Integration Testing

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Project Overview

For this project we created a Tic Tac Toe game in two separate parts, a frontend and a backend, and utilized integration testing to marry the two systems together. We created our program in Python and decided to use Big-Bang Integration testing. We decided to use Big-Bang Integration Testing because we had a small program to test with only two systems, the frontend and backend, to integrate and the Big-Bang flavor of integration testing does not require creating a driver like Bottom-Up Integration testing and does not require a large amount of stubs like Top-Down Integration testing needs. The simultaneous integration and ease of planning made it optimal for this assignment.

Integration Tests

Testing that the frontend can correctly make a board
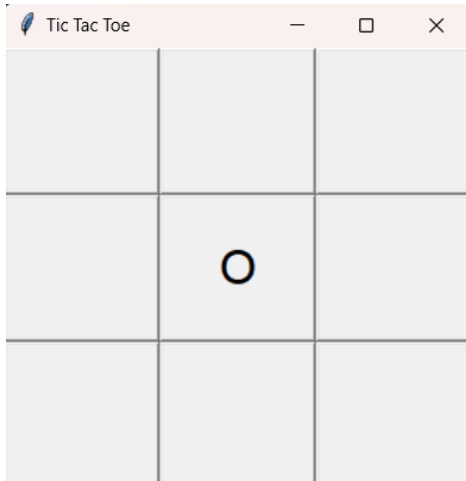
Testing that the front end can correctly display the moves from the backend
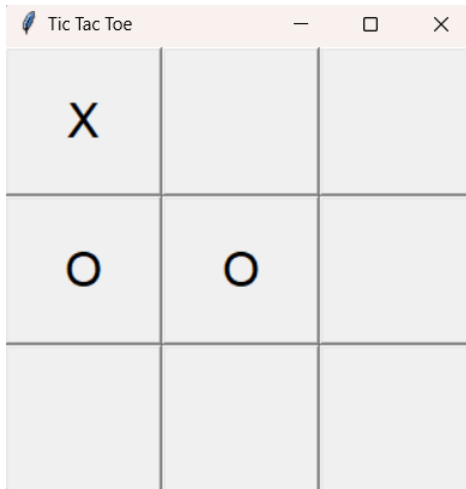
Testing the front end displays the proper game results
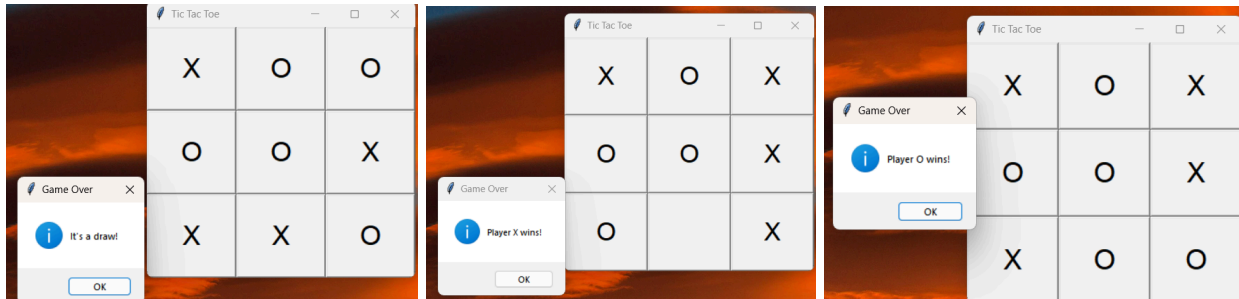
Testing the front end can correctly reset the game and reset the backend
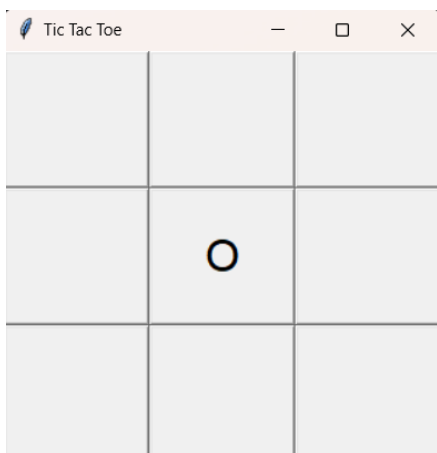
Testing many different possible moves

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Reflections

Sean: I was in charge of creating the front end UI and linking it with Aman's backend program. For the UI I just used a simple python interface to be able to create a board that the user could click the different squares to select their square as well as display a message that would tell the user who won the game (or if it was a draw) and allow them to restart the game. For the board I created a grid of 9 different buttons, that way the user could click directly on the board to select the squares, I had a function to handle all of the button clicks and methods to call the backend for the computer moves, to check the game status, and to reset the game. Integrating the two systems was very straightforward because Aman and I had talked about some of the biggest functions that we would each have and the different parameters/return types they would have. Knowing what Aman's functions would return made it very easy to develop the two systems separately because I could just create some simple placeholder functions with the same input/output types to stand in for while I tested my UI before integrating. Once the backend was ready I just changed the calls to my placeholder functions to call the functions in the backend without any other major modifications to my code, since there was so little change in the frontend there were very few possible new points of failure

Aman:

Gavin: I was in charge of the testing. Big-Bang integration testing was selected as the Tic Tac Toe program is small and only has two systems to integrate. This was the optimal selection as no driver was required. Overall, I am a fan of Big-Bang testing, although I understand why it may not be viewed as favorably on larger scale projects. If the program we were interacting with carried a greater level of risk than an illegal Tic Tac Toe move, we would have been better off using Top-down or Bottom-up.