**CLPS Matlab Programming Workshop**

**Session 2 of 3**

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**Exercise #1: Draw some shapes**

Write a program that accomplishes the following objectives:

* Draws different types of shapes
  + Rectangles and ovals
* Draws shapes using multiple colors
  + Recall that computers represent color using 3 dimensions: Red, Green, & Blue
  + You would therefore define blue as blue = [0 0 225];
  + How would you define red? Green? Purple? Orange?
* Draws shapes of different sizes
* Draws shapes in different locations (not just centered – try overlapping shapes too, to see what happens)

Useful functions:

* Screen('FillRect', ...)
* Screen('FillOval', ...)

**Exercise #2: Draw some text**

Write a program that accomplishes the following objectives:

* Draws text using multiple colors, sizes, and locations
* Extra credit: figuring out how to use different fonts

Useful functions:

* DrawFormattedText

**Exercise #3: Multiple stages**

Write a program that accomplishes the following objectives:

* Displays a black background with colored shapes or text
* Upon a user keypress, changes to a different colored background with other shapes/text
* After a few seconds, changes to another background with other shapes/text

Useful functions:

* KbStrokeWait
* WaitSecs

**Exercise #4: Animation**

Program objectives:

* Draw a shape on one side of the screen
* Animate it so that it moves to the other side of the screen

Notes:

* If you’re at a loss for what to do, try imagining the computer screen as a big piece of paper inside of a flipbook – if you were actually drawing this out by hand, what would you need to do in order to make the flipbook work?
* Remember using while loops and control logic in our last workshop? Those could definitely help you out here…

**Exercise #5: Image slideshow**

Program objectives:

* Read in an entire directory of images
* Display all images as a slideshow
* Extra credit: figuring out how to make the slideshow continuously looping until somebody presses a key to exit out of the program

Useful functions:

* imread
* Screen('MakeTexture'...)
* Screen('DrawTexture'...)

Notes:

* Every time you call MakeTexture, the function returns a number representing a texture that is being held in your computer’s memory
* When dealing with lots of images, you can take advantage of this fact by storing these numbers inside arrays or matrices