M Gmail

Kyle Elliott Mathewson <kylemath@gmail.com>

matlab class

Alejandro Lleras <alejandrolleras@gmail.com>   Mon, Nov 28, 2016 at 12:39 PM
To: Kyle Elliott Mathewson <kmathews@ualberta.ca>

I do have assignments each week. I think most should be at the end of the slides. But there were some last minute course corrections (depending on how much we did that day).

Here's the stuff from the course website: (for the most part I think)

Assignment 1: Encrypt

Availability:
Item is no longer available. It was last available on Sep 15, 2016 9:00 AM.Write a detailed algorithm that can encrypt any word, by a letter replacement encryption method.

Assignment 2: ShuffleWord.m & multiplicationTable.m

1.Write a script that asks the users for their name and returns it in scrambled fashion. Use the commands 'input' and 'randperm'. 2. Write a script computes the multiplication table for 1 to 10. In other words, the matrix A should be a 10 by 10 matrix and each element in the matrix should be the multiplication of its row number by column number (examples A(2,3)=6 and A(10,10)=100) --> don't forget to add header to your code and COMMENT IT.

Assignment 3

```
1.Write a script encrypt.m that encrypts
words.
--> don't forget to add headers and
comments to your code.
2.  Write MessWord.m
   This program takes a word as input and
shuffles only the inner letters of
the word, leaving the first and last
letterundisturbed.Alejandro -->  Arjelando
House -->  Husoe
```

Assignment 4

Attached Files: ☐ ExperimentalData.xlsx   (870.324 KB)

1. Finish uptight password. Write a program that asks a user for a new password which must abide by the following rules: (+2 pts)
Length must be at least 6 characters.
Must have at least one digit.
Must have at least one Upper case and one Lower case letter.
If user enters a valid password, say " Ok, password valid"
If user enters a password without a digit, say "you forgot to include at least one digit"
If passwords does not have at least one Upper and one lower case letter, say "you forgot to include at least one upper case and one lower case letter"
Create a Table and write it to a file in memory with the following information
" AttemptNumber"
" AttemptedPassword",
and " ErrorCode"

2. Using the excel file " ExperimentalData. xls", read the data into a table in Matlab, compute the mean RT (for correct RTs only) for each subject. Create a new table where the first column is subject number and the second column is the average RT for that subject in the experiment and save this new table into a new file (summarytable. txt) (+2 pts)
YOU NEED TO SUBMIT YOUR commented m files AND your text files output.

3. Extra-credit (+2 pts): convert MessWord into a function, fscram, which scrambles the inside characters of a string, or if too small, returns it unscrambled. convert encrypt into a

function, fencry, which encrypts words.

Write a function that reads in a file the user specifies which contains the password attempts, concatenates each table's row into a long string, and then either scrambles or encrypts that string (the user should choose which). It should return a table containing the scrambled or encrypted strings.
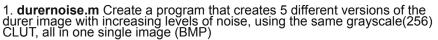
Assignment 4: goldilocks

📄 goldilocks.txt   (2.347 KB)

Availability: Item is not available. Attached Files:

1.Write a function that scrambles only the inner letters of a word, fscram.m (outer letters untouched): alice = ailce. (0.5)
2.Write a script (goldis.m) that prints the text of goldilocks with
the inside letters of each word scrambled using fscram.m (2)
3.Turn your encryption script into a function fencry and write a
script (goldie.m) that encrypts the text of goldilocks, using your fencry function. In addition, the text must be printed from last line to the first line (reverse line order). (1.5)
4.Extra-credit (+1): in goldis exercise print the words in each
line in random order.
5. Extra-credit(+1): Finish uptightpassword code
YOU NEED TO SUBMIT YOUR commented m files AND your
text files output.

Assignment 5

1. **durernoise.m** Create a program that creates 5 different versions of the durer image with increasing levels of noise, using the same grayscale(256) CLUT, all in one single image (BMP)

2. **rgbnoise.m** Create a programm that takes the visionlab jpg logo and presents it in 2 different levels of black and white noise and two different levels of color noise, all in one single image that includes the untouched original.

3. Submit both images and corresponding script files.

*** Extra credit ***

Write a "blocky" color map. That is, one in which the user gets to specify the length and width of the mask (in pixels) as well as the size of each individual "square" of color in the noise image.

+2 points

Submit code and example image with mask of 200 x 200 and squares of 15x15 pixels.

Assignment 6

OPTION A. electricgraphiti.m Write a program that asks a user for his/her name and displays an image graphiti of their name using the gif letter files in:www.psych.uiuc.edu/~ alleras/courseImages.htm   Save the name as three jpgs of poor, medium and high quality (as due to compression). Hint: beware of capitals.

