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.

A close up of a toy

Description automatically generated with medium confidenceA picture containing light

Description automatically generatedA close-up of a toy

Description automatically generated with medium confidenceA picture containing indoor, decorated

Description automatically generatedThe purpose of the game will be to avoid, like in the Mario franchise games, several different enemies. Each of the enemy will be presented on the screen as image. The enemies are the following: “Lakitu”, “Goomba”, “Bill” and “Super Hammer”

The purpose of the game is to present this set of enemies, one at a time at the user and the let the user react to each of the enemy. Each of the enemy can be “avoided” (meaning a good trial) by pressing a specific key on the keyboard at enemy presentation. The keys to avoid the enemies are the following: 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 in two parts, a tutorial and a testing phase. During the tutorial the user will see a welcome screen for the game and then it will learn the associations of the enemies with the arrow key. During the testing phase the participant will be show with a random number of enemies, one at a time, and will have the possibility to press the key to avoid the enemy. A proposed solution for the tutorial will be given at the end of the first lecture, while a proposed solution for the testing phase will be given at the end of the second PTB lecture.

# Tutorial part

The tutorial will start after initializing the PTB window. The first screen the user will see is a welcome screen filled with a brief game description. This screen will wait for the user pressing any key before prompting the tutorial.

During the tutorial the user will be presented with one of the images from the set. The image will be placed at the center of the screen. A screen will be displayed on the upper part of the screen stating what key is expected from the user to press. After presenting the image the screen will stay in place until the user press the correct/expected key relative to the image shown. Any other key presses should be disregarded. As soon as the correct key is detected the screen will be cleared and the next enemy image from the set will be displayed. The process will repeat until all of the image items will be shown once.

After the last image of the set has been displayed on the screen, an ending tutorial screen will remind the user that a testing phase is about to start. The screen will remain in place until the user presses any key.