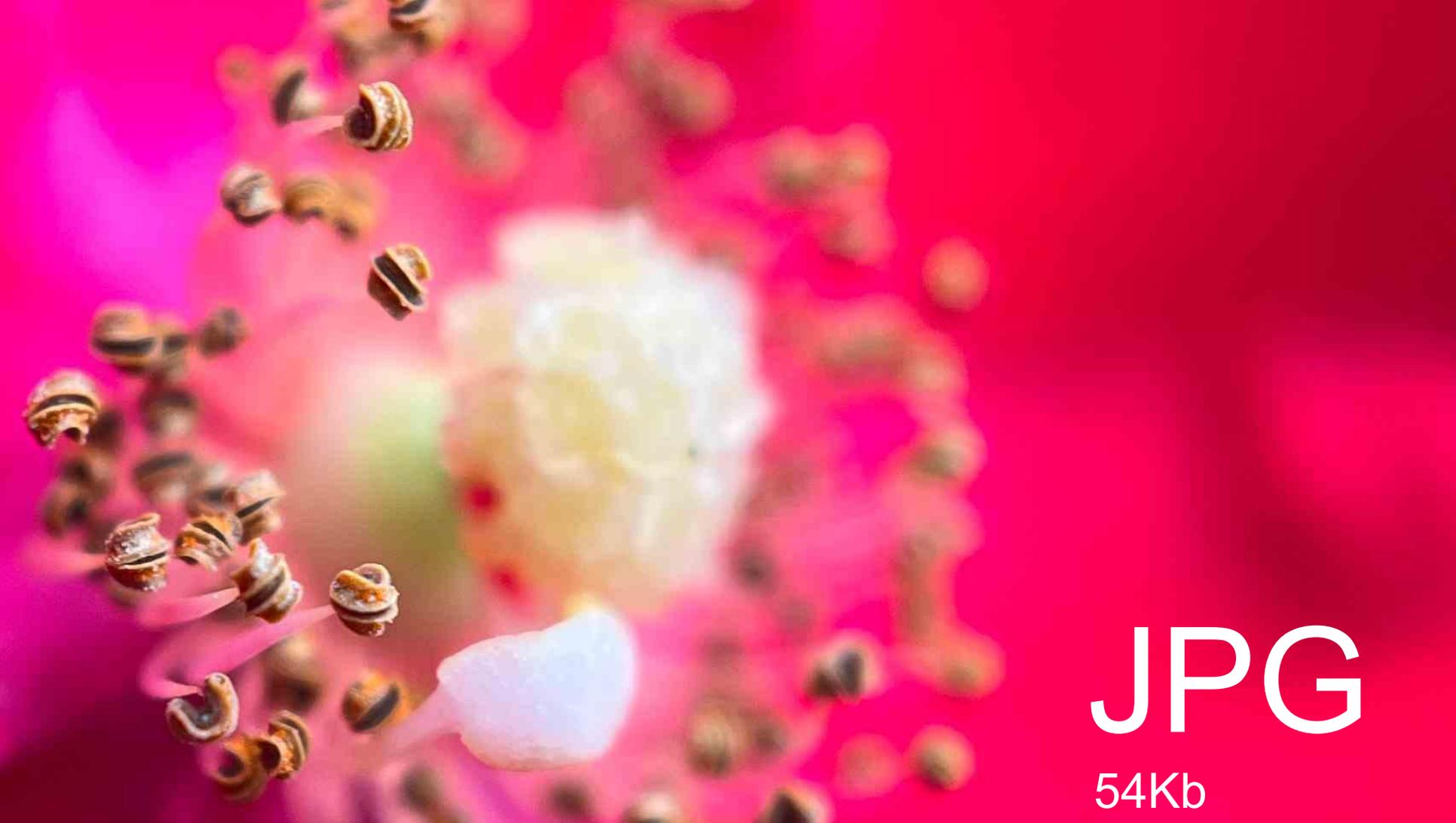


# JPG

## Unique Features

- Extraordinarily high quality for the filesize





JPG

54Kb



PNG

2400Kb



JPG

144Kb

# JPG

## Positives

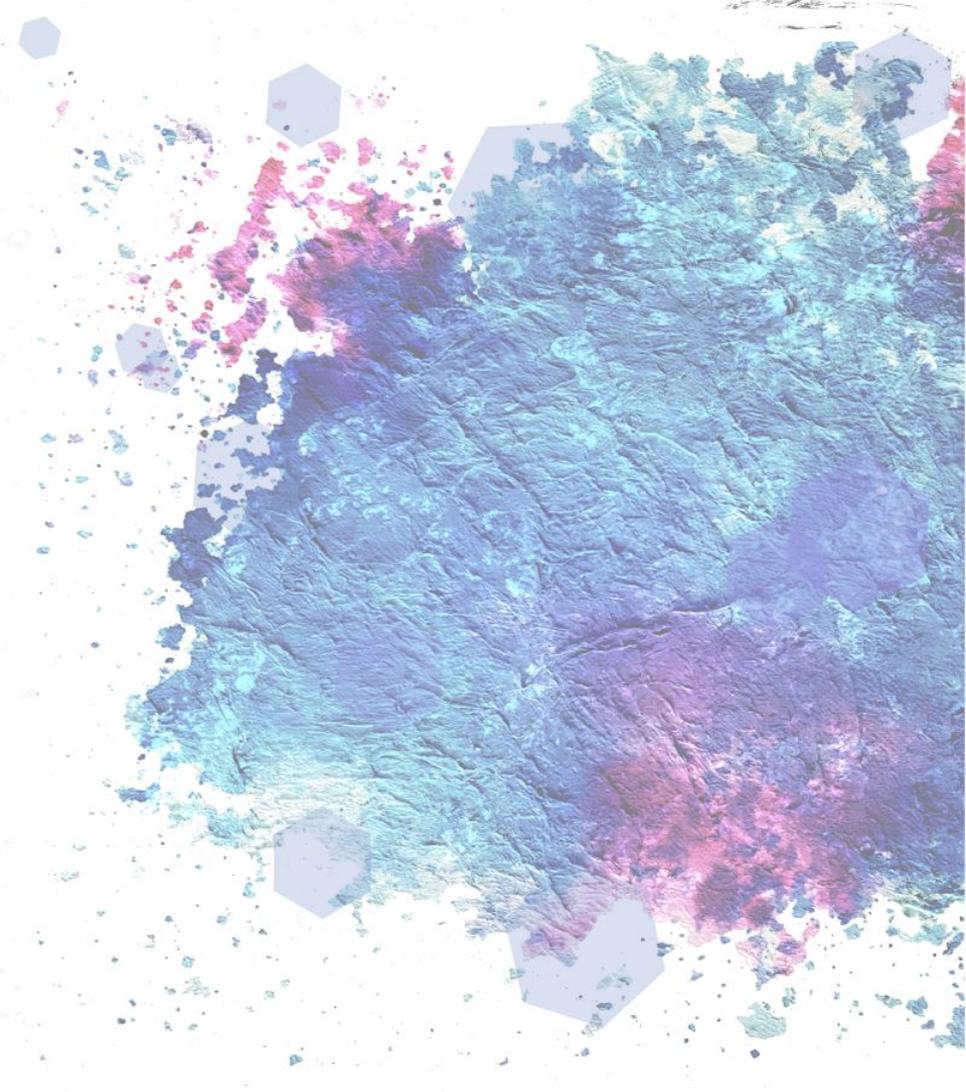
- Extremely well supported in editors, renderers, and devices
- Best file size for the quality
- Much better color support than gif



