

Lab 04 – Tic-Tac-Toe

GUI (Graphical User Interface) Design	1
GUI Implementation	1
Referee Design	2
Referee Implementation	2
Check-off (4 points)	2

In this project you will design and implement a Tic-Tac-Toe game using Scratch. You have to make fundamental design decisions (for example, is the computer one of the players?) as well as more detailed decisions (how is the game displayed for the user/users).

GUI (Graphical User Interface) Design

Before we start coding, we want to figure out how the player will interact with the game. When we use paper and pencil this interaction is very simple but with a computer there are MANY more options.

- Without using Scratch, brainstorming 3-4 different ways that the interaction could be designed. For each interaction, design 1 or 2 ways that the graphics of each could be implemented.
 - How do you decide/indicate who goes first?
 - How do you know whether X or O should go next?
 - How do you show that an X or an O has been placed?
 - Does the user play against the computer or another human person?

- If you complete the step above before the class begins the discussion, start to explore one of these ideas using Scratch.

[Classroom Discussion]

GUI Implementation

- Work with your partner for 15 minutes to start an implementation of your assigned version of the GUI. While you're working, keep track of:
 - Things that were easy in this design
 - Things that were difficult in this design

[Classroom Discussion]

- Based upon your experiences and the experiences of the others in the class, pick a GUI design.
 - What are the advantages of this design?
 - What are the disadvantages of this design?

Referee Design

We want a way to figure out who won the game. Just like the GUI, there are a lot of different ways that this could be implemented.

- Try to come up with at least 2 ways to figure out who won the game
 - How do you keep track of where the X and O have gone? How are the empty spaces represented?
 - How do you detect 3 horizontal X's or O's in a row?
 - How do you detect 3 vertical X's or O's in a row?
 - How do you detect 3 diagonal X's or O's in a row?
 - How do you detect a tie?
 - Can you use the same blocks to detect if X wins AND if O wins?

[Classroom Discussion]

Referee Implementation

- Work with your partner for 15 minutes to start an implementation of your assigned version of the Referee. While you're working, keep track of:
 - Things that were easy in this design
 - Things that were difficult in this design

[Classroom Discussion]

- Based upon your experiences and the experiences of the others in the class, pick a Referee design.
 - What are the advantages of this design?
 - What are the disadvantages of this design?

Check-off (4 points)

- Discuss two pros and two cons of your GUI design.
 - Why is this design best to accomplish your goals?
- Discuss two pros and two cons of your referee design.
 - Why is this design best to accomplish your goals?