Psych 186A

## "Mind Reading" Demonstration – A step-by-step Guide

We are going to run a demo program called **CIdemo** in MATLAB. It is a toy example of how computers "read your mind". The steps below tell you how to start MATLAB and run a MATLAB program. It also includes the specific steps for running the **CIdemo** program. You may need to do similar things over and over again during this class, so it's better to understand what each step does (especially general steps to get started with MATLAB).

Now, let's get started and have some fun!

1. Copy the **CIdemo.m** program file to Desktop (or anywhere you like)
    a. Go to **CCLE → week 1**
    b. Copy **CIdemo.m to your desktop**
    c. Paste **CIdemo.m** to your local computer. For example, I copy this file to desktop/psych186A/week1 on my computer

2. Start MATLAB
   a. You should see the MATLAB application, which is something like this:
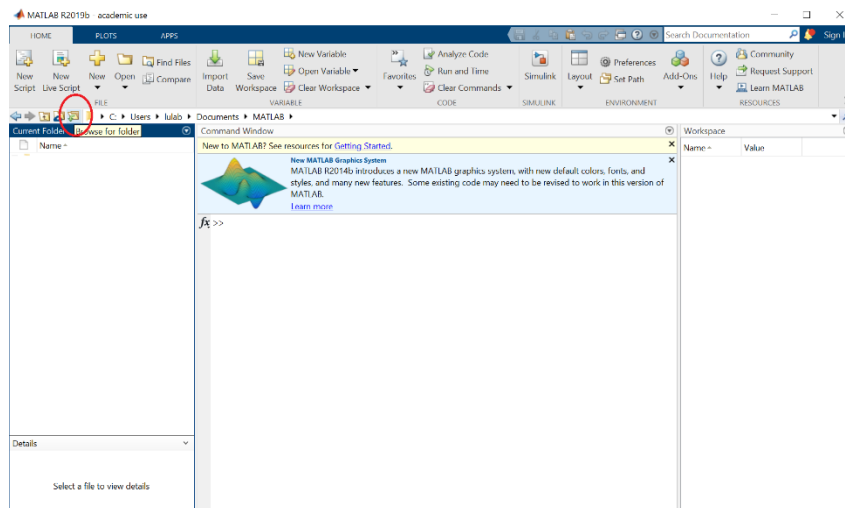
3. Change "**Current Directory**"
    a. MATLAB work on files in one specific folder at a time. This folder is called the **Current Directory**, which can be seen on the top of MATLAB:
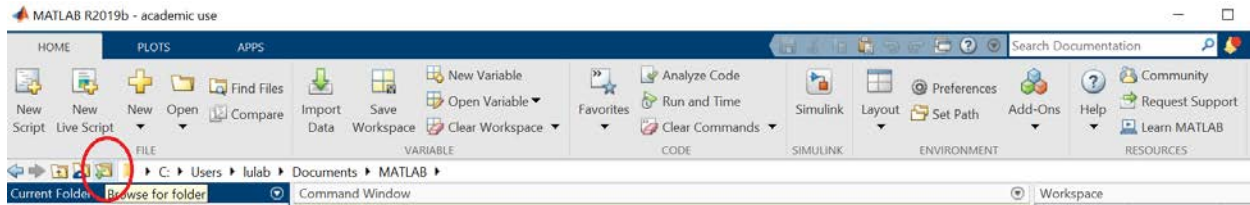
b. Since **CIdemo.m** is on **Desktop**, we'd need to change our Current Directory to Desktop before we can run it. One way to change the Current Directory is to click the button.
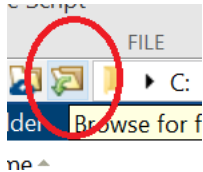
c. You'll then see the browser window, on which you should choose **Desktop** (which is usually all the way up on the top of the list), or the folder on which you pasted **CIdemo.m** in Step 1. Then, hit "Select folder".
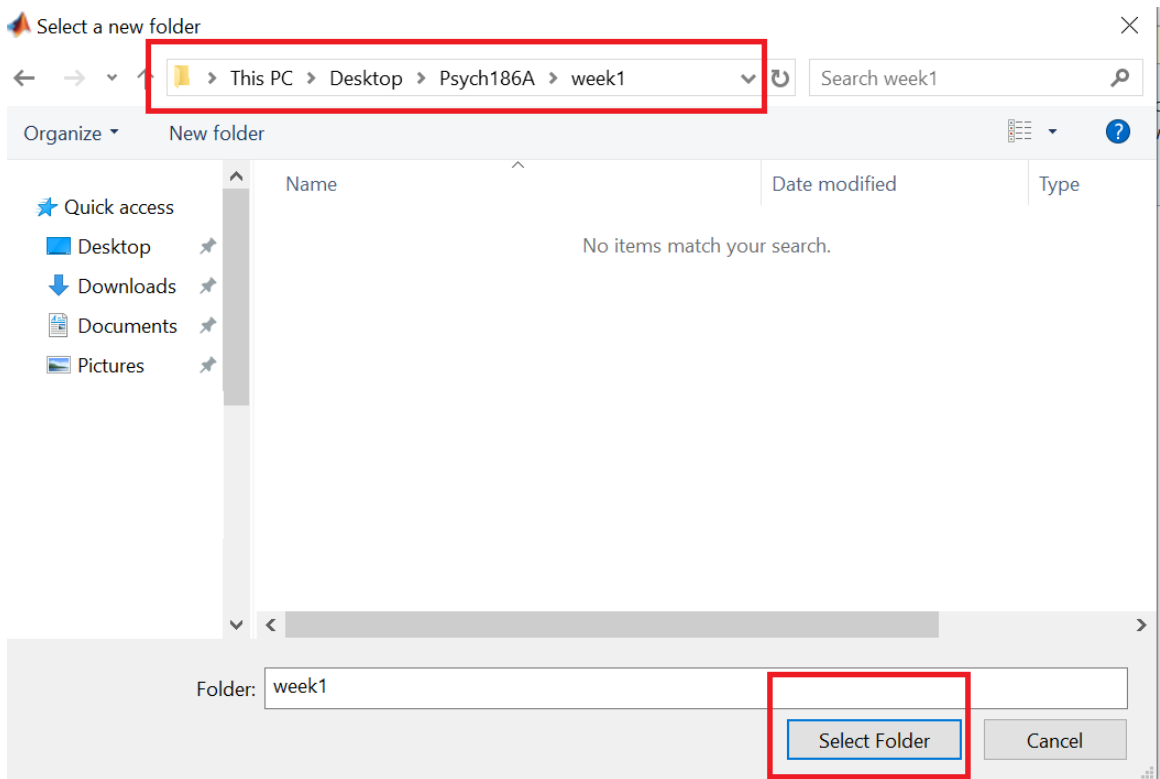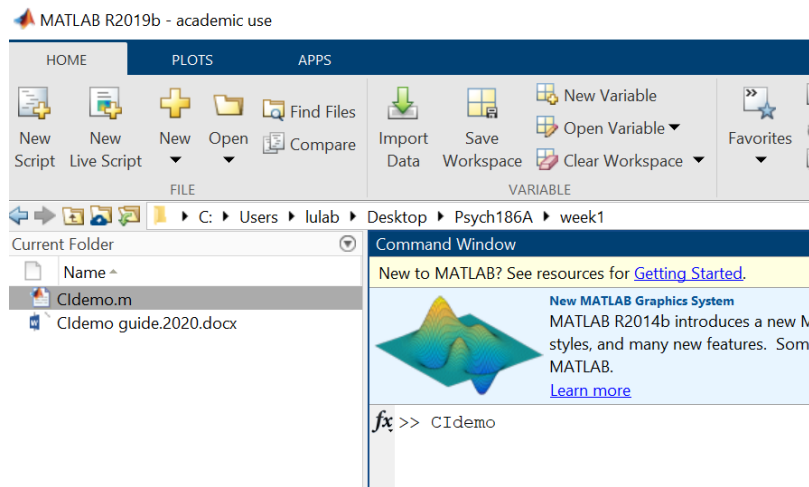

