Cairo university

Faculty of Computers and artificial intelligence

Cairo University

Structured Programming

CS112 2023-2024

Assignment 2 Task 1

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Assignment	**Assignment 2**
Task	**Task 1**

Initialize the game board as a list of 9 elements with each element initialized as '-'

Initialize player lists and other necessary variables

Define a function to print the game board

Iterate through the board and print the elements in a 3x3 grid

Define a function to get player input

Prompt the current player to enter a number and a cell to place their number in

Validate the input to ensure it's a positive integer and within the valid range

Update the game board with the player's input

Define a function to check for a vertical win

Check if any column sum equals 15

If yes, set the winner and return True

Define a function to check for a horizontal win

Check if any row sum equals 15

If yes, set the winner and return True

Define a function to check for a diagonal win

Check if any diagonal sum equals 15

If yes, set the winner and return True

Define a function to check for a tie

If there are no '-' characters in the board, declare a tie and end the game

Define a function to check for a win

Call functions to check for vertical, horizontal, and diagonal wins

If any function returns True, end the game

Define a function to switch players

Toggle between players 1 and 2

Main game loop

Print the initial game message

Start an infinite loop

Print the current state of the board

Get player input

Check for a win or tie

Switch players

Exit the game when the loop is broken (game ends)