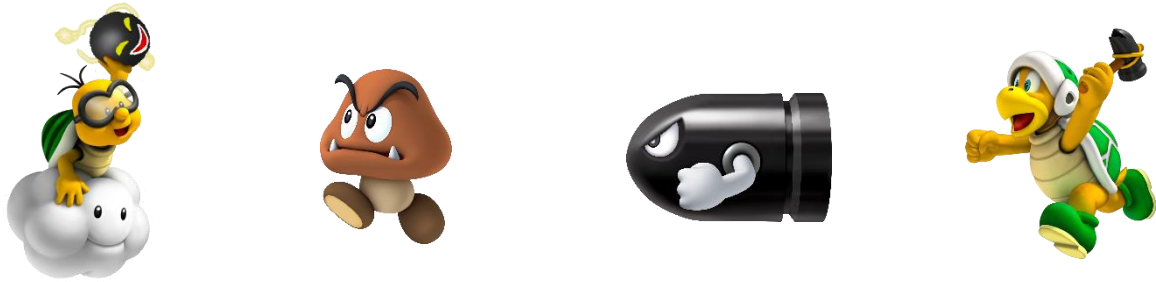


# Super Mario Matlab

During the two lectures of the introduction to Psychophysics Toolbox (PTB) we are going to develop a simple game which will show how to structure the code for creating a task using the most common functions available in PTB.

The purpose of the game will be to avoid several different enemies, as in the Mario franchise games. The enemies we are going to encounter are: “Lakitu”, “Goomba”, “Bill” and “Super Hammer”.



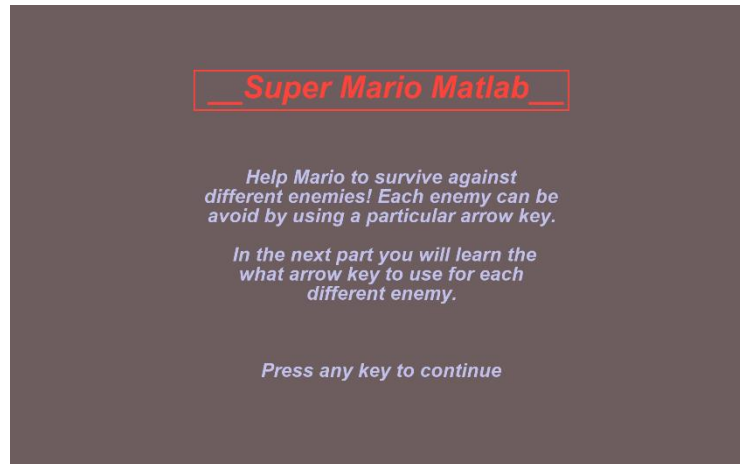
The purpose of the game is to present each of these enemies, one at a time, to the participant and let them react by pressing a key on the keyboard. Each of the enemies can be “avoided” by pressing a specific key. This key can be pressed any time after the enemy has been presented, but the user will have only a specific amount of time to press the correct key. The keys to avoid the enemies are: the right arrow key for “Lakitu”, the up arrow key for “Goomba”, the down arrow key for “Bill” and the left arrow key for “Super Hammer”.

The game is divided into two parts: a tutorial and a testing phase. During the tutorial, the participant will be shown a welcome screen for the game and will learn the associations between different enemies and arrow keys. During the testing phase, the participant will be shown a random selection of enemies, one at a time, and can press a key to avoid each enemy. A proposed solution for the tutorial phase will be available after the end of the first lecture, while a proposed solution for the testing phase will be available after the end of the second lecture.

## Tutorial Phase

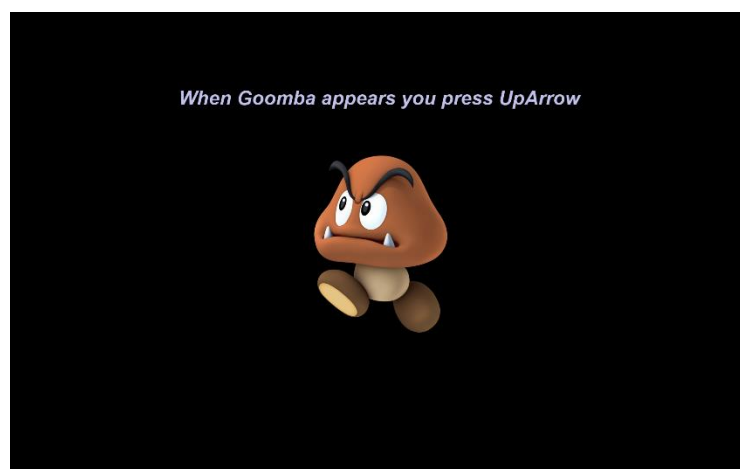
In this section a description of the tutorial with some example screenshots is provided. The tutorial will start after initializing the PTB window.

1. First, the participant will be presented with a welcome screen showing a brief description of the game. This screen will stay on the PTB window until the any key is pressed. An example of the screen is provided below.



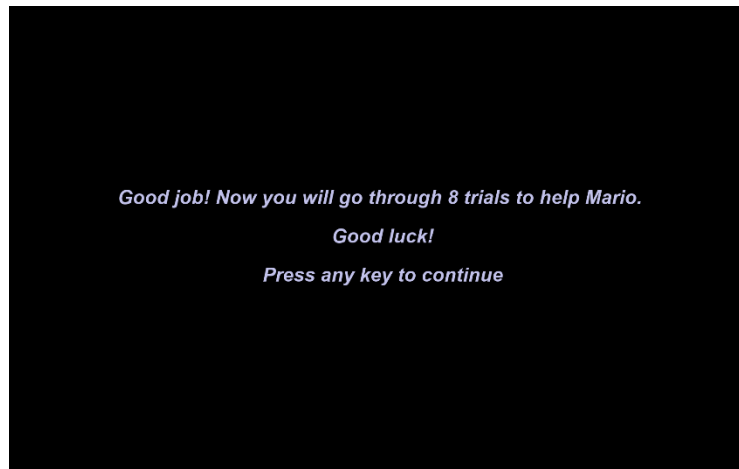
[BONUS] Notice how the title is enclosed in a rectangular frame. You can try using the sub-function `Screen('FrameRect')` to draw it. Type `Screen FrameRect?` in the command window to get help information and examples for this sub-function.

2. After the welcome screen, the participant will be presented with one of the four enemy images. The image will be placed at the center of the screen, and text will be displayed on the upper part of the screen stating which key press is expected from the participant in this case, as shown in the image below. This screen will remain until the participant makes a key press. The process will repeat until all the enemy images have been shown once. Enemy images can be found in the “Assets” folder contained in the zip folder that accompanies the first lecture.



[BONUS] A user should only be presented with the next image when the correct key has been pressed. Can you think of a way to check for the correct keycode?

3. After the last of four enemy images has been displayed, a final tutorial screen will remind the participant that the testing phase is about to start. The screen will remain in place until the participant presses any key. See the image below for a proposed example.



4. After step 3, you can safely close the PTB window.