# JPG

## Negatives

- At very high compression it loses quality
- Limited to 65,000 colors, so photographers prefer other formats that can have more



# JPG

## Editor Support

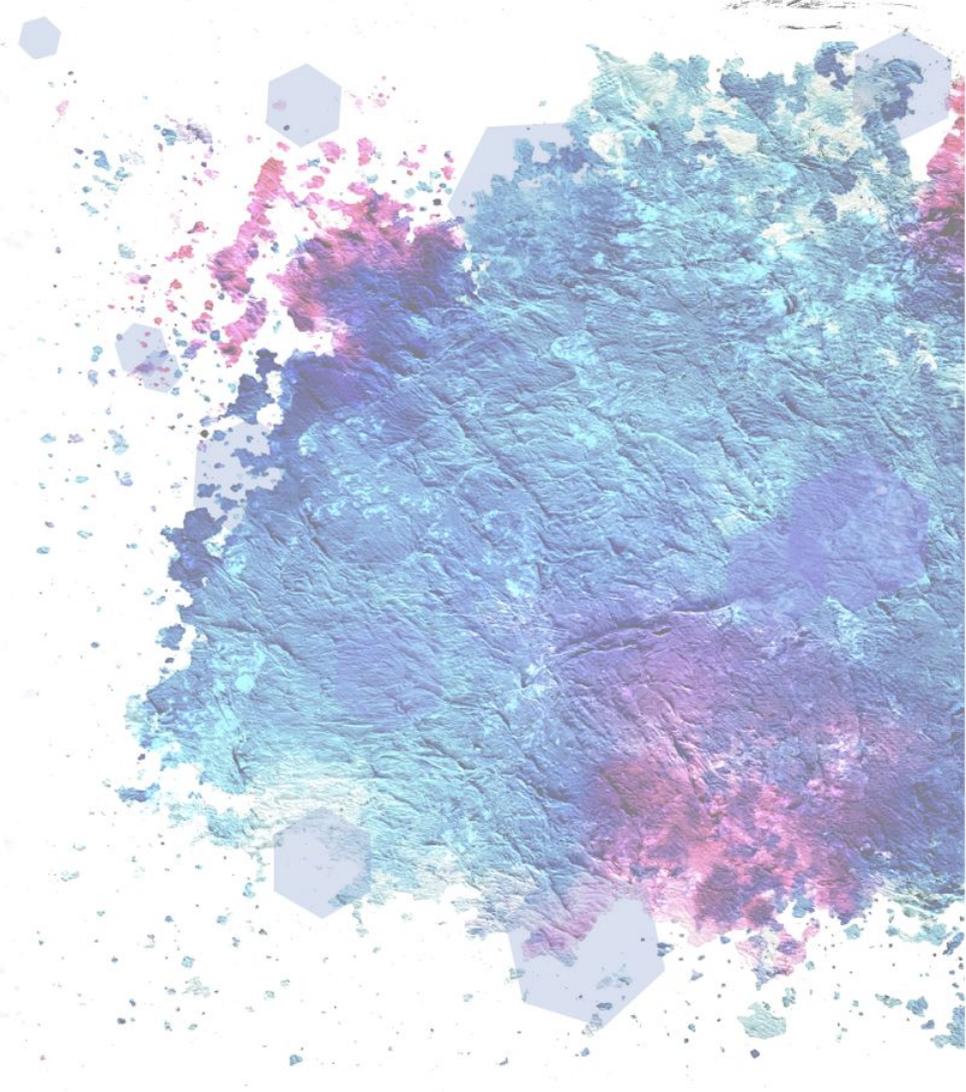
- Comprehensive
- Also extremely common as the default format for devices like cameras and phones