d. The Current Directory should now be your **Desktop**, and you should be able to see the **CIdemo.m** file on Current Directory list.
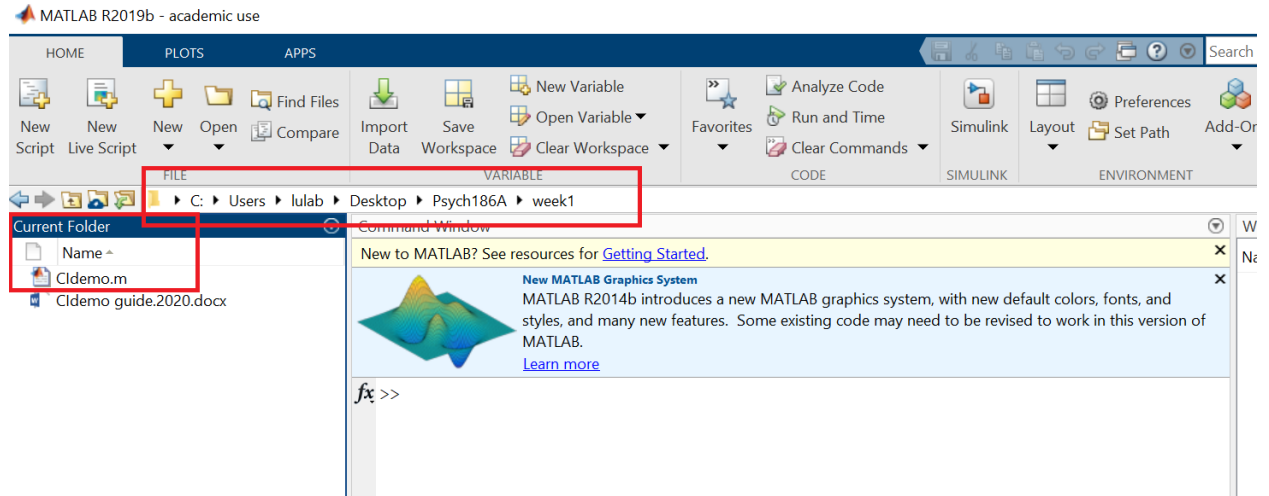
4. Run **CIdemo** in MATLAB
   a. As you see that **CIdemo.m** is now under MATLAB's **Current Directory**, you can run the **CIdemo** program in MATLAB. To run the program, type `CIdemo` WITHOUT DOT M in the Command Window, then hit **ENTER**:
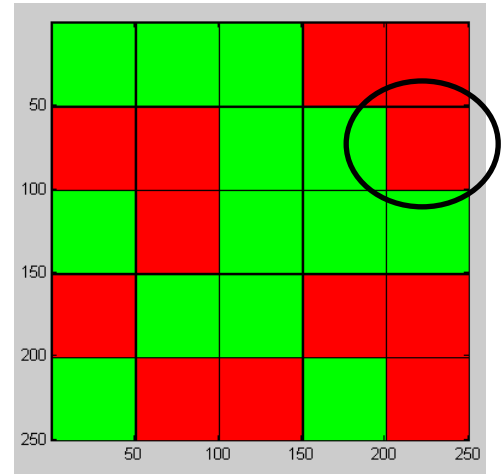

   or right click the mouse when pointing to CIdemo.m file, and then choose "run".

