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"Aggies do not lie, cheat, or steal, or tolerate those who do."

"I have not given or received any unauthorized aid on this assignment."

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Section: 213

Team: 11

Assignment: Lab7a\_Act1

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### Algorithm:

1. Create and initialize variables:
  - a. user\_input - string
  - b. moving\_piece - string, tracks color of moving piece
  - c. checkers\_board - list
  - d. row - int, iterator variable
  - e. column - int, iterator variable
  - f. i - int, iterator variable for changing list values into integers
  - g. formatted\_input - list, split values of user\_input
  - h. first\_coordinate - list
  - i. second\_coordinate - list
  - j. x1 - int
  - k. y1 - int
  - l. x2 - int
  - m. y2 - int
  - n. valid\_characters - string that holds value of all valid input characters (numbers 0-7 and spaces only)
  - o. valid\_character\_input - boolean, if input only has numbers 0-7 and spaces
  - p. char - string, iterator variable to check for valid characters in input
2. Print user instructions for input formatting:
  - a. Input instructions:
  - b. Type four numbers within the range of 0 to 7, separated with spaces.
  - c. The first two numbers should represent the location of the piece you want to move (row number starting from the top, then column number starting from left) and the second two numbers should represent the location of where you want this piece to move (same coordinate system).
  - d. Note: Row and column numbers start at 0. Ex: The top row is row 0.
  - e. For example, a valid input would be "6 1 5 2".
  - f. Type "stop" if you want to end the game/program.
3. Create the checkers board, using a list of lists (8 elements for each of the 8 lists).
  - a. Checkers pieces will be set in the correct starting position.
  - b. Dark circles for one player, white circles for other player, period for blank spaces
4. Take initial user input (click enter to start the game).
5. Create a while loop that runs if the input is not "stop":

- a. Display the checkers board (with print function) as a string.
- b. Take the user input (4 numbers split with spaces)
  - i. Row number, column number of piece they want to move
    - 1. Starts from top and left
  - ii. Row number, column number of where they want the piece of move
    - 1. Starts from top and left
- c. If the input is "stop," continue to next iteration
  - i. Which then checks the while loop condition, which then ends the program
- d. Check to see if the input is valid.
  - i. Input is valid if it only has 4 numbers (0-7) separated by spaces.
    - 1. Check the characters to see if they are numbers 0-7 or spaces.
    - 2. Split the user input into a list (using .split)
      - a. Convert list of strings into list of integers.
    - 3. Check for length of list (has to be 4)
    - 4. Check if integers are from 0-7.
  - ii. To be valid, the input also has to have a first coordinate that has a piece on it and a second coordinate that is on a dark square.
  - iii. If the input is invalid, print an error message.
    - 1. Invalid input. Please try again.
    - 2. Continue to the next iteration.
- e. Use the input to move to the piece depending on the coordinate:
  - i. Set up a variable called moving\_piece, which tracks the color of the piece that is moving (dark or white).
  - ii. Change the first coordinate (part of the list) to a blank space (period).
  - iii. Change the second coordinate (part of the list) to the circle of the correct color (based on the variable moving\_piece).