



## Programming Assignment 2

### COMS W4170: User Interface Design (Fall 2023)

**DUE: Friday, Sept. 29, 2023 at 11:59pm ET**

<b>Part 1:</b> Fully Functioning Whack-A-Mole	75 pts
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<b>TOTAL:</b>	75 pts
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### SUBMISSION INSTRUCTIONS:

Please submit all of your files electronically via CourseWorks. For ease of grading, we ask that you submit your files directly and that you do not submit them as a .zip file. The hole.png and mole.png images should be included in your submission so that your submission will render correctly.

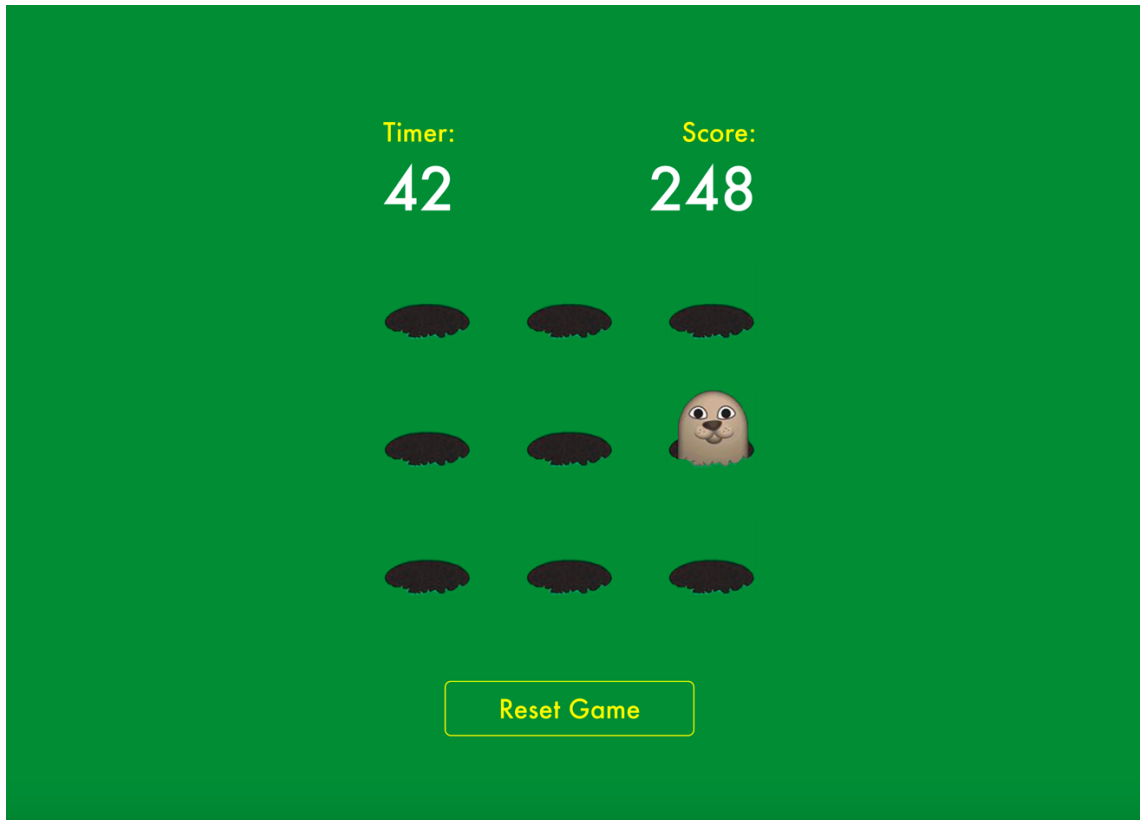
If you have trouble submitting your files, please post a question to Ed Discussion and/or come to our office hours.

## PART 1: FULLY FUNCTIONING WHACK-A-MOLE

(75 points)

This assignment has just one Part: to turn the Whack-A-Mole game from Programming Assignment 1 into a fully functioning game. We will be grading based on the behavior listed below. You can use this list as a guide for how to build the game step-by-step.

1. The “Reset Game” button should set the displayed score to zero, set the timer to 20 seconds, and start counting down the timer. We are using a short timer to make grading easier. The timer must count down at a constant rate for you to get credit for this item.  
(5 pts.)
2. When the timer counts down to zero, the game should freeze, leaving the “Reset Game” button as the only functional element in the game.  
(7 pts. 5 pts deducted if the game freeze is delayed or the timer does not stop at zero. 4 points deducted if some but not all elements freeze.)
3. When the timer counts down to zero and the game freezes, you should visually indicate that the game is over in some way.  
(3 pts)
4. During the course of a round (meaning, while the timer is counting down), moles should appear randomly and at random intervals ranging from half a second to three seconds. This means that an observer should not be able to predict when a mole is going to appear, or which hole the mole will appear in. To make the mole appear at a particular hole, you should replace the `hole.png` image for that hole with the `mole.png` image. You do not need to animate the mole’s appearance in any way. For this step, once a mole has appeared, it can stay that way for the rest of the round. It should be possible for more than one mole to be present in the playing field.  
(20 pts. 10 pts deducted if only one mole can be present at a time. 10 points deducted if moles appear at predictable intervals. 3 pts deducted each for min/max time interval not being respected. 6 pts deducted if any holes cannot spawn a mole or if moles do not appear in random holes.)
5. Once a mole has appeared, it should disappear after a random amount of time, ranging from half a second to three seconds. To make the mole disappear, you can simply revert the appropriate `mole.png` image to the `hole.png` image. As with the mole’s appearance, you do not need to animate the mole’s disappearance in any way.  
(10 pts = 4 pts for reverting to `hole.png` + 3 pts each for enforcing time min/max)
6. Once the mole has disappeared, another mole should be able to appear from the same hole. The image below shows how the game might look mid-round.  
(5 pts)



7. The moles should be clickable, and clicking the moles should count as “whacking” them with the mallet. This means that when the player clicks a mole, it will immediately disappear (becoming a `hole.png` image).  
*(5 pts. 3 pts deducted if moles do not always disappear when clicked.)*
8. Once a mole is clicked and reverts to an empty hole, the hole should be “live” again, making it possible for another mole to randomly appear there.  
*(5 pts)*
9. Empty holes should never respond to click events. Only the “Reset Game” button should respond to click events after the timer reaches zero.  
*(5 pts. No credit if any empty hole responds to a click event. Credit for making only the “Reset Game” button respond to click events after the timer reaches zero is represented by #2 above.)*
10. Clicking a mole should also boost the player’s score. You may increase the score by either a fixed amount or, optionally, by a varying amount that is greater when the player clicks the mole more quickly.  
*(5 pts. Half credit given if not all moles add to the player’s score.)*
11. The “Reset Game” button should reset all moles to empty holes as well.  
*(5 pts)*