   b. These steps are general for whatever programs you want to run on MATLAB. Getting familiar with them greatly helps as we'll be running/writing a lot of MATLAB programs in this class. So, learn them well!
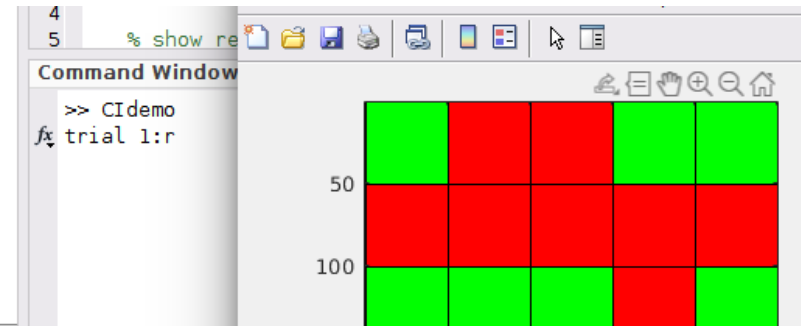
5. <u>Give response to the program</u>
   a. The following steps are specific to the **CIdemo** program. It is a program that can "read your mind" ☺. Now, as soon as you've run the program, you'll see a 5-by-5 grid with each cell being either red or green. The color distribution is random for different runs of the program. I got this figure on the right when I was preparing this handout and you will likely get different colored grid.
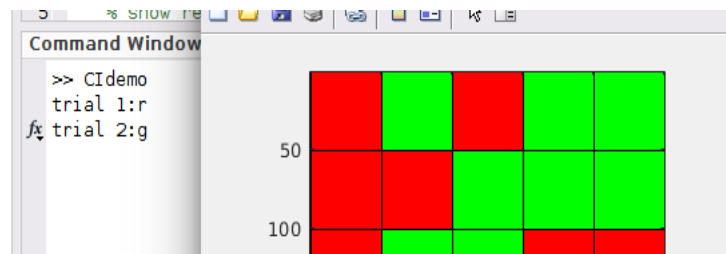   b. Now, just pick any cell you like. Suppose you picked Row 2, Column 5 (the circled cell). Remember this location as you're going to stick to it throughout this exercise.

   c. Now, in order for the program to be able to read your mind on which cell you've picked, you'd need to tell the program what you see on your selected cell. In the Command Window, you'll see something like `trial 1:`. The program is waiting for you to say whether the cell you've picked is in RED or not. If the cell you've picked is RED, type **r** next to the colon; if not (i.e., it's GREEN), type **g** instead.
   For me, the cell I picked (row 2, column 5) is RED, so I'll type **r**.
   d. Then, as soon as you hit **ENTER** after typing **r** or **g**, you'll see the 5×5 panel change its color distribution. Take a look at the cell you've picked (row 2, column 5 in my case). It may or may not change its color. Regardless, tell the program whether it's RED or not by typing, respectively, **r** or **g** for trial 2 (In this illustration, my cell becomes GREEN. So, I put in **g** for trial 2), and then hit **ENTER**.
   e. Repeat the trials 10 times.

6. <u>See the result</u>
    a. After the 10th trial, you'll see the answer from the program, which is something like:

    `The location you''ve picked is [Row 2 Column 5].`

    Does it successfully read your mind? If so, try the following (If not, tell us now!):
        i. Rerun the program and pick another location. Does it work?
        ii. Try to make a mistake in one of the trials. Does the program still work?

The "CI" in CIdemo stands for **classification image**, which is a technique used by cognitive scientists to retrieve internal representations of subjects' mind, or the preferred pattern(s) of neuronal unit(s). We may go over more details of CI as the class unfolds. Although this exercise is an over-simplified version of CI, it should give you a taste of how computational methods and simulation can help us study the human mind!

In-class Exercise:

1. Complete "background survey" at CCLE in Week 0&1

2. Submit a screencopy of the final output from your run of the code through CCLE Week0&1 "Turnitin" link. Here is a sample from my computer.