Layers and Masks

Like cookies and milk, you can't
have one without the other

Most modern photo editors will support layers and masks. What we will be covering here is an overview of using layers and masks. Although I will be using and describing the interface for Adobe Photoshop, the concepts should translate easily to other programs. Since this is an overview, we will not be going into a great deal of detail; some of the techniques would require hours to get into the details. I have linked some resources at the end of this presentation if you would like to pursue further.

The Adobe Ecosystem

- Multiple applications for same tasks
- Users also have a choice of alternative ecosystems
- Principles apply to other apps (On1, CaptureOne, Affinity)
- Within an app, there can be many ways to do essentially the same thing
- For photographers, best choices are Lightroom and Photoshop, and possibly Bridge and ACR if not using Lightroom

Adobe publishes a slew of applications for the graphic arts. As photographers, several of the applications are applicable to our photo editing, most notably, Lightroom and Photoshop.

Lightroom or Photoshop

- Lightroom
  - Great for Digital Asset management
  - Great for most edits
  - Recent versions acquired more features of PS (ie. new masking features, AI)
- Photoshop
  - Better for more complex edits and plugins as layers (Topaz, On1, DXO/NIK, Luminosity)
  - Necessary for composites (ie. replace background/sky) and artistic stylization filters
  - More power with Layers and masks

Photoshop has been around for quite some time and was the mainstay of graphic artists. And yes, it could make a photo look good. Lightroom hasen't been around as long, but it was truly made for photographers; early versions were revolutionary for it's non destructive workflow, but still barely scratdhing the surface of what Photoshop could do. Fast forward 2 decades, and that divide is narrowing. For the most part, Lightroom can handle probably 95% of a photographers image procissing; however, there are some tasks that can't be done in Lightroom. Recent versions have had some major upgrades that are making Photoshop less of a necessity.
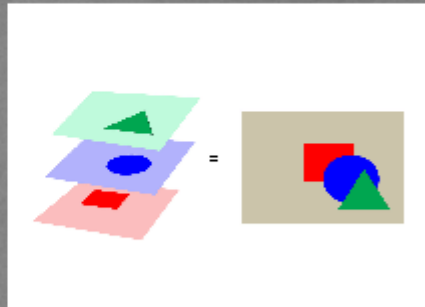
Imagine a stack of transparencies, each with an object on it. Viewing them, you would see through the transparent areas to the layer below, while you would not see anything in the layers below where the object image is.

As an example, if a painter paints a house with a tree in front of it and then decides the tree would look better behind the house, it would be a chore to transplant it. Now, if the painter painted each object on a seperate transparent layer, that change would be as easy as swapping the layers.

Types of layers

- Pixel Layer
  - A 2D grid of points, each point represented by three values that create the color of that pixel; RGB, LAB, CMYK (Photos)
  - Refer to Andy's deep dive into color
- Vector--Points, lines, arcs and shapes defined by location in a cartesian coordinate plane (Text, Scaling)
- Adjustment--A 'recipe' for altering pixel value

When I said that you could consider the layers as a stack of images, that is only half true because there are different types of layers.

Our photos are examples of a pixel layer when loaded into Photoshop. We typically use lightroom or Adobe Camera Raw (ACR, or another RAW converter,) to convert the raw sensor data to a viewable image.

Vector layers are typically used for placing text. Vector layers are unique in that they can be scaled infinitely with no loss of resolution whereas pixel layers eventually start to pixelate.

Adjustment layers are great for nondestructive editing; the effect can be edited, moved or deleted. When adjustments are made directly on the image, it is hard to get back to the original without starting over.

A mask on a layer is a way to selectively show or hide the pixels in the image. The well worn phrase 'Black concels and White reveals' is key to understanding masking.

Types of Masks

- Pixel masks
  - Black, white and shades of gray
- Vector masks
  - Lines and shapes
- Clipping masks
  - Constrain this layer to only affect the non-transparent pixels of the layer immediately below

Pixel masks are always black, white or shades of gray and never color. They correspond one to one with the image on the layer.

Vector masks are lines arcs and shapes that are used to show/hide parts of an image. Vector masks like vector layers are often seen with text.

