RIGHTSCON: GIFS FOR EDUCATION HANDOUT

`https://goo.gl/KafwNm`

Let's explore a couple of options for creating GIFs: (1) LICECap is a simple, fast GIF making tool and (2) FFmpeg, a powerful command line tool for manipulating video and images.
There are more options out there (e.g., Giphy.com GIFmaker), but this should get you started!

First, some tips!
- GIFs can only support 256 colors. That sounds like a lot, but if you record something with a lot of colors (e.g., a lengthy GIF), the quality of your GIF will degrade. So try not to put too much into one GIF, and break them up into multiple files when necessary.
- Most sites won't let you upload a GIF that's too big (e.g., Twitter cap is 15 MB). Consider which is most valuable for your purposes: smaller files with lower quality or frames, versus with more high quality frames and higher frames per second create larger files.
- Consider your audience. Are they aren't in a location with good bandwidth, or if they have limited data, smaller images may be better for them.

LICECap

First, download and install LICECap at the following site: https://www.cockos.com/licecap/

To use LICECap
1. Open LICECap and drag the window over whatever you'd like to record into your GIF. Hit record to record. Hit stop to stop.
2. … There is no number two.

   - Note: When you click "`Record`" there is a "`3 2 1`" countdown, so make sure to start recording whatever you want to record 3 seconds early.
   - You can change the frames per second in the bottom left corner of the window.

FFMPEG

If you feel comfortable with the command line, it's a powerful tool for manipulating video. Depending on your operating system, we may install it in a few different ways.

MAC OS
1. Open your terminal application (under `/Applications/Utilities/Terminal.app`)
2. If it's not on your device already, install homebrew! In your browser, navigate to https://brew.sh/
3. To install, copy and paste the following line from the webpage into your terminal:
   ```
   /usr/bin/ruby -e "$(curl -fsSL
   https://raw.githubusercontent.com/Homebrew/install/master/install)"
   ```
4. Once homebrew is installed, install ffmpeg by typing the following into your terminal:
   `brew install ffmpeg`

WINDOWS
1. Download the most recent FFmpeg for Windows at https://ffmpeg.zeranoe.com/builds/
2. To install ffmpeg, first we need to unzip it using a tool like Winzip or 7zip. Unzip it into a folder that's easy to find (e.g., directly into the `C:\` drive, leaving you with `C:\ffmpeg\`)

3. Next, we need to change the system path to make it recognize FFmpeg, so we can enter ffmpeg commands from our command line. Navigate to…
   `Start menu` > right click on `Computer` > `Properties` > `Advanced System settings` > `Environment Variables` > `Edit`
4. At the end of the "`Variable value`" field, add ";`C:\ffmpeg\bin`" at the end (or change this line to match where you left your FFmpeg folder).
5. This may sound like a lot, but you can do it! For these instructions with screenshots, go here: http://adaptivesamples.com/how-to-install-ffmpeg-on-windows/

Now you can start using it!

LINUX
> `sudo apt-get install ffmpeg`
> This command may be different depending on your distribution.

To use FFmpeg
Convert video into GIF
> `ffmpeg -i video.avi time_for_a.gif`

Create a clip from a section of a video
> `ffmpeg -t 3 -ss 00:00:02 -i small.mp4 small-clip.gif`
> In this example, we record a 3 second GIF starting at 2 seconds into the video. Change 3 to change the length of the GIF, and `00:00:02` to change when the video records.

Turn a video to X images
> `ffmpeg -i video.mpg image%d.jpg`
> You can break out the file `video.mpg` into individual frames (e.g., `image01.jpg`…)

Turn X images to a GIF
> `ffmpeg -f image2 -i image%d.jpg animated_images.gif`
> Now you can stitch together the files you made (e.g., `image01.jpg`, `image02.jpg`, etc.) into a single GIF `video.mpg` into individual frames (e.g., `image01.jpg`…)

Change the frame rate or size of your GIF recording
> `ffmpeg -i video.mp4 -r 5 -vf scale=270:-1 images.gif`
`-r 5` gives the GIF 5 frames per second, and a width of 270 pixels and a proportionate height.

Advanced tips!
Want to generate your own palette?
> `ffmpeg -i video.mp4 -vf \`
> `fps=15,scale=270:-1:flags=lanczos,palettegen palette.png`

Use your new palette to make a much higher quality GIF
> `ffmpeg -i video.mp4 -i palette.png -filter_complex`
> `"fps=15,scale=716:-1:flags=lanczos[x];[x][1:v]paletteuse" video.gif`

Want to get serious about making high-quality GIFs with ffmpeg? Check this out.
http://blog.pkh.me/p/21-high-quality-gif-with-ffmpeg.html