OPTION B. Write a program that creates the image of a white circle (128 pixel radius) centered on a 400x400 black square. For extra credit (+2), make the brightness of the circle increase smoothly from black in the center to white at its edge. TOUGH GRADING for extra-credit assignment.

OPTION C: Do both. Second one counts as extra credit. If you do both, plus the extra credit option, you'll get +4 of ec.

Assignment 7:Grid

Write a function that pixelizes an image. User specifies the size of the pixelization, as well as the matrix image to be pixelized.

The call for the function should be: pixelmagic(X,p)

if X is the image matrix to be passed to the function and p the size over which we are pixelizing.

As proof, submit the output of your function using the X matrix from durer (load durer) and p = 5.

To pixelize= average all values in a range of pxp and replace the individual values with the average value in that range.

Extra-credit: Further modify the program making Ts started in class and solve these kinks (as well as those mentioned in class):

a. Make sure the same number of background pixels are to the left and right of the T.

b. Make sure the same number of background pixels are above and below the T.

Assignment 8: Enthusiastic.m et al

Homework:

1. slow_RSVP.m Write a program that:

a. Asks the user for his/her name.

b. Waits 2 second.

c. Writes the user name at fixation, one letter at a

time, at a speed of about 1000 ms per letter.

d. waits for user keypress before exiting.

Extra-credit (**+2 each**)

1. Enthusiastic.m Write a program that:

a. Asks the user for his/her name.

b. Writes ['Hello ' username] with white letters on a

black Screen.

c. Prints this message 5 times at random locations in

the Screen, making sure each time the entire

message fits inside the Screen. ('TextBounds'!!)

d. Program waits 1 second between each time it prints

the message. (WaitSecs)

2. fast_RSVP_rb.m

Change this program so that:

1. each letter is presented for about 100ms.

2. When the input is a word longer than four

characters, the second letter in the name

is repeated in the fourth location of the

name. Ex: Alejo becomes Aleljo (now 6

characters long).

Caution: test this at low speeds

(presentation of 1000 ms / letter) and then

as a last modification, make presentation

faster. Otherwise you might not see the

repeated letter!

Homework: Extra credit(+3).

1. viscolortable.m

Write a program that (a) asks the user for a

colormap and (b)allows the user to

visualize it by displaying a series of

patches (squares) with each of the colors

in the colormap AND with the INDEX for that

color printed within the respective color

patch.

Assignment 9: TOJConfidence.m

Do either option A (4 points) or option B (6 points). Write a program that presents two dots in the periphery (one in each hemisphere) at several SOAs (-4 refreshes, -2, -1, 0). IOW, the right dot might appear 4 refreshes before the left dot (or two or one) or they might appear at the same time (which dot appears first and at what SOA is to be determined randomly). The dots disappear at the same time after being in the screen for at least 100 ms. USING THE KEYBOARD, ask the observer to report whether the right or left dot appeared first. After the response, present an array of 7 boxes, labeled 1..7 on the screen. Ask the Observer to report the confidence on its rating in one of two ways : OPTION A: KEYBOARD + VISUAL FEEDBACK: Observer presses the correspoding number key (1-7) and that box is highlighted to a brighter color. (USE SWITCH STATEMENT). OPTION B: MOUSE: Observers use the mouse and click on the relevant box. And record that response. Ratings are: 1=very sure left dot appeared first, 2=quite sure left dot appeared first,3=inclination that perhaps left dot appeared first,4=cannot tell who appeared first, 5, 6,7 analogous to 3,2,1, respectively but for right dot).

Assignment 10:TOJ Experiment

Homework:TOJ_Expt

Turn TOJ.m into a proper experiment program, with the following characteristics:

-20% chance of SOA = -4

-20% chance of SOA = -2

-30% chance of SOA = -1

-30% chance of SOA = 0.

For each SOA condition, there must be an equal number of first_left, first_right dot conditions. The experiment should have at least 5 trials per SOA x Dot_First condition. The data should be saved in one file, with the following information:

Subject number, Trial number, SOA condition, Dot_First condition, response, confidence. A header at the top of the file with the name of each column should be included.

Extra Credit (+1): Add a condition where a brief cue is presented 50 ms prior to the first dot, with no location validity.

Extra Credit (+2): Observers use the mouse and click on the relevant box. And record that response and highlight the box.

On Mon, Nov 28, 2016 at 1:35 PM, Kyle Elliott Mathewson <kmathews@ualberta.ca> wrote:
Just had a look, the material is most excellent,
do you have assignments each week, I didn't see them in there but maybe they are written on the slides?
Best,
K

On Mon, Nov 28, 2016 at 12:32 PM, Kyle Elliott Mathewson <kmathews@ualberta.ca> wrote:
Thanks much

On Mon, Nov 28, 2016 at 12:21 PM, Alejandro Lleras <alejandrolleras@gmail.com> wrote:
Matlab for Behavioral Scientists

do you assign this text for your class?

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