Clipping a layer to another will only affect the underlying layer and not the whole stack.
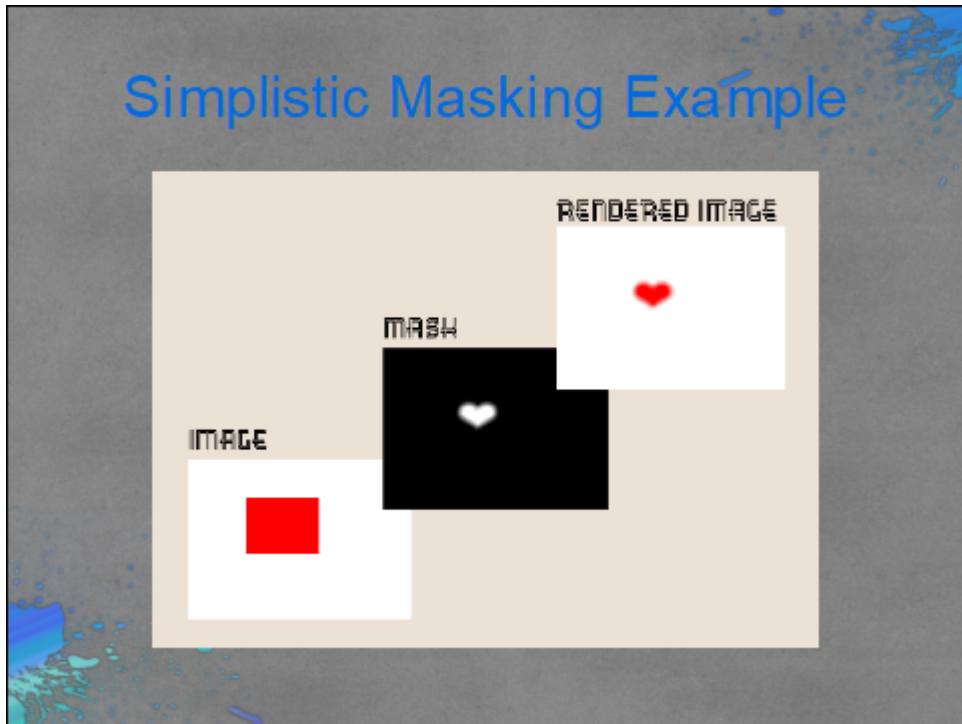
Consider this example of a simple image of a red rectangle. Suppose all we wanted to reveal from that box was a heart. We could create a totally black mask with the shape of a heart in white. Now view the image through the mask, and only the heart is visible.   All of the black in the mask would hide the corresponding pixels of the layer image (or adjustment). Only the