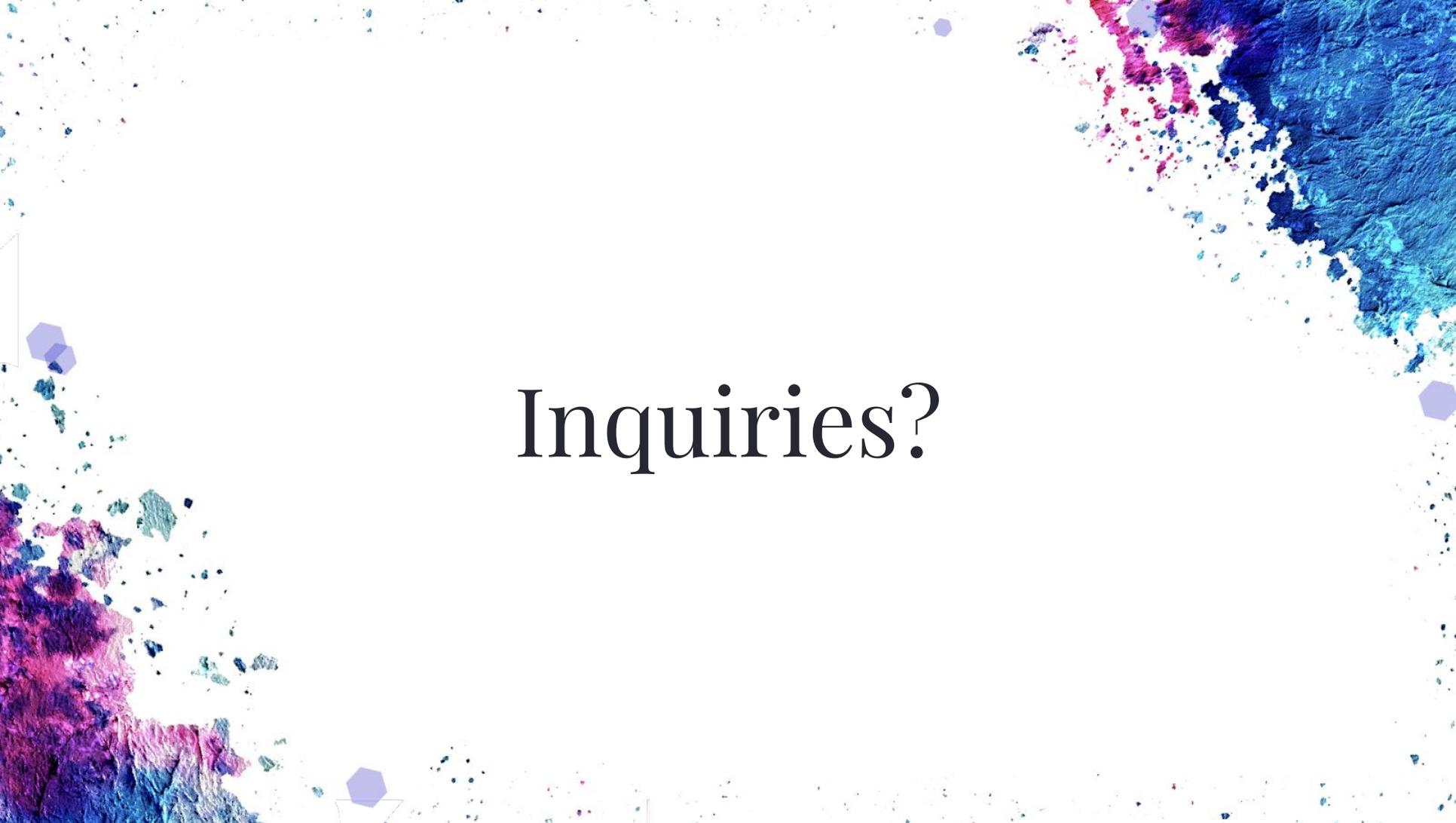


# JPG

## Best use case

- When file size is important but you still require high quality



The background is white with abstract, colorful splatters in shades of blue, purple, and pink. There are also several semi-transparent geometric shapes, including hexagons and triangles, scattered across the page. The word "Inquiries?" is centered in a black serif font.

Inquiries?

# PNG

## History

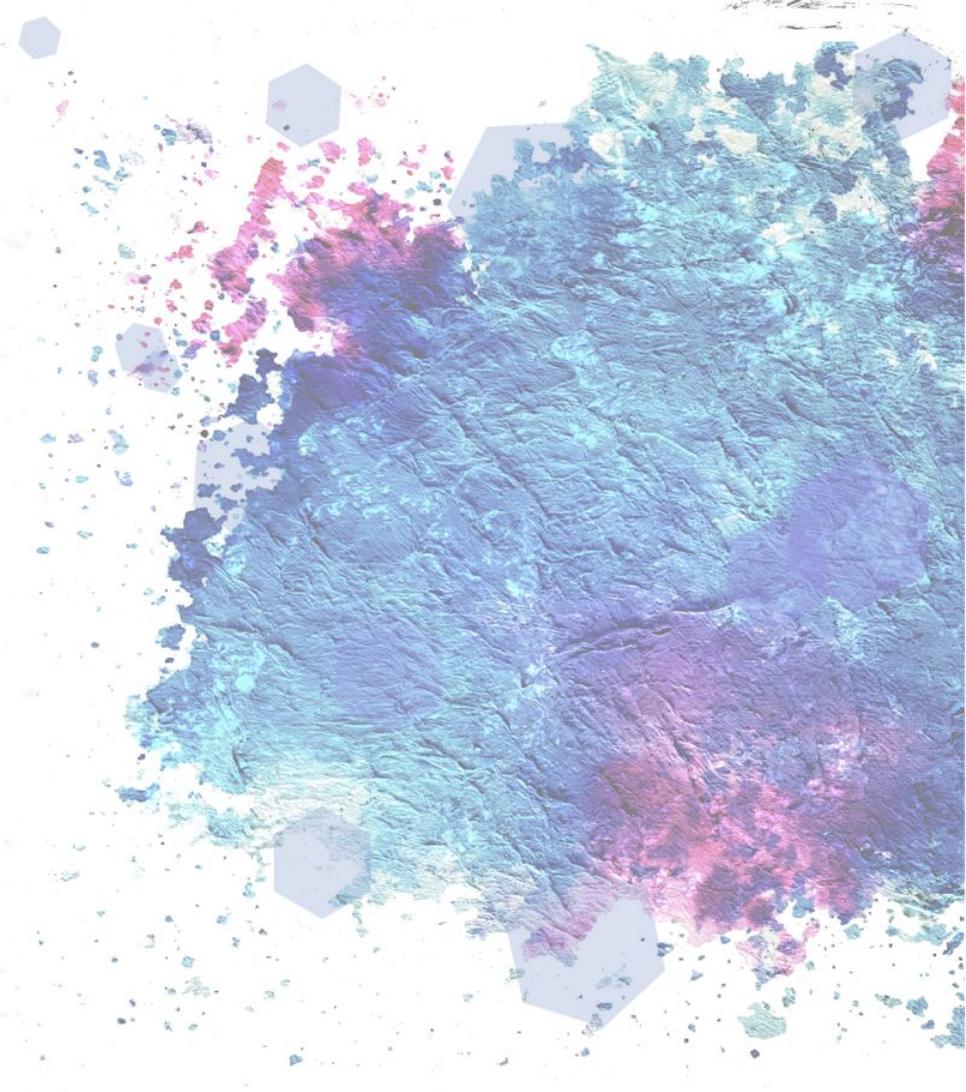
- Portable Network Graphics
- Newest of the mainstream image formats
- Most recently acquired browser support



# PNG

## Color Palette

- 32 bit
- 16 million colors



# PNG

## Compression Format

- Lossless
- Works similar to zip files, the completed file is compressed, rather than reducing quality



# PNG

## Unique Features

- Very high quality without unreasonable file size
- Semi-transparency (alpha layer)
- Can be either 8-bit or 32-bit



# PNG

## Positives

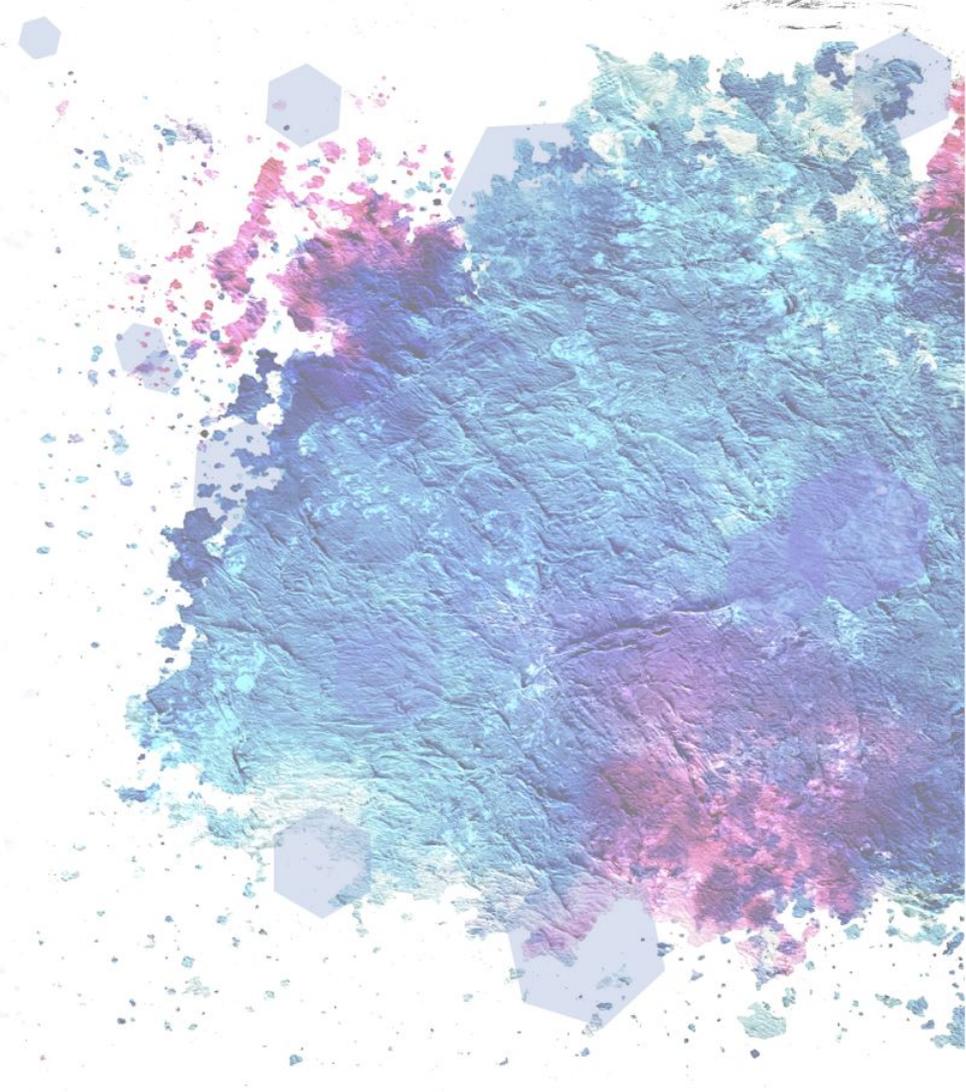
- Highest possible quality standard format
- Semi-transparency



# PNG

## Negatives

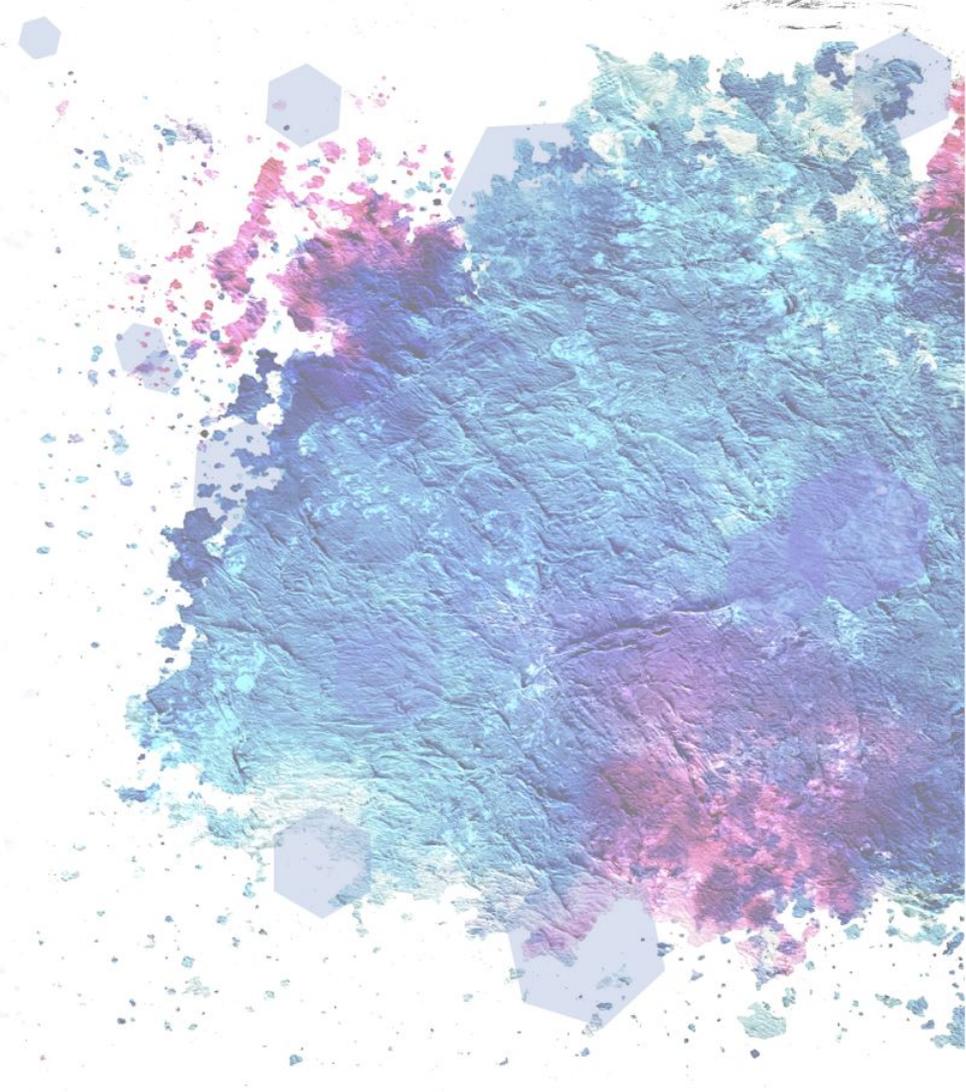
- The largest file size of all the standard types, by quite a lot
- No animation built in (see MNG and APNG)



# PNG

## Editor Support

- Comprehensive

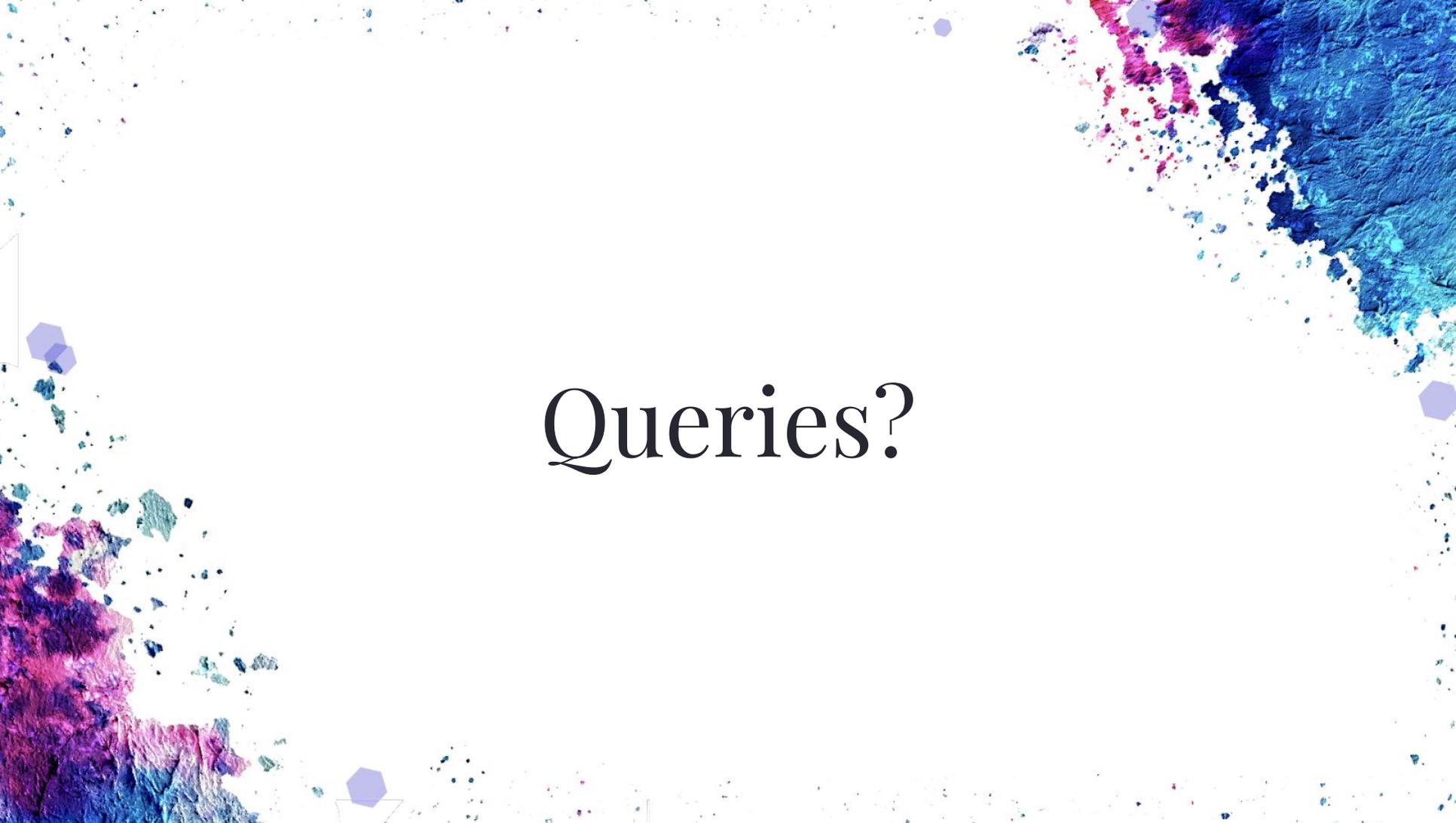


# PNG

## Best use case

- High quality photography
- Semi-transparent design elements



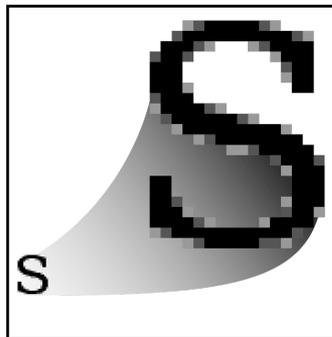
The background is white with abstract, colorful splatters in shades of blue, purple, and pink. There are also several small, semi-transparent geometric shapes, including hexagons and triangles, scattered across the page. The word "Queries?" is centered in a black, serif font.

Queries?

# SVG

## History

- Scalable Vector Graphics
- Old format, but browser support in the mid-twenty-teens
- Not actually an image at all, it's text instructions



**Raster**  
GIF, JPEG, PNG



**Vector**  
SVG

# SVG

## Color Palette

- Anything with an RGB or HEX value



# SVG

## Compression Format

- Nothing built in
- Could be compressed by server side algorithms such as gzip2



# SVG

## Unique Features

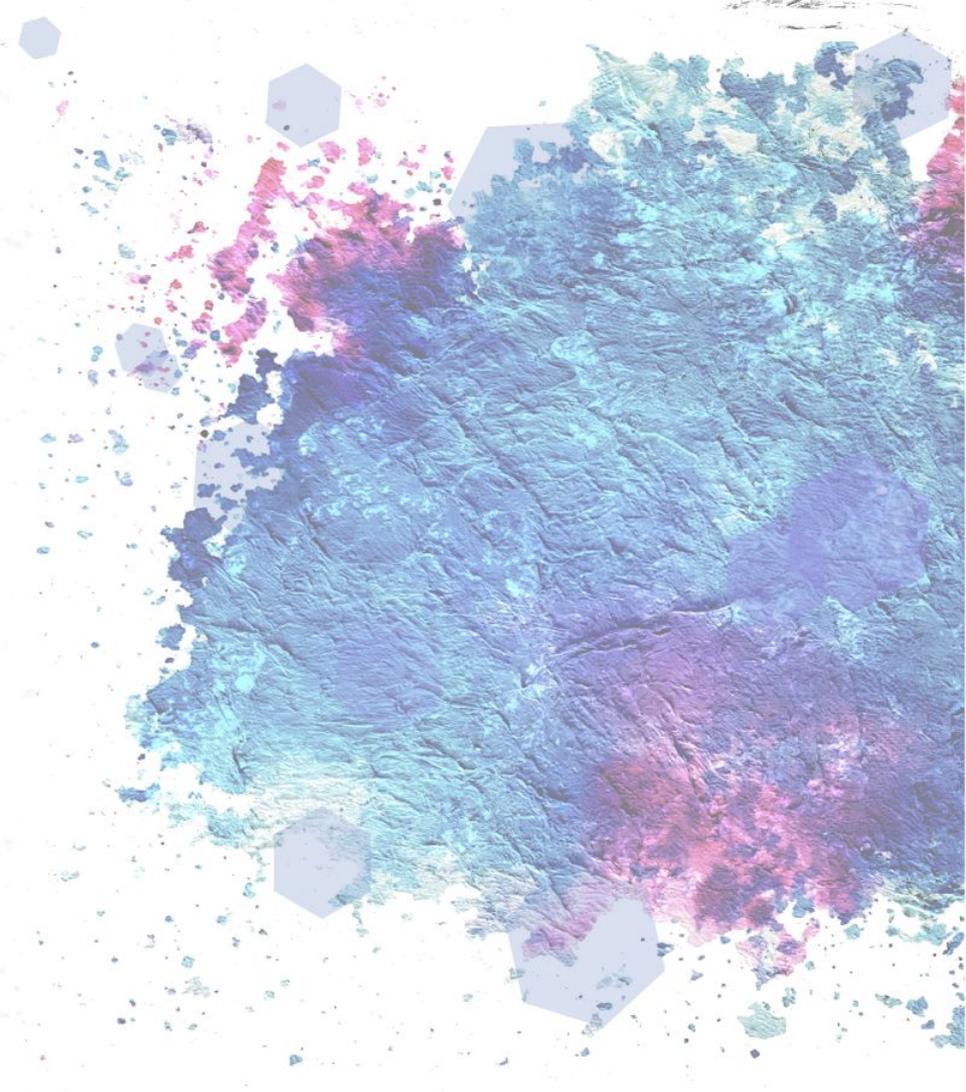
- Scales infinitely without quality reduction
- Because it's text, it can be scripted
- File size doesn't change as image size increases



# SVG

## Positives

- Infinite scalability
- Very small file size
- Scriptable (power)



# SVG

## Negatives

- Not editable in standard photo editors like PhotoShop and GIMP
- Scriptable (security)
- No native WordPress support



# SVG

## Editor Support

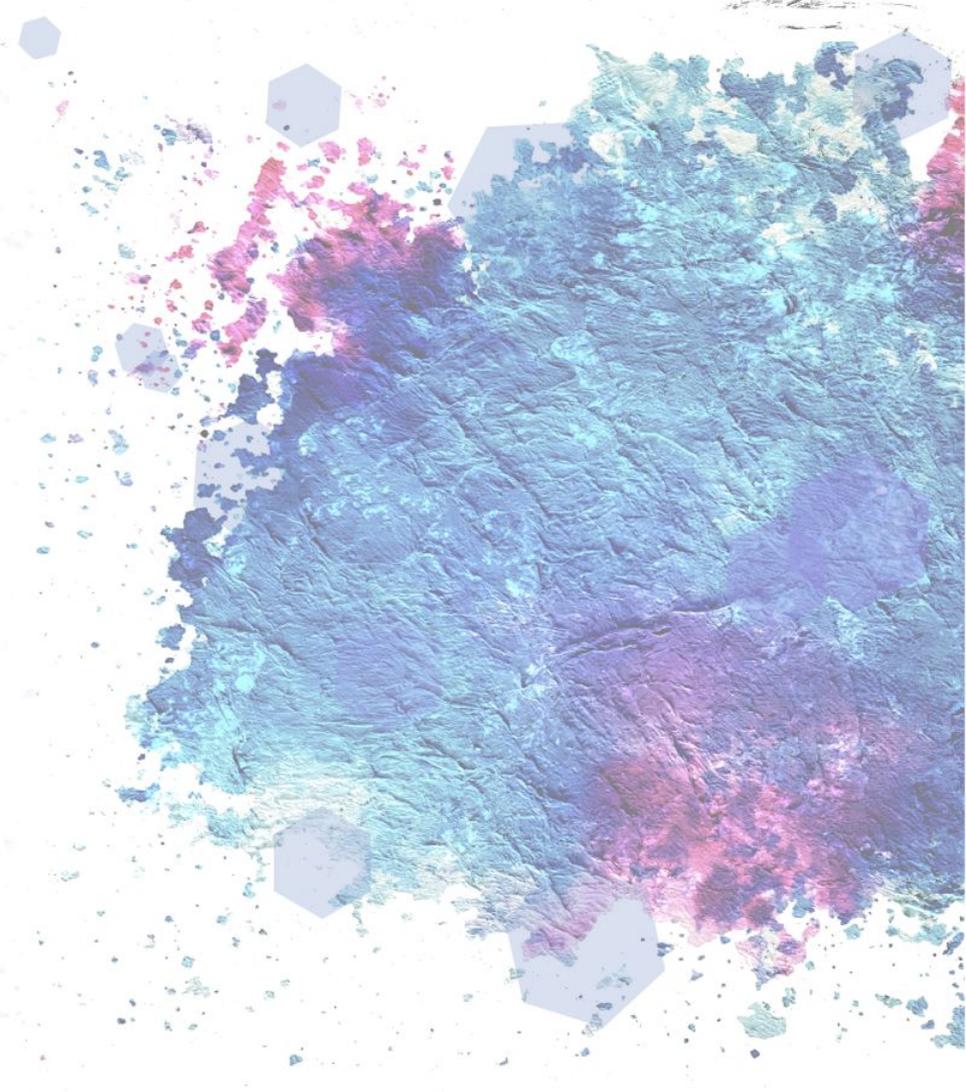
- Requires a special editor
  - Inkscape
  - Illustrator
- GIMP can open them and save to another format

