Animated Graphics using the Magick package

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I used the following websites in preparing this handout:

- Outline of the entire method for making animated graphs: `https://www.r-bloggers.com/animated-plots-with-r/`

- Specific info on the image processing package 'magick': `https://cran.r-project.org/web/packages/magick/vignettes/intro.html#cut_and_edit`

The three steps you'll perform to make an animated graphic:

1. Create your series of graphs in R

2. Concatenate the images together in a bundle (for lack of a better word). You'll use the concatenate function, c(), in R.

3. Play the image bundle as a slide show.

Making the Bundle of Images

YOu already know how to make graphs in R. So let's make a bundle using some images off the web. Use your web browser to find the funny picture of the rafting kids and cat and also the donkeys picture at the bottom of my webpage. Use the magick package to read them into R.

```
> library(magick)
> funny.raft.pic <- image_read('https://i.imgur.com/Q6v0DF7.jpg')
> donkey.pic <- image_read('http://www.csus.edu/indiv/n/norrisa/two%20baby%20mini%20donkeys1.jpg')
> donkey.pic  # inspect this object, it's too big to fit in the viewer

  format width height colorspace filesize
1   JPEG   900    675       sRGB   176599

> donkey.pic.smaller <- image_resize(donkey.pic, '60%') #make it smallerr by 60%
> donkey.pic.smaller  # check the size

  format width height colorspace filesize
1   JPEG   540    405       sRGB        0
```

We now bundle all the pics we want in our slide show using the c() function and animate.

```
> pic.bundle <- c(funny.raft.pic, donkey.pic.smaller)
> pic.bundle

  format width height colorspace filesize
1   JPEG   550    451       sRGB    66662
2   JPEG   540    405       sRGB        0

> image_animate(pic.bundle, fps =.5)  # fps is frames per second

  format width height colorspace filesize
1    gif   550    451       sRGB        0
2    gif   550    451       sRGB        0
```

Animate A Set of R Graphs

First, we need to create the graphs. We'll create each graph and store it in png format.

```
> png('01plot.png') # the plot generated by all code between this command
> #and the dev.off() command will be saved as '01plot.png'
>
> curve(dnorm, from=-3, to=3, col='red')
> dev.off() # stop writing to the '01plot.png' and close it up

null device
          1

> #-------------------------------------------
> png('02plot.png')  # second graph is a histogram
> hist(rnorm(1000))
> dev.off()

null device
          1

> # dir() #use to check for the .png files in your working directory
>

> pic1 <- image_read('01plot.png')
> pic2 <- image_read('02plot.png')  # easier to use a for loop if you have lots of pics
> #as in the r-bloggers URL given earlier
> pic.bundle2 <- c(pic1, pic2)
> image_animate(pic.bundle2, fps=1)

  format width height colorspace filesize
1    gif   480    480       sRGB        0
2    gif   480    480       sRGB        0
```