CS 101: Programming Fundamentals

Section: L2

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Project Title: Tic-Tac-Toe

OVERVIEW:

TIC-TAC-TOE is a game which every individual is aware of. We have been playing this game since our childhood. My team and I decided to make this game using the Python skills we have learned throughout this semester. Before we began coding, we used flowcharts to consider all the conditions which are required to be met during the game. Then, with the help of a pseudocode we started to pen down all the conditions. After all of this was done, we started coding.

FUNCTIONALITY AND FEATURES OF THE CODE:

Our code begins with the initialization of the board on which the game is to be played. By using the concept/technique of Matrix formation, using a list within a list, we initialized our board. As the game is to be played between two players, we assigned "0" to player 1 and "X" to player 2. We then created a variable named "Moves" which acts as a counter throughout the program to check the number of moves. Another variable "check" is initialized to zero. This variable acts as a counter to check the horizontal and the vertical winning conditions. We also used special characters like -|-|- to separate rows and columns of the board to make it look more realistic. The row and the column input is taken from both the players. The program checks if the particular row and the column entered is empty or not. If it's not found empty, the programs displays an error message and exits the program. If the space is empty, the program adds either a circle or a cross at the respective position depending on the input. Checks are then made regarding the winning conditions-horizontally, vertically and diagonally. For the checks we use nested for loops and list indexing to get our results. Another check is made if the game has tied i.e. all 9 moves have been completed but yet we don't have a

winner. Depending on the results of the different checks, an output message is displayed and the game ends.

Takeaway:

This project helped us in polishