Image Optimization
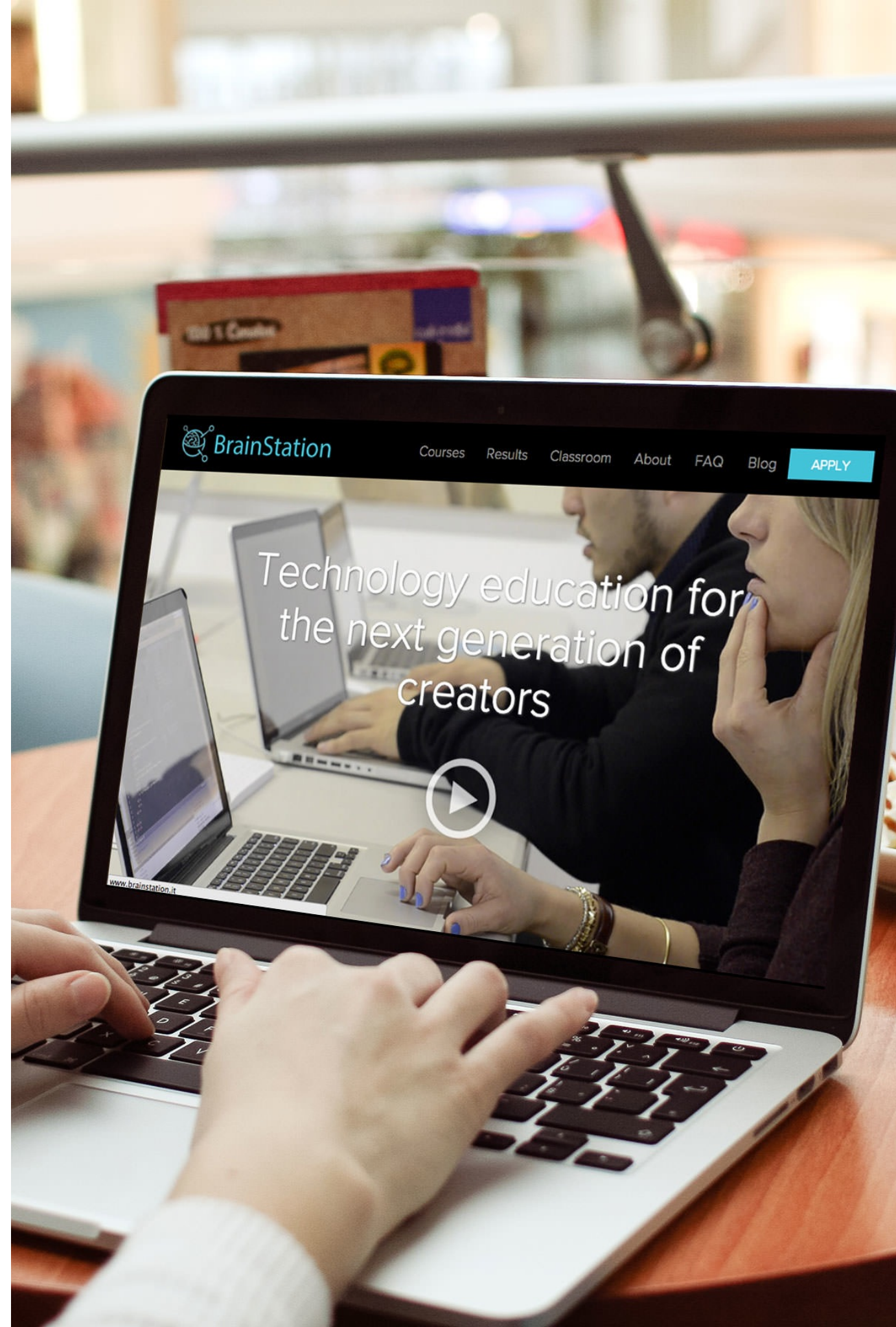
July 23, 2014

Topics

1. Image types and when to use them.

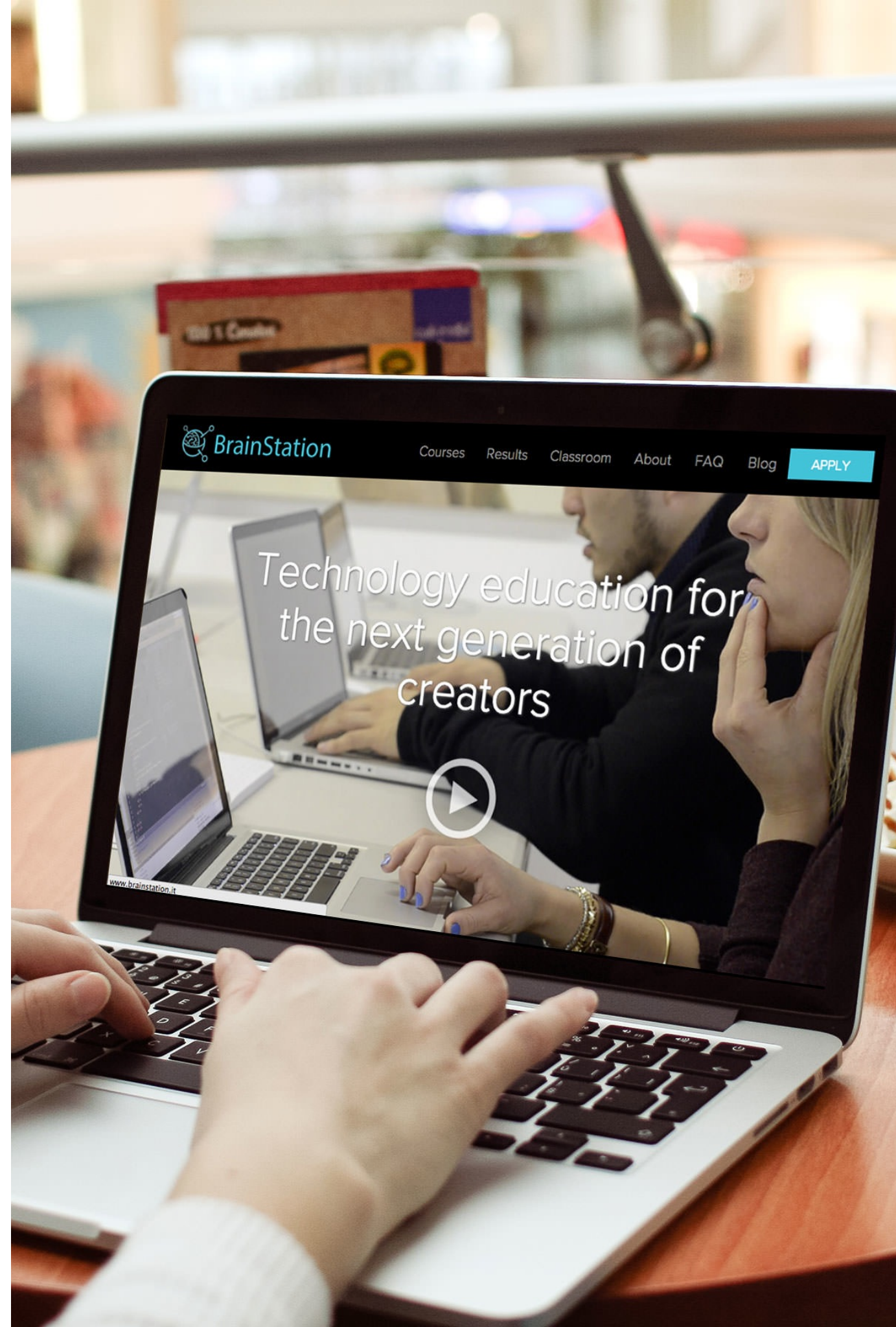2. Image compression tools.

3. Image Sprites.

Image Types

2 Important things to understand:

1) There are two types of compressions:

- ✦ **Lossless:** Image is made smaller without affecting quality.

- ✦ **Lossy:** Image is made smaller while affecting quality.

If you save an image in a <u>lossy</u> format multiple times, the image quality will degrade every time.
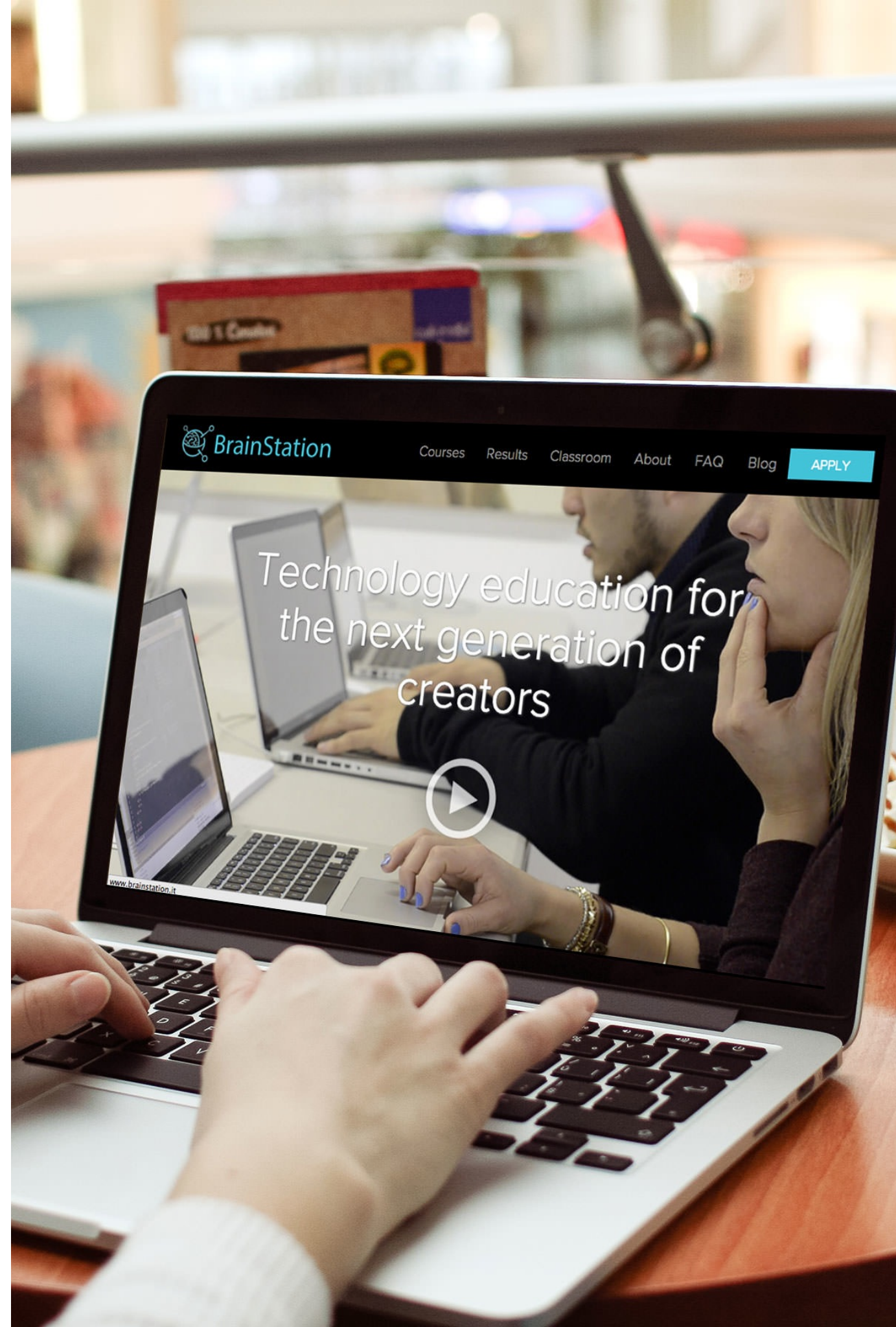
Cont'd

2 Important things to understand:

2) There are two types of colour depths or palettes:

- ✦ **Indexed Colour:** Image can only store limited number of colours (256) chosen by the author.

- ✦ **Direct Colour:** Image can store thousands of colours not chosen by the author.

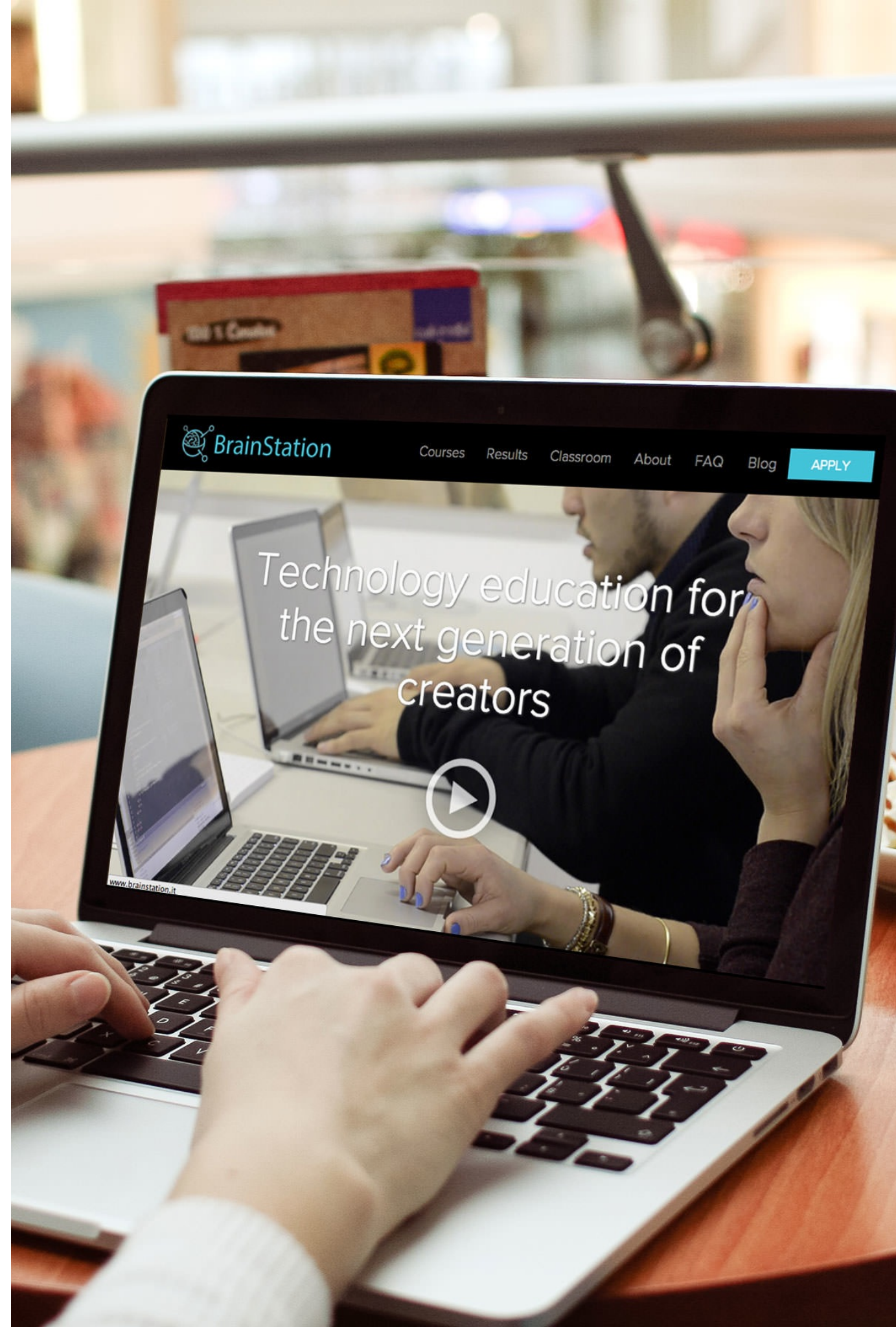Direct colour will be more high quality compared to indexed.

Image Types

3 Widely used image types:

1) GIF (Graphics Interchange Format)

GIFs use **lossless** compression, but can only store **indexed colours.**

GIFs can be **transparent,** which means they can be stacked on top of background images.

Most widely used feature, GIFs can be **animated.**

Image Types Cont'd
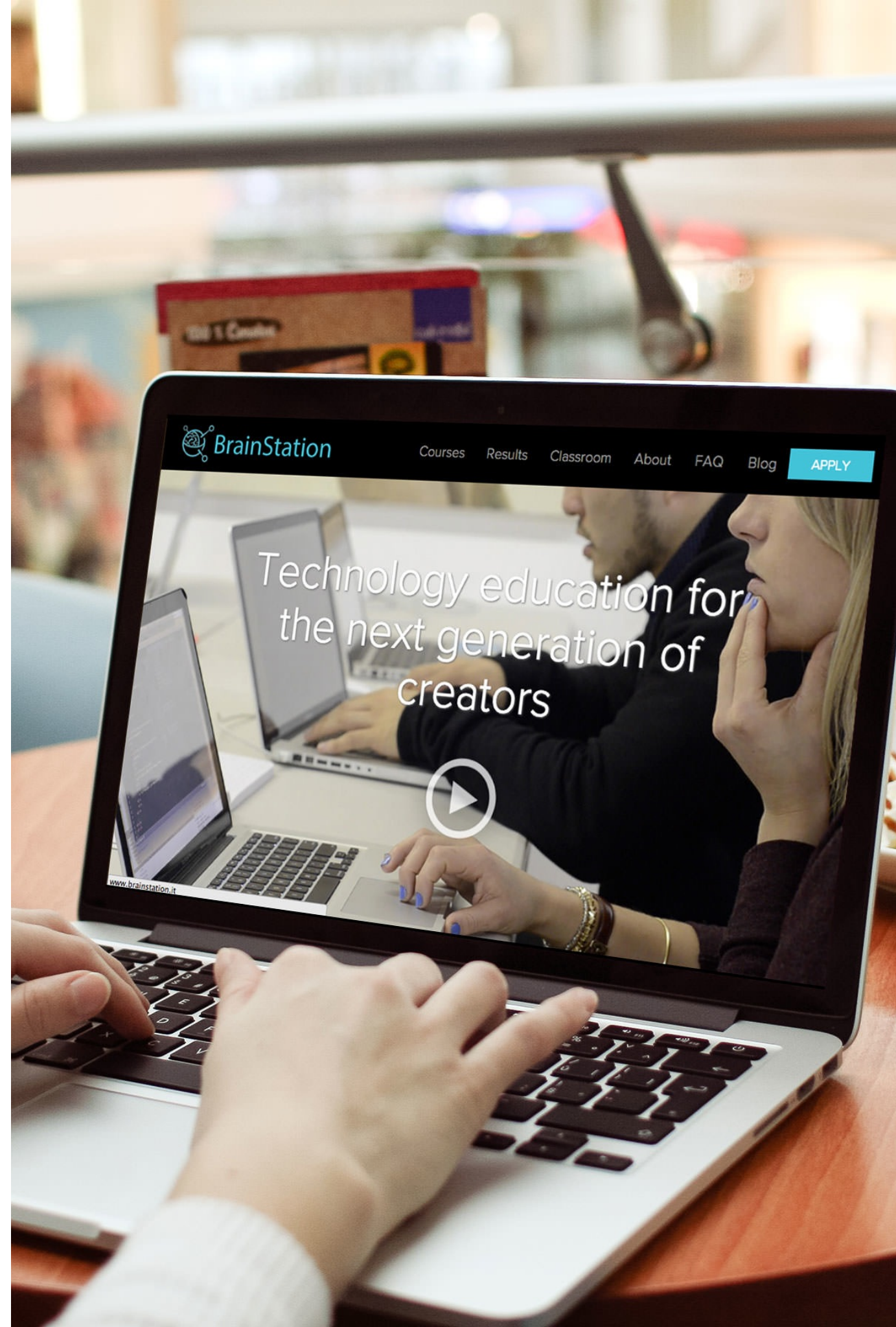
3 Widely used image types:

2) JPEG (Joint Photographic Experts Group)

JPEG use **lossy** compression, but can store **direct colours.**

JPEG images will degrade in quality as you save them over and over again.

They are most widely used for **photography** and **gradients**.

**Good for background images or any high quality photography on your website.

Image Types Cont'd

3 Widely used image types:

3) PNG (Portable Network Graphics)
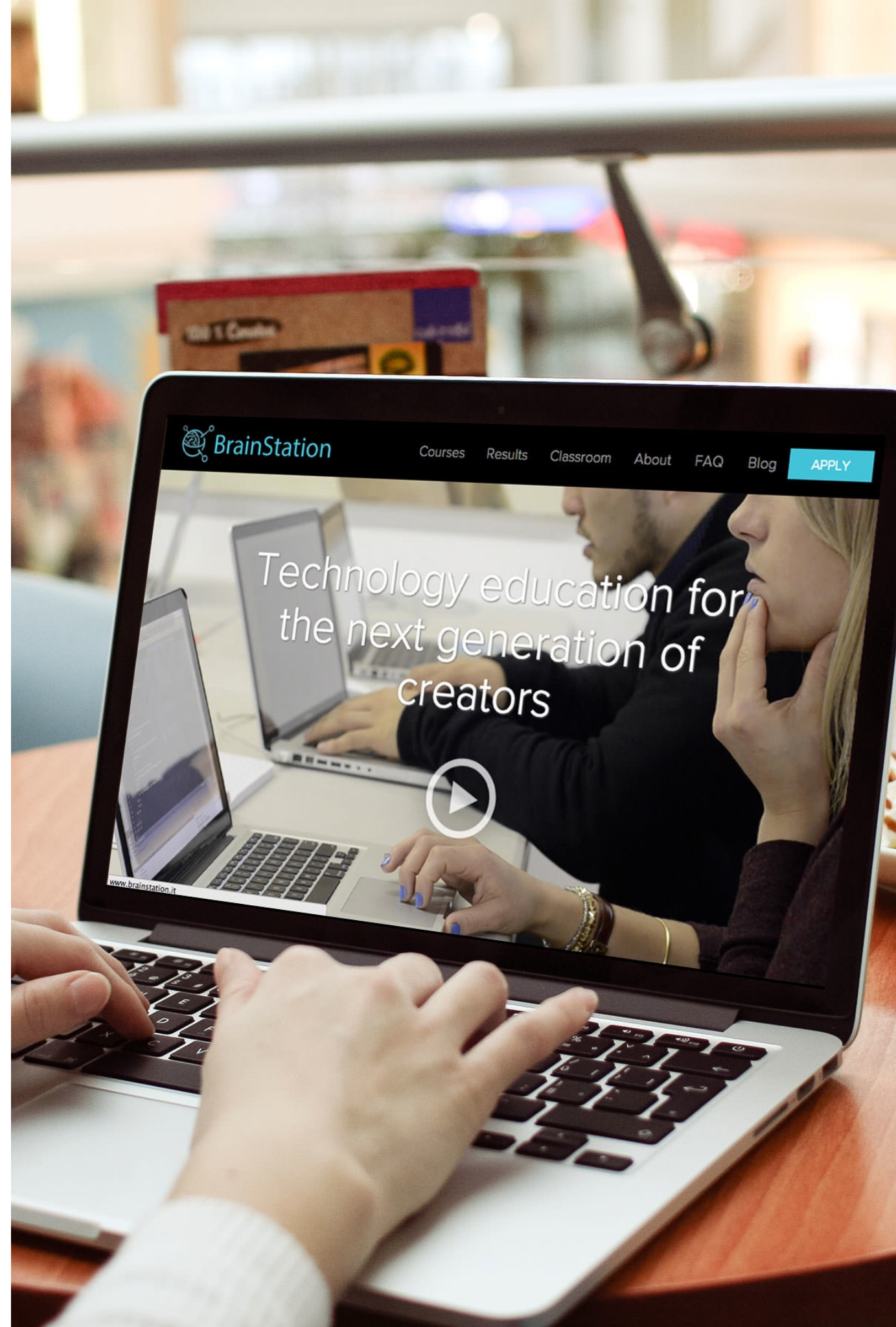
✦ 2 Types:

    A. PNG-8 (Lossless, Indexed)

PNG-8 supports transparency and animation to some extent (not widely supported across browsers).

    B. PNG-24 (Lossless, Direct)

PNG-24 supports transparency but no animation. It is the only image type that is lossless and direct.

PNG-24 file sizes tend be very large compared to a JPEG. Better to use PNG-24 for logos and icons.
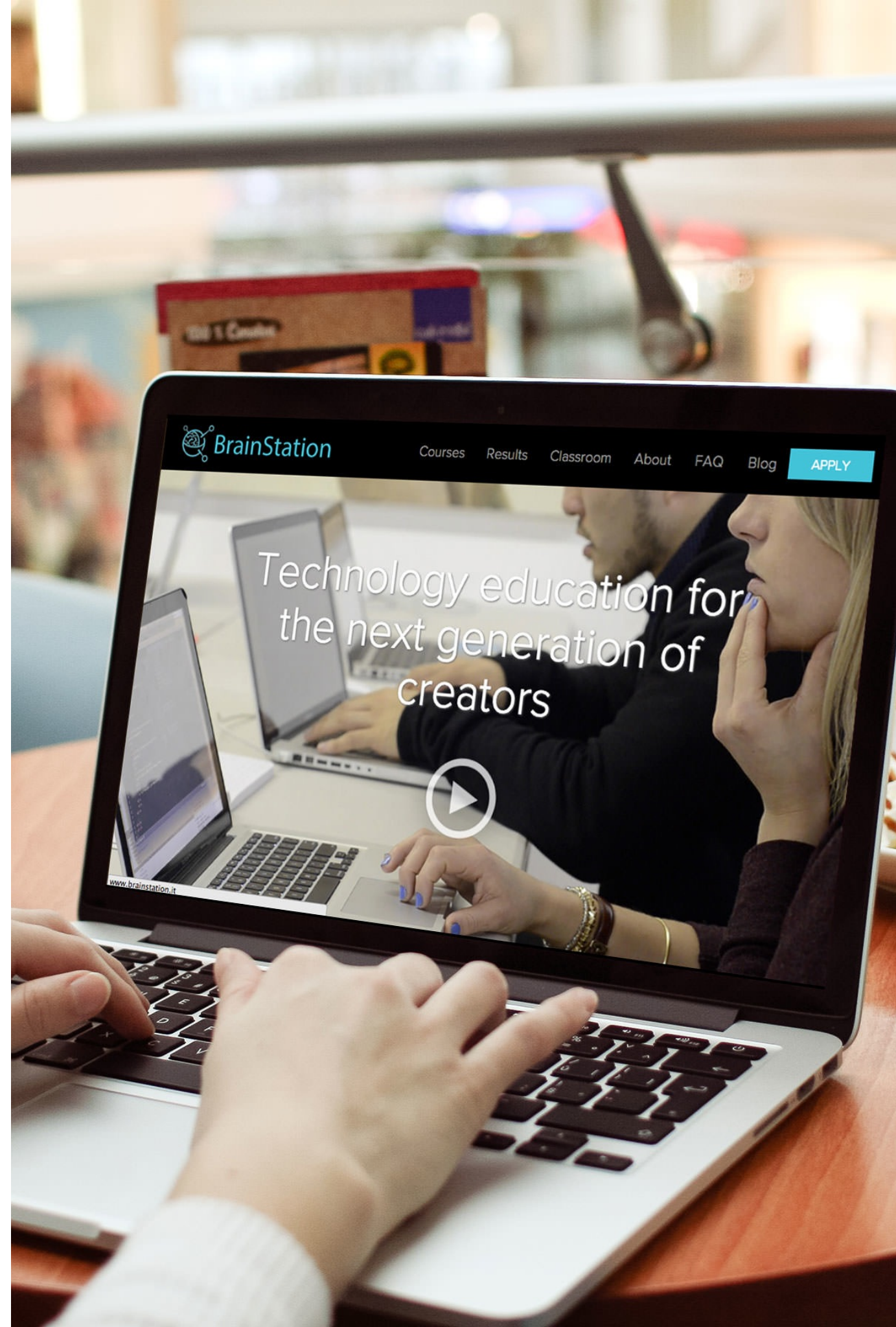
**Avoid using PNG-8 format.

Image Compression Tools

Why bother compressing your images? Its so much extra time and effort...

✦ For every website, Google determines a page load time, which is the lapsed time between the moment a user requests a new page and the moment the page is fully rendered by the browser.

✦ A website's assets typically take up a big portion of the page load time (Hint: Images).
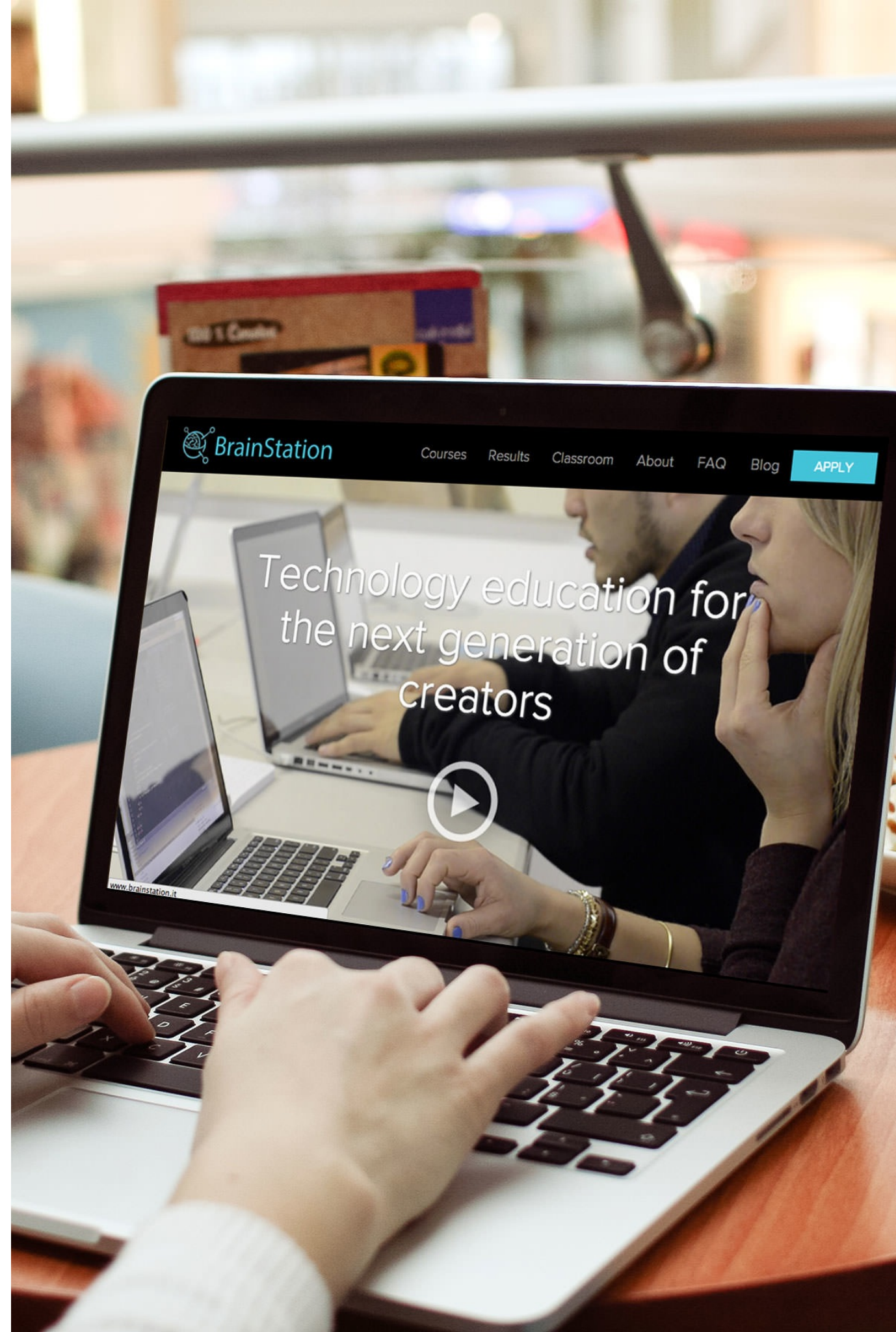
Image Compression Tools

Why bother compressing your images? Its so much extra time and effort...

Fast and optimized pages lead to:

✦ Higher visitor engagement

✦ Retention, and

✦ Conversions

Google's Page Speed Insights tool is a great way to check your website's speed. It provided you a list of things to fix to improve the speed.
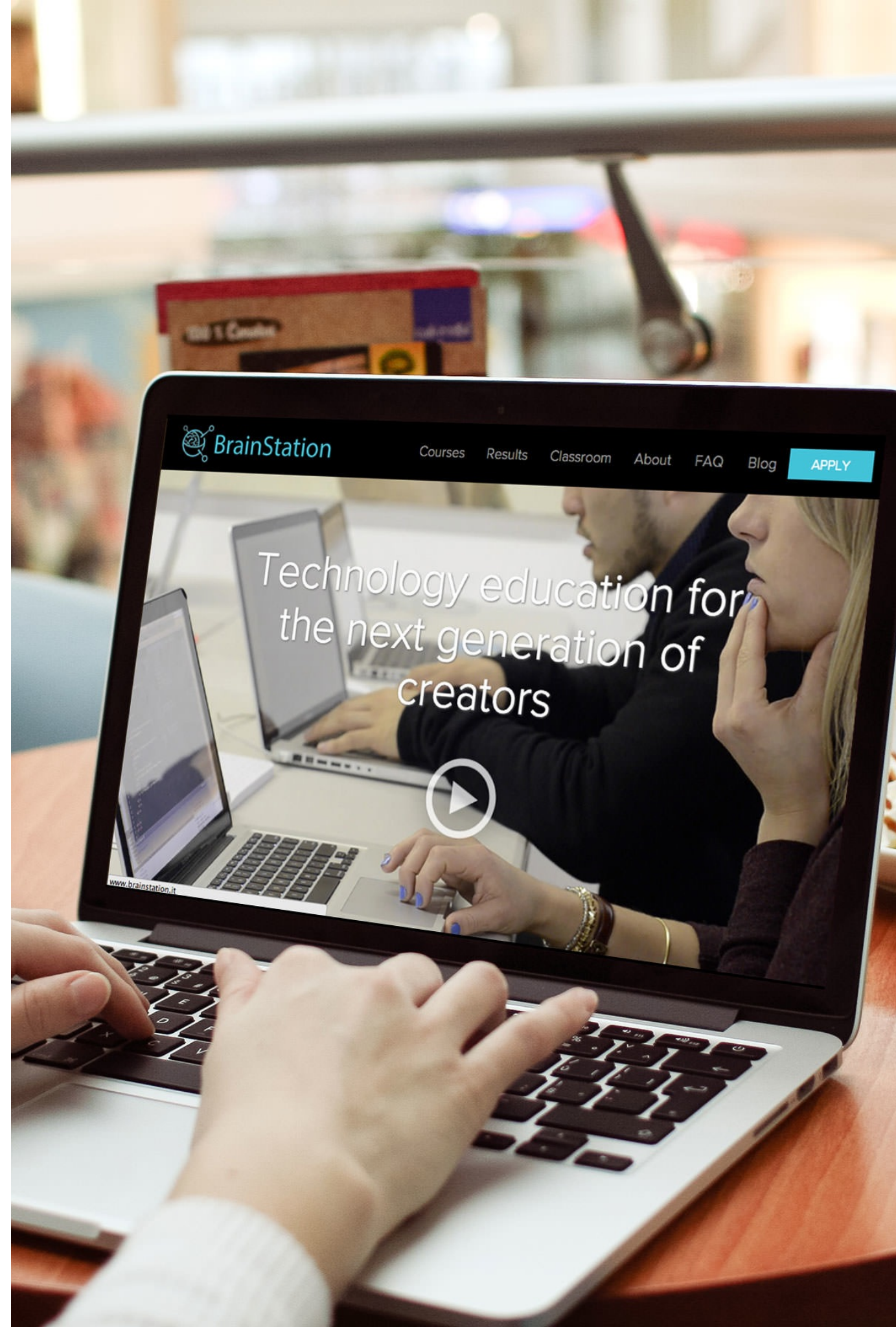
https://developers.google.com/speed/pagespeed/insights

Image Compression Tools

Some awesome image compression tools we like to use:

1) ImageOptim: Open source, supports GIFs, JPEG and PNG.

https://imageoptim.com

2) JPEGmini: Free & Paid versions. Only supports JPEGs. Great way to use lossless compression on JPEGs.
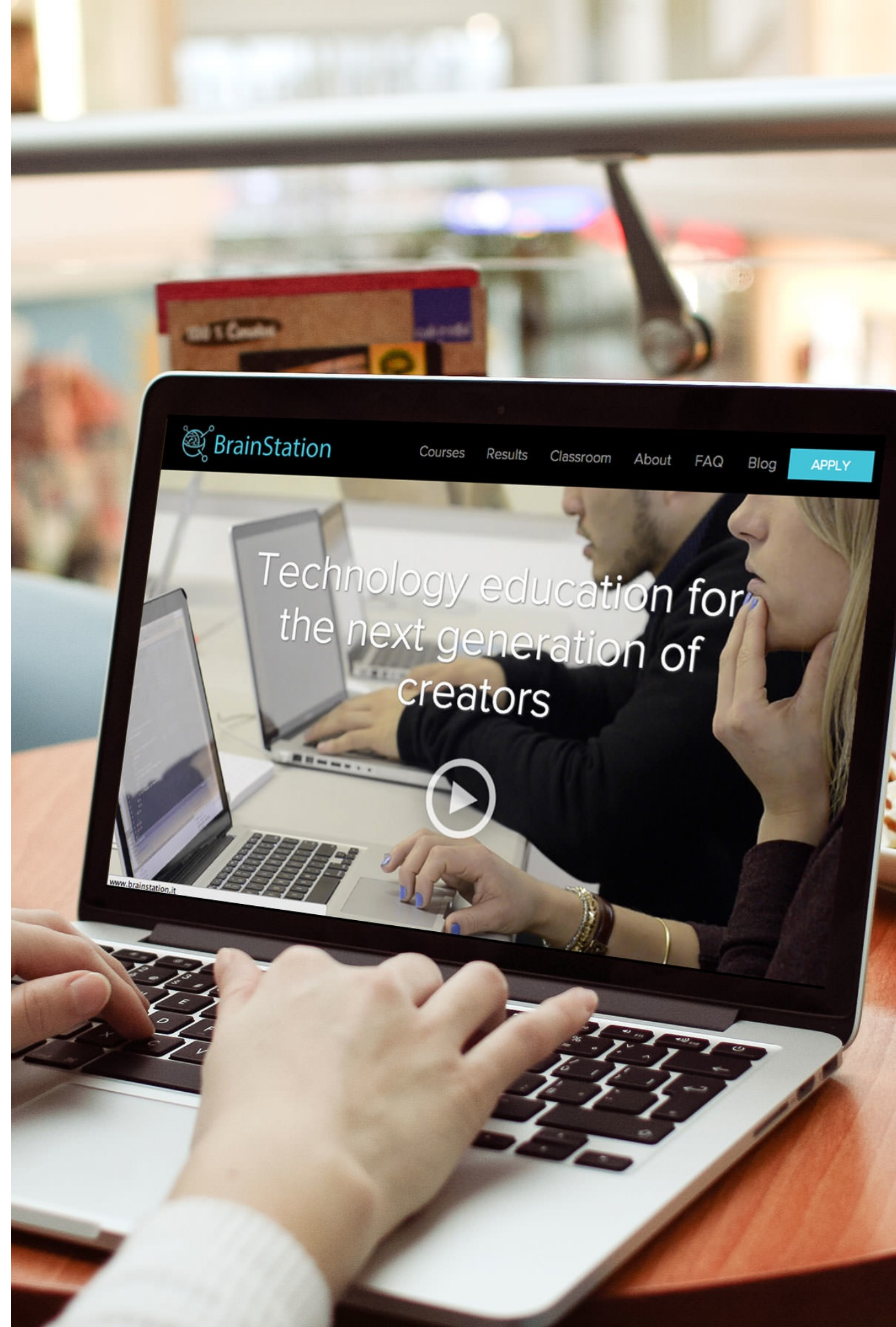
http://www.jpegmini.com

Image Sprites

Image sprite is a concept that involves combining all your images in one image files. Its essentially a one big image file, meaning one HTTP request vs multiple.

<u>Why on earth would you want to use Image Sprites?</u>

• Every single image, whether it's an <img> tag or an background-image from your CSS is a separate HTTP request.

• The more HTTP requests your page has, the less efficient it is.

• Not to mention...number of HTTP requests has the biggest impact on response time of a website.

Image Sprites

How do you use Image Sprites?

Let's jump into an example! You can access the example on the BrainStation Github repository.
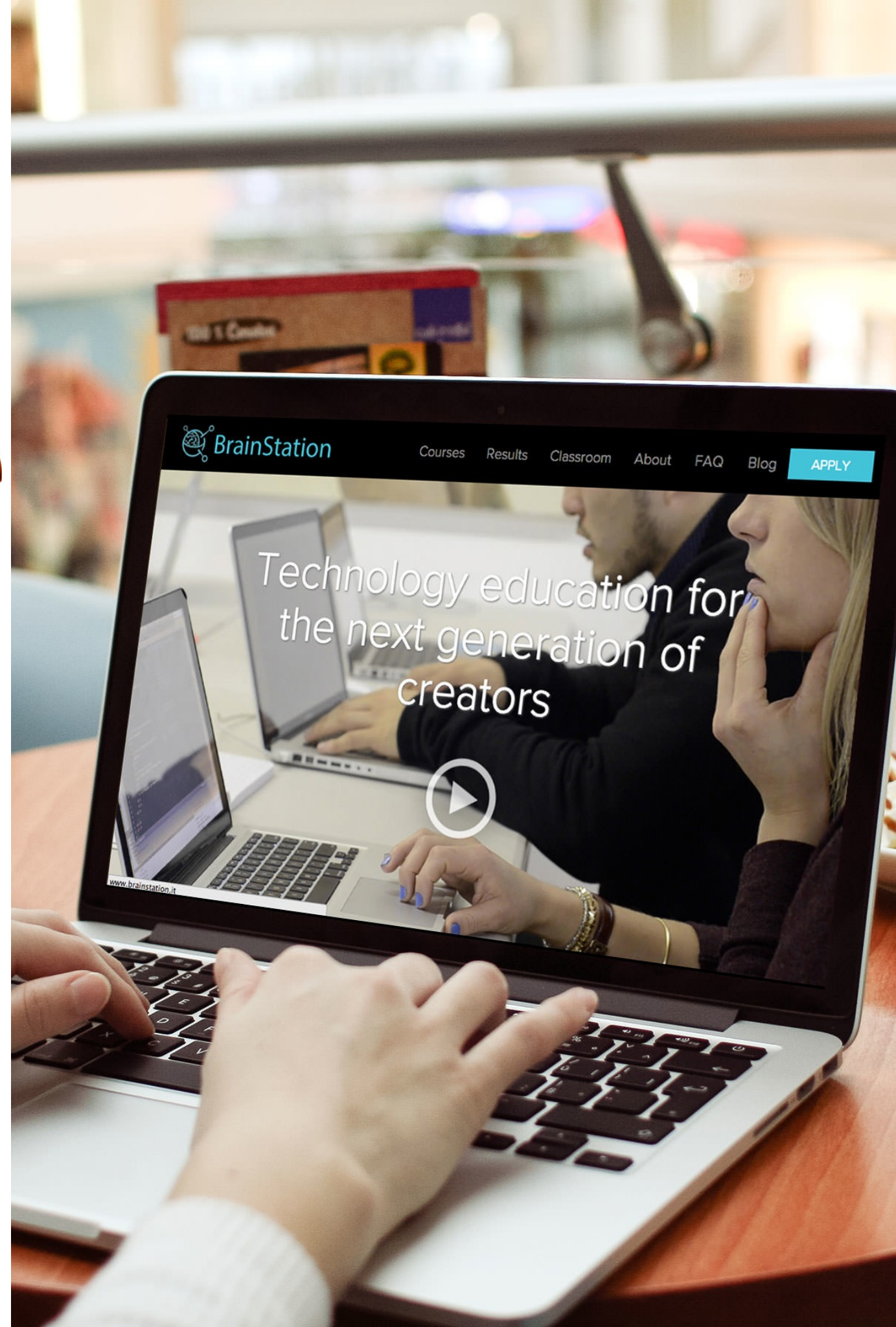
A really cool sprite tool you can use:

SpriteMe: Scans your site and recommends images that should be in a sprite. The best part...drum roll....It does it for you :)

http://spriteme.org

**The site looks sketchy, but its an awesome tool and widely used!

Review

1. Image types and when to use them.

2. Image compression tools.

3. Image Sprites.