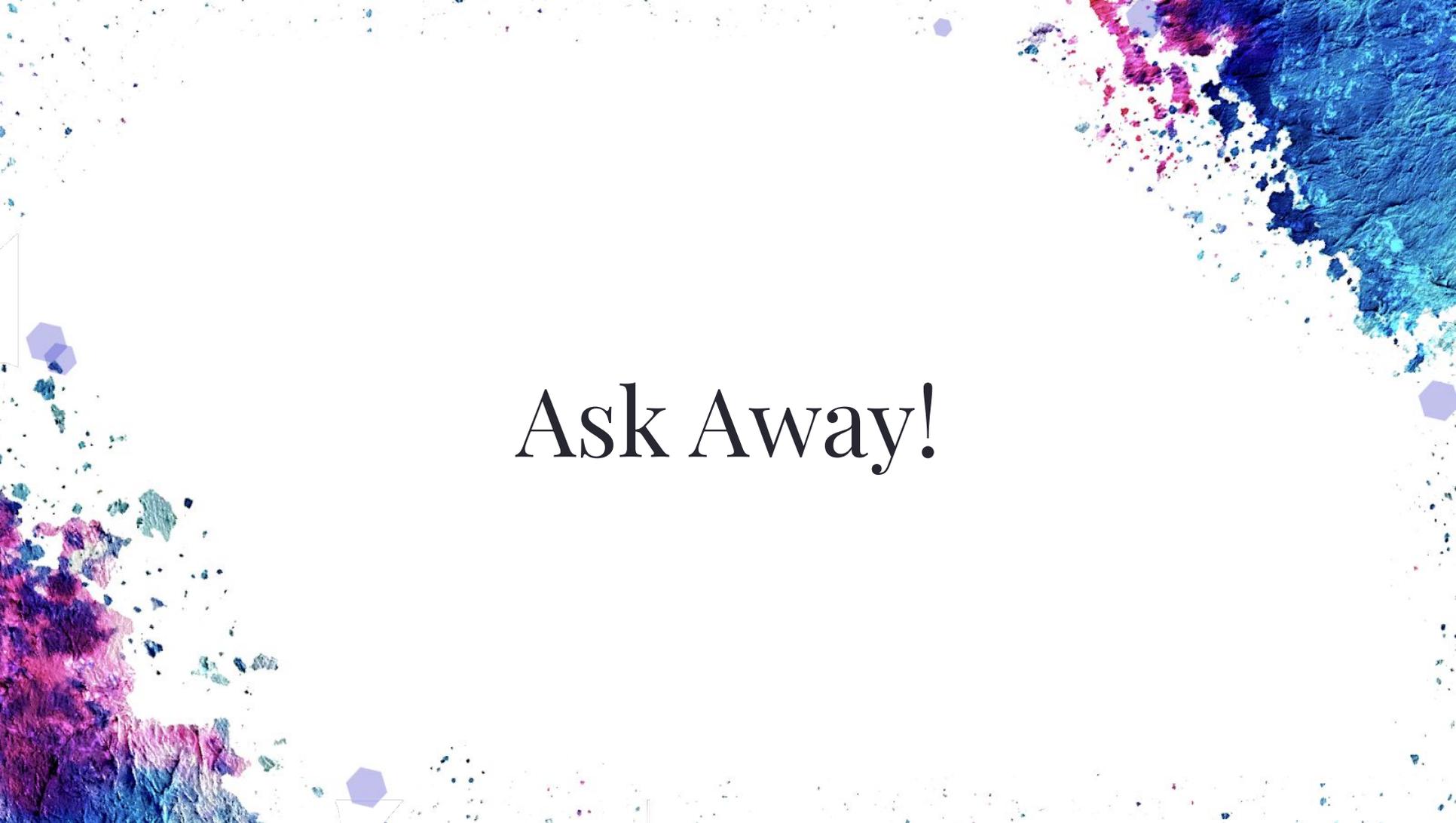


# SVG

## Best use case

- When file sizes are low enough comparatively
- When images need to change size in the browser
- When images need to respond to input



The background is white with abstract, colorful splatters in shades of blue, purple, and pink. There are also several small, semi-transparent geometric shapes, including hexagons and triangles, scattered across the page. The text "Ask Away!" is centered in a black, serif font.

Ask Away!

# WebP

## History

- Created by Google in 2010
- Most browsers supported it at some level by 2020
- WebP2 started in 2021
- Intended to replace GIF, JPG, and PNG in every way



# WebP

## Color Palette

- Anything with an RGB or HEX value
- 32-bit, 16 million colors



# WebP

## Compression Format

- BOTH Lossy and Lossless are options
- Proprietary created by Google



# WebP

## Unique Features

- Can be Lossy OR Lossless
- Can have high color animation



# WebP

## Positives

- Very flexible
- Could provide a single standard format



# WebP

## Negatives

- While editor support is comprehensive, it's not 100% anywhere
- Anecdotally, it doesn't make smaller images
- No native WordPress support



# WebP

## Editor Support

- All editor claim support
- Few, if any, support all features



# WebP

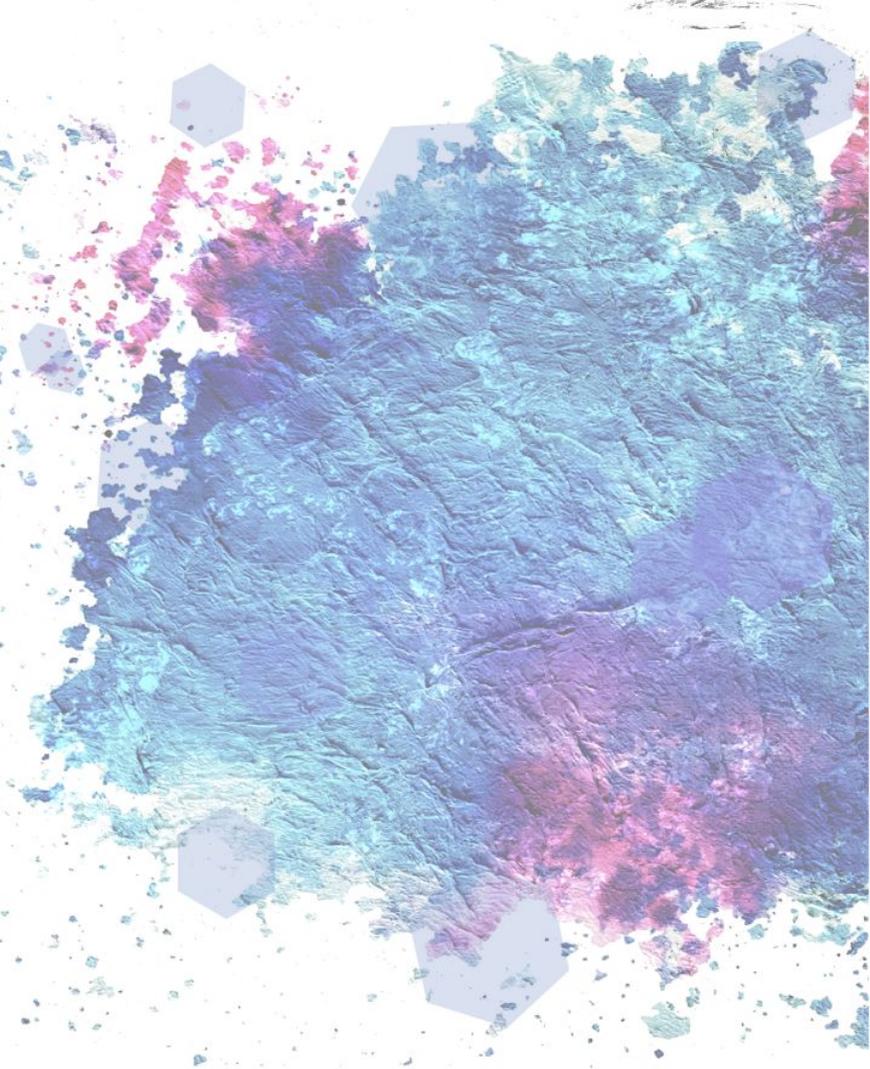
## Best use case

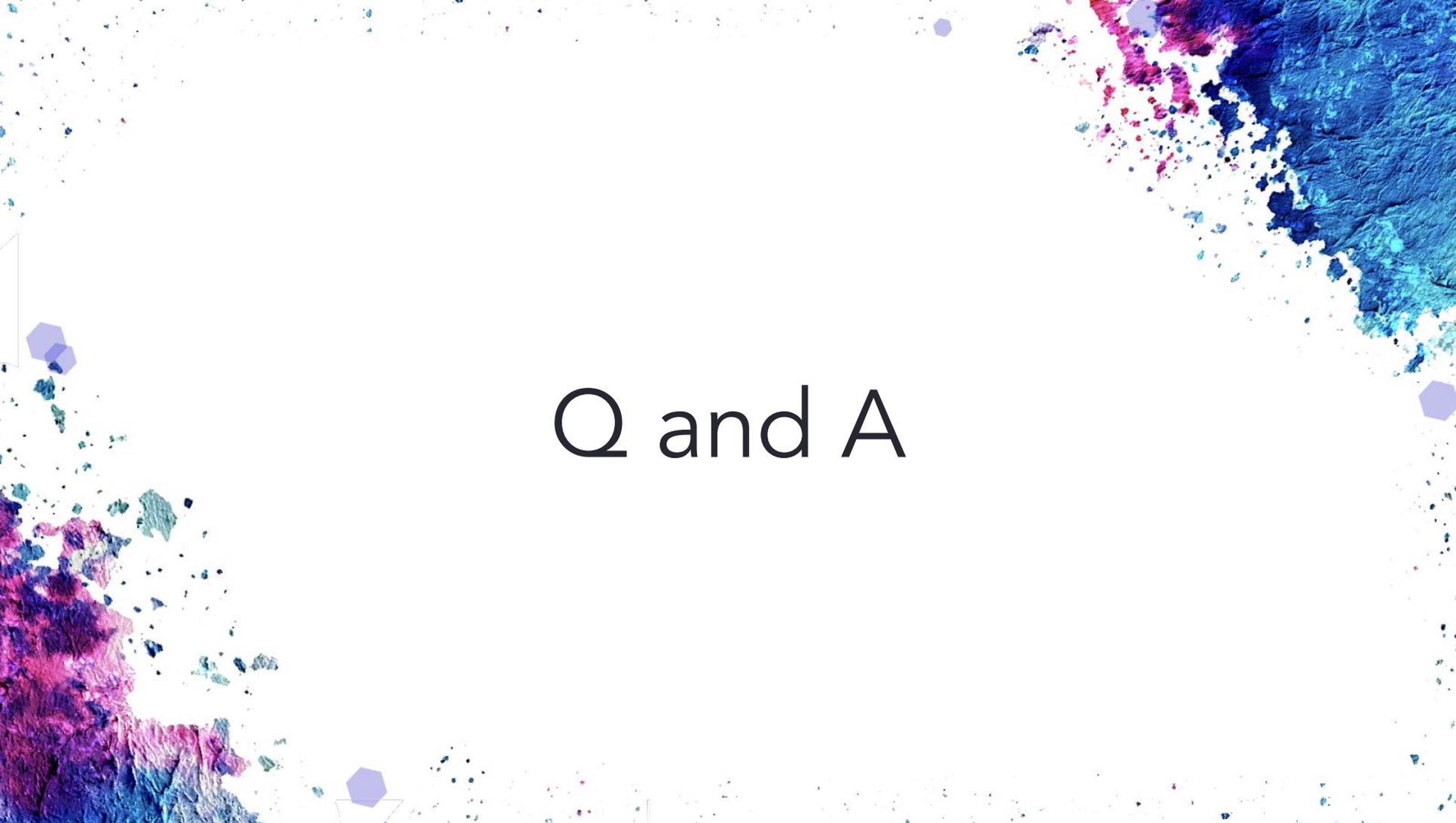
- If you can get a smaller file size it might be worth it.



# Summary

- 8-bit GIFS are smaller than 8-bit PNG
- GIFS are best for animation, video might be better
- JPGs are generally best for regular photos
- PNGs are best for high end photography & transparency



The background is white with abstract, colorful splatters in shades of blue, purple, and pink. There are also several small, semi-transparent purple hexagons scattered across the page. The text 'Q and A' is centered in a simple, black, sans-serif font.

Q and A



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