pixels of the image corresponding to the white pixels in the mask would be visible. Notice that the mask has a feathered edge (shades of gray), thus the rendered image would also have a feathered edge.
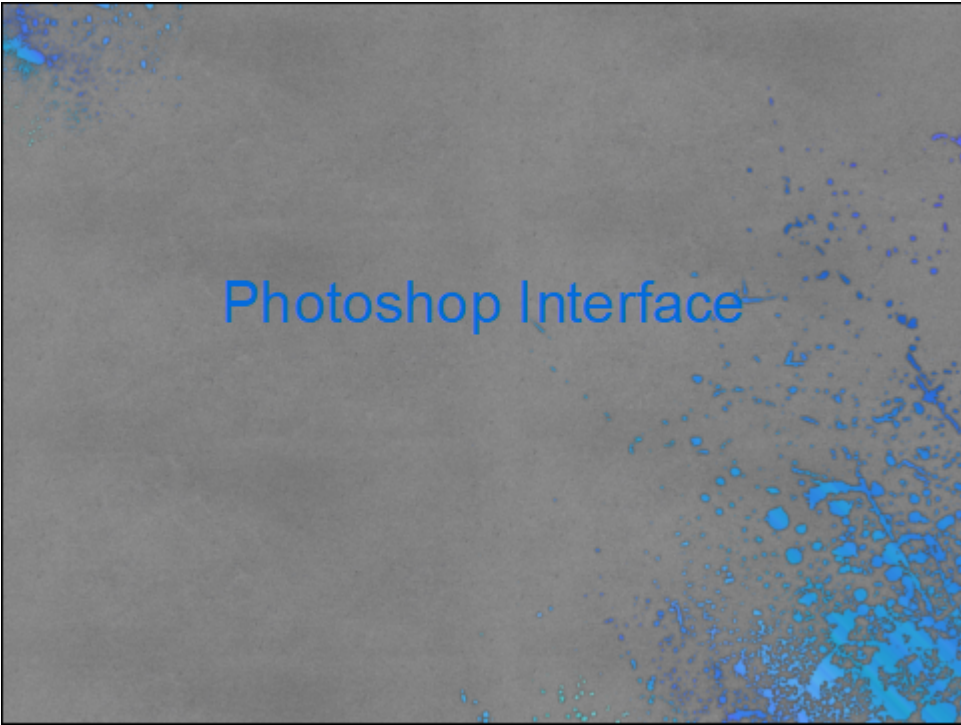
Photoshop Interface
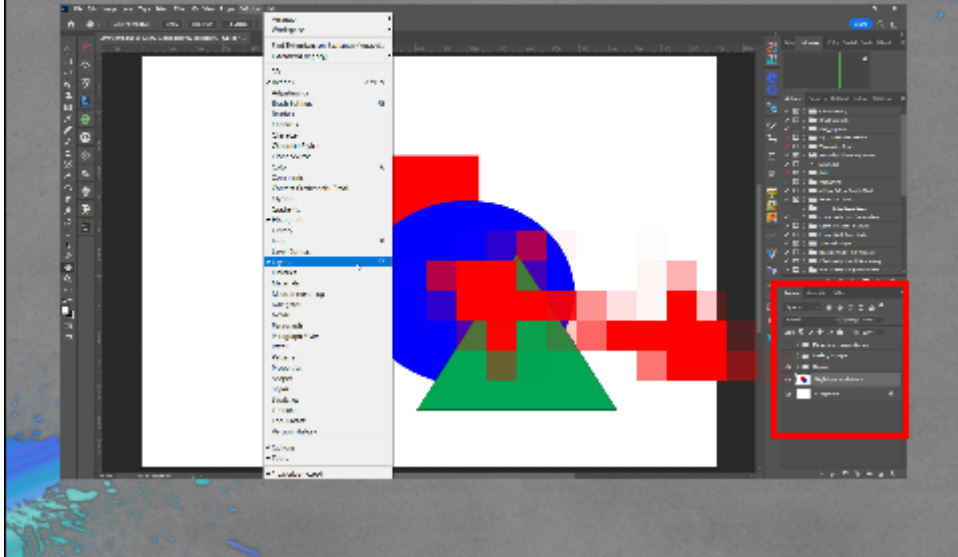
The first thing we need to do is to insure the layers panel is vivible. Under the 'Windows' menu, insure that the 'Layer' item is checked. My layer panel may not be in the same position as yours, since you can grab the title bar and drag it around anywhere on the screen.
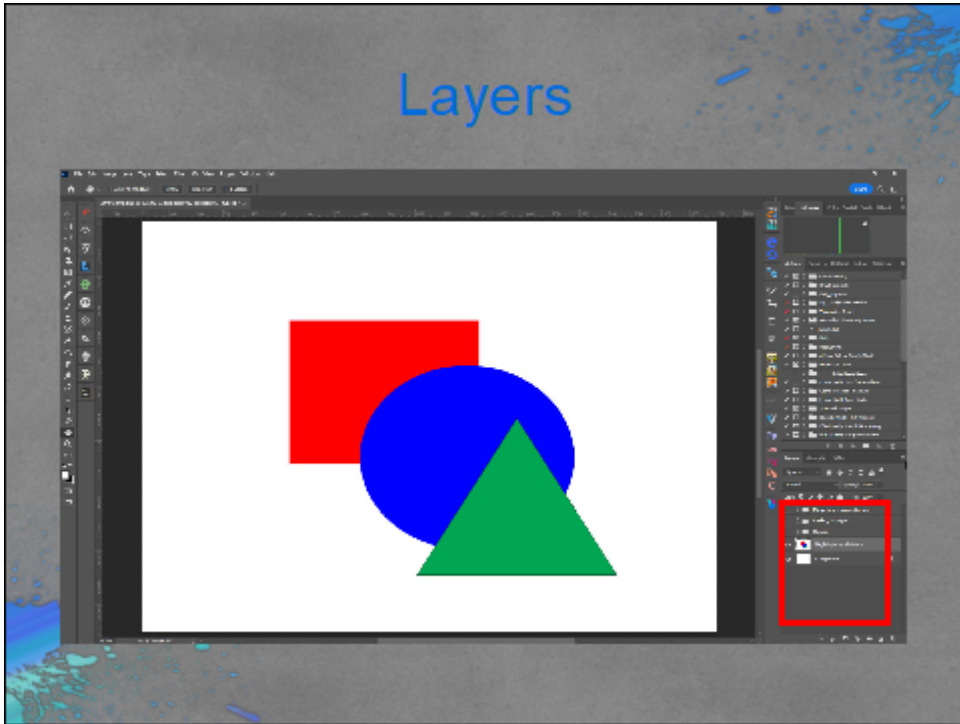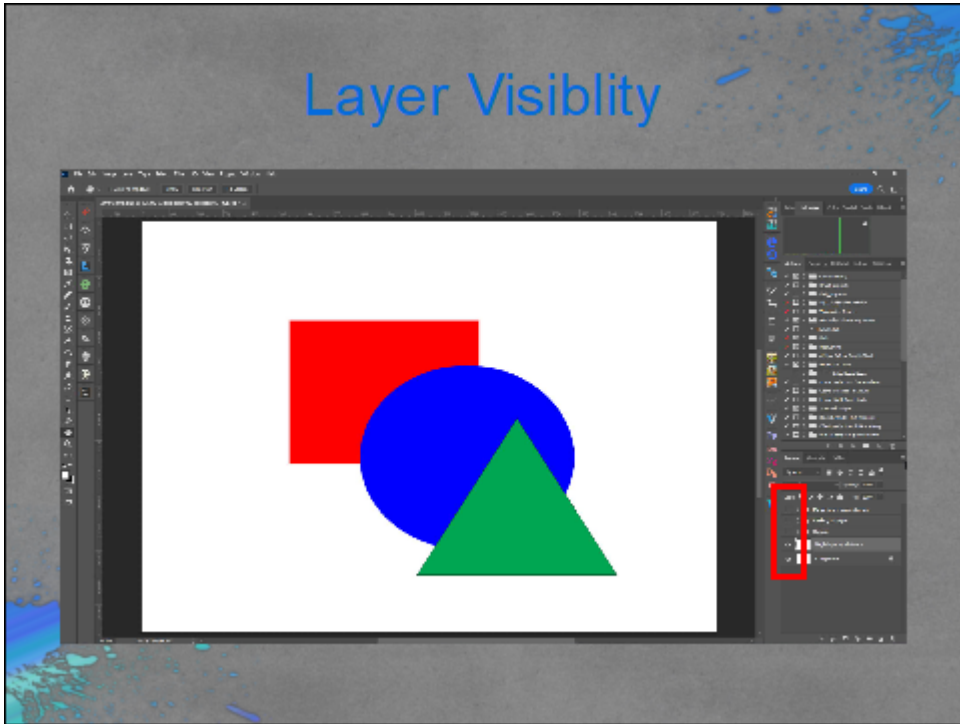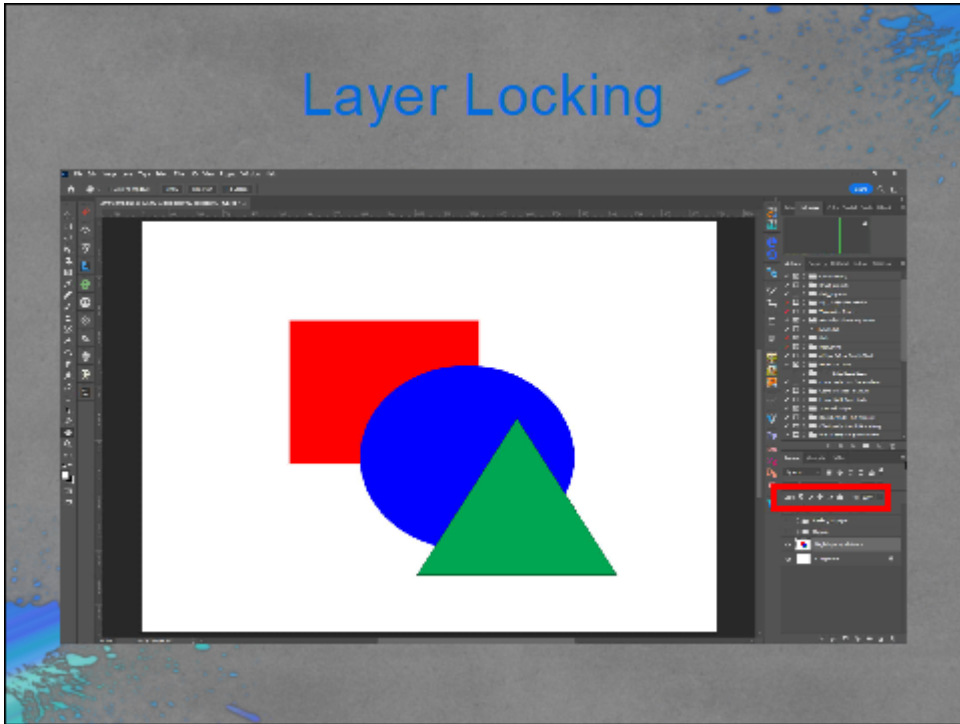
The layers appear as a list in the box.
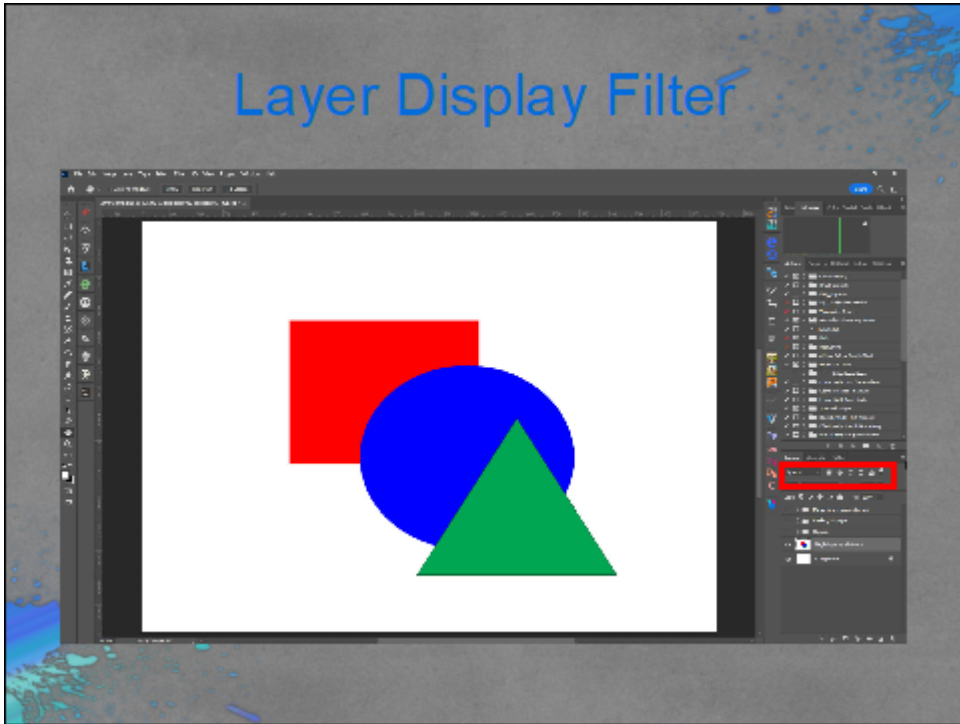
You can filter which layers you want to appear in the list. For example, you could display only the adjustment layers.
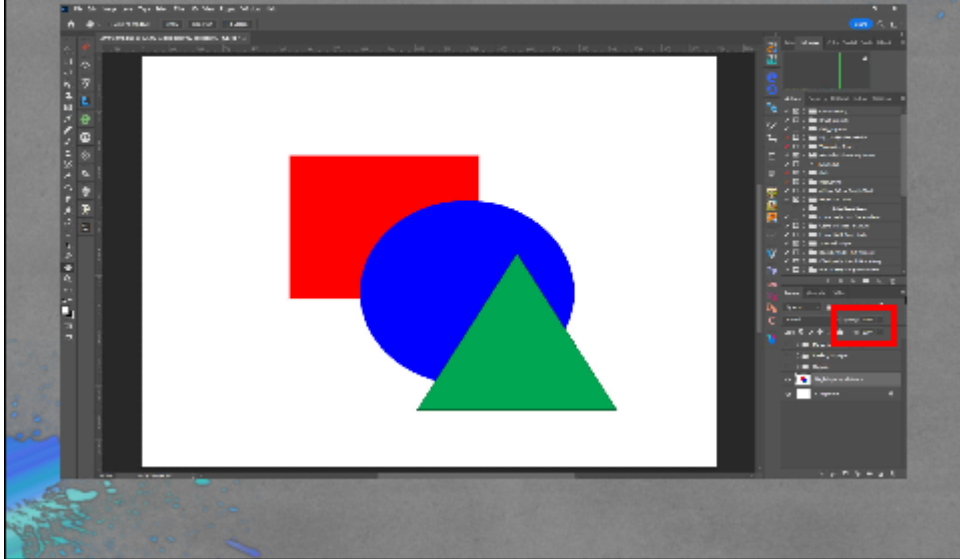
The visibility of the layer can be toggled on or off by clicking the eyeball.

You can lock a layer fully or partially by selecting one of the icons in this row; the lock icon will be displayed on the right side of the layer. Fully locking a layer will prevent it from being moved or altering it's pixels. Transparent pixels and color pixels can be independently locked.

The opacity and fill sliders can change the visibility of the layer from fully opaque to fully transparent and everything in between. This feature is invaluable, particularly on adjustment layers, to dial in the exact amount of the adjustment effect.
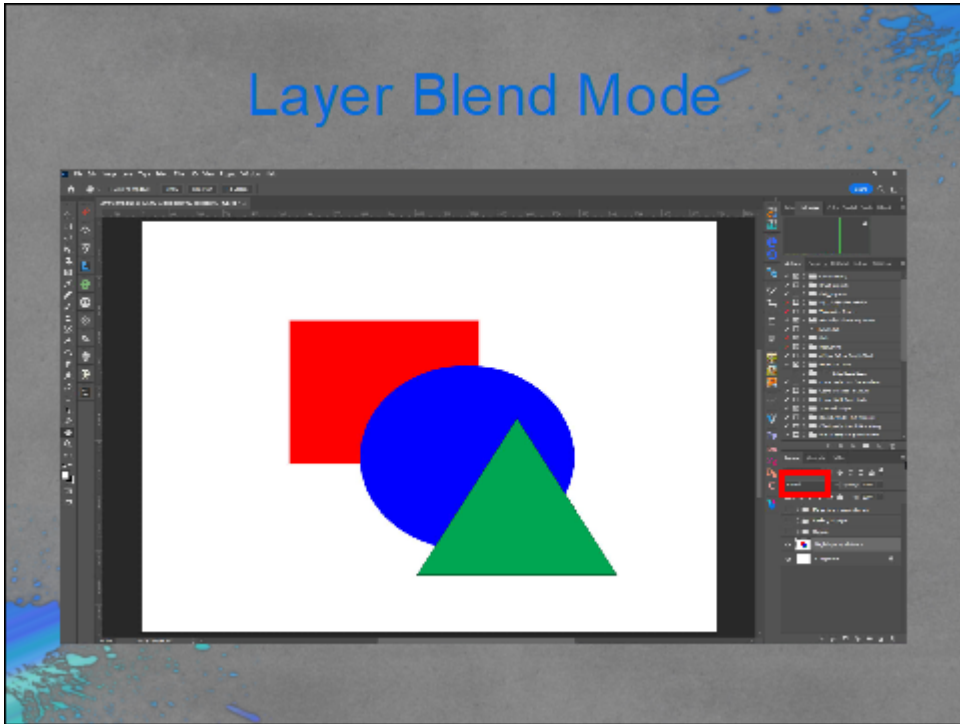
A particuularly powerful ability of layers is the blending. Blending is how the pixels of the layer to interact with the pixels below.
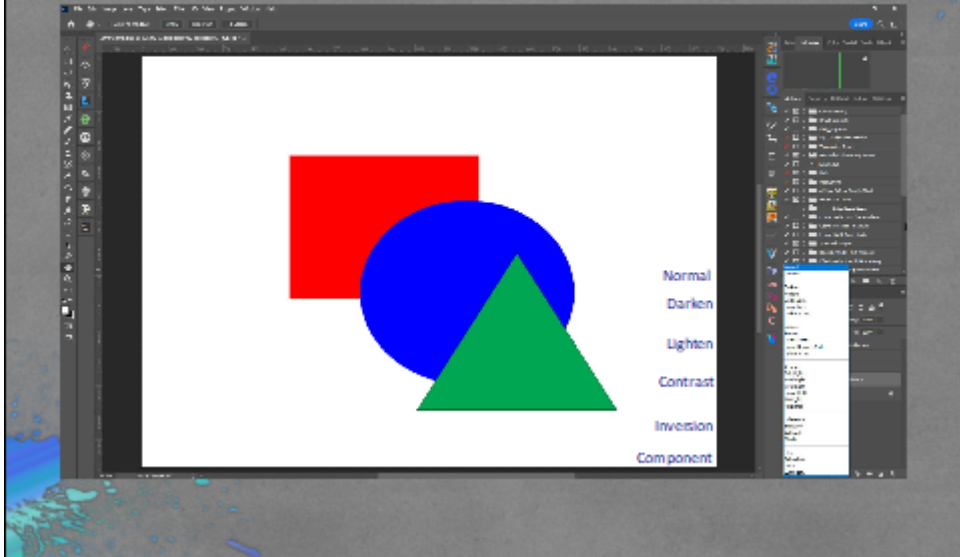
The blend modes are grouped into similar functionality. They can be used to replace pixels, darken the pixels, lighten the pixels, both darken and lighten based on the luminance of the underlying layer, invert pixels, and affect pixels based on Hue, Saturation, Color or Luminosity.
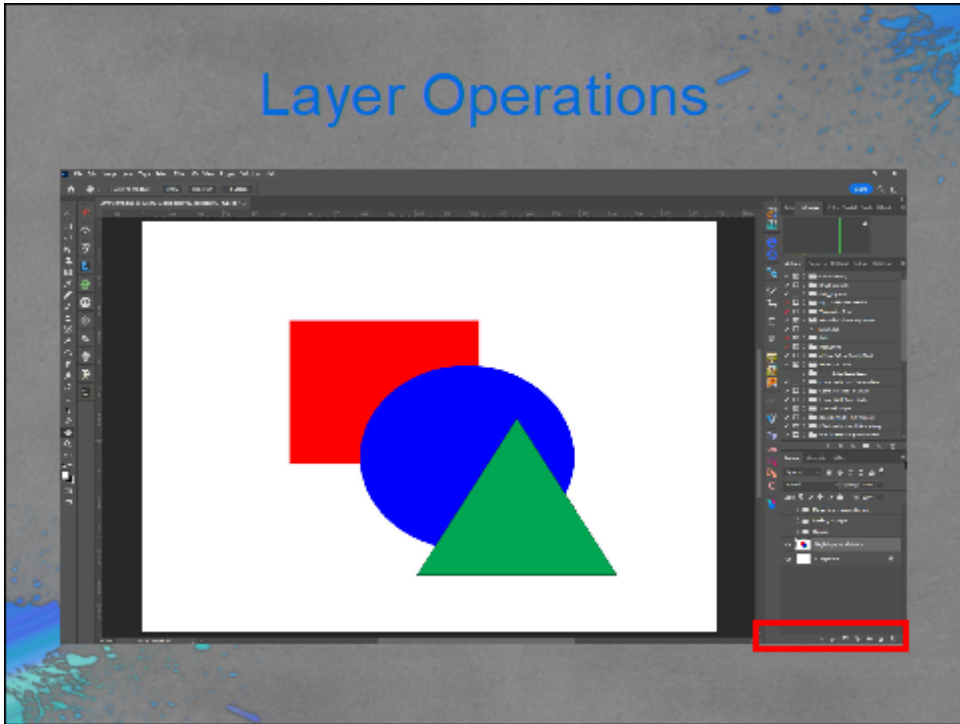
The icons in the bottom row allow you to change the layer style, add a mask, add an adjustment layer, add a layer or delete a layer.
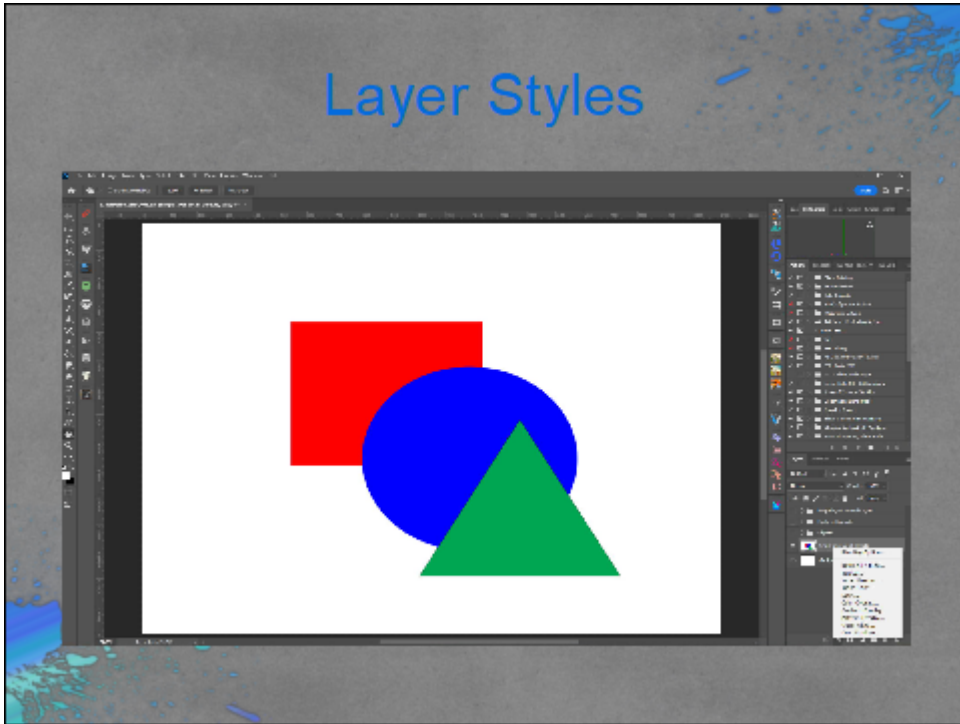
The layer styles button has several options. Most of these are probably most useful for graphic artists, although there are a few that are useful to photographers. Probably the most useful feature of the styles for photographers is the 'Blend If' sliders; these can affect the image similar to a layer mask.
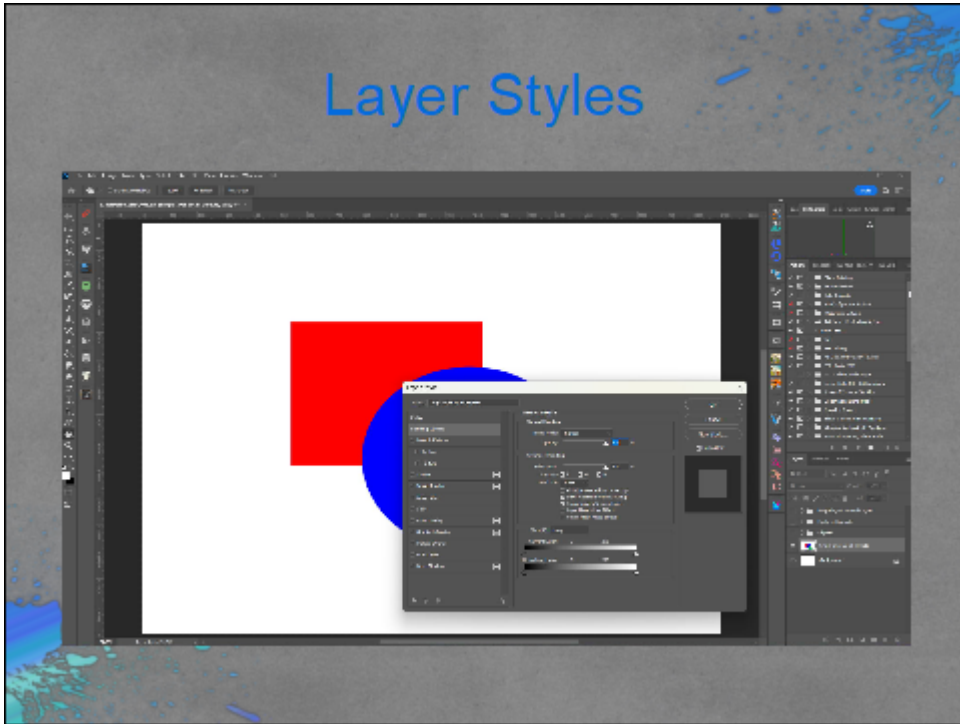
When you click the 'fX' icon (or double click the layer) this panel will pop up.
Probably the most used item that photographers use on this panel would be the
'Blend If'. This functionality is similar to a luminosity mask.
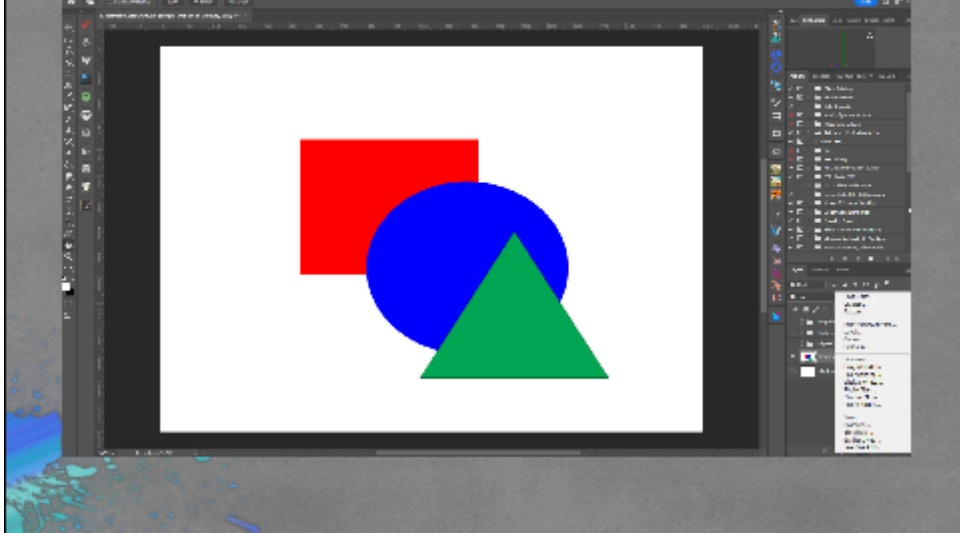
Adjustment layers could possibly be the most used layer type by photographers. These layers are non destructive and are simply instructions for changing the values of pixels in the rendered image. As such, they do not increase the file size as a pixel llayer would.
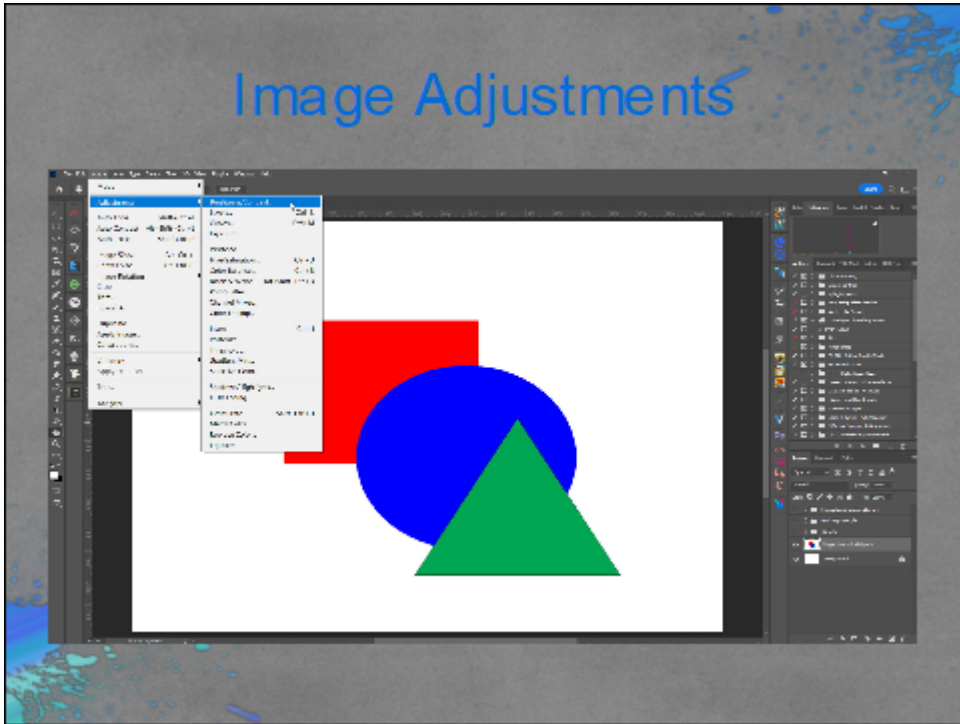
The adjustments included as adjustment layers are also available from the main menu. However, useing these adjustments is destructive since they change the values of the pixels rather than just recording a recipe for the changes.
There is an exception to being destructive, and that you can turn the layer into a smart object, which will make adjustments and filters smart because they are then editable.
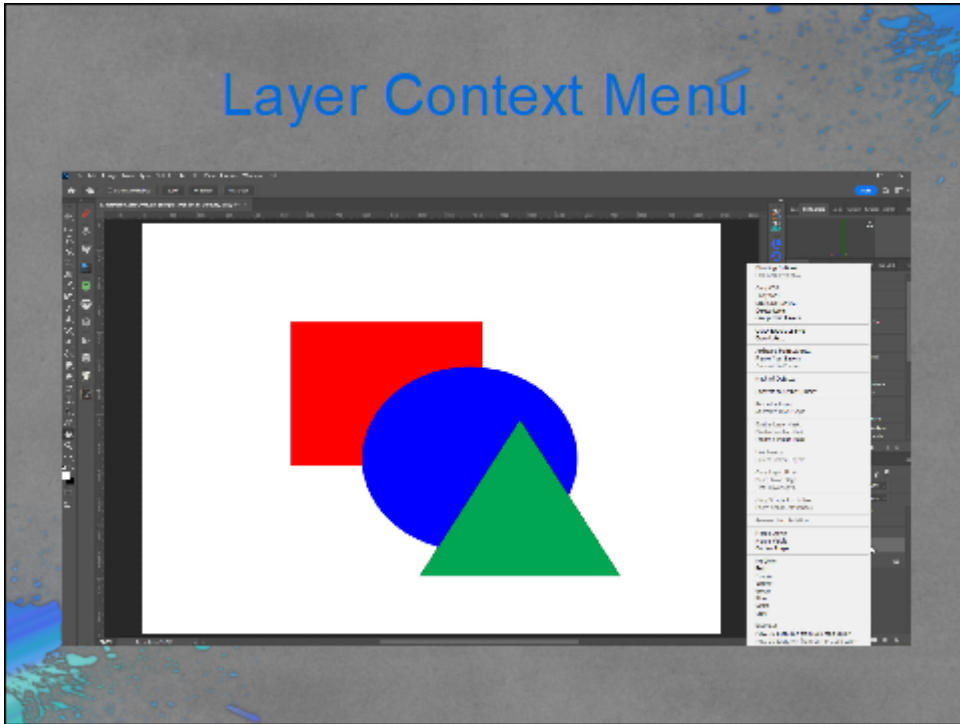
There is a context menu available (right click on the layer for Windows) with some useful functions. Besides the expected functions like copy, duplicate and delete, two additional functions photographers use are the 'Clipping Mask' and 'Convert to Smart Object'. A clipping mask tells the layer to only affect the underlying layer rather than the entire stack. A smart object allows adjustments and filters to be applied in an editible manner.

Photoshop Interface
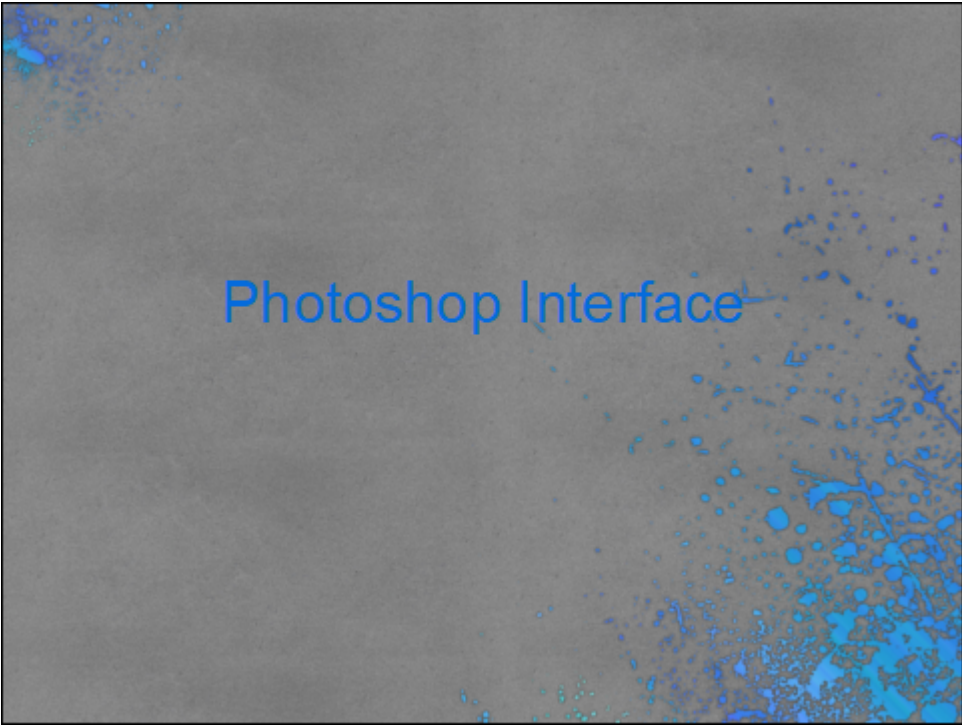
Why Layers

- Anything that changes the values of pixels on the pixel layer is destructive
- Layerd workflow can be non Destructive (Can be destructive)
- Apply Stylization Filters
- Painting and Drawing
- Compositing
- Sky and Background Replacement
- Dodge and Burn
- Luminosity/Color Masking

Here are just a few of the uses and benefits of using a layered and nondestructive workflow in your photo editing.

Photoshop Cafe, Collin Smith, Basic layers
Adobe Photoshop Layers explained (photoshopcafe.com)

PHLEARN Tutorials, Aaron Nace, Layers
Tutorials Archive - PHLEARN
How to Use Layers & Masks in Photoshop | Day 3 - YouTube

Photoshop Training Channel, Blending Modes, Jesus Ramirez
Photoshop BLENDING MODES - 8-Minute CRASH COURSE! - YouTube
Blending Modes Explained - Complete Guide to Photoshop Blend Modes - YouTube

f64 Academy, Blake Rudis
Free Photoshop Tutorials - f64 Academy
Basic Layers and Masking in Photoshop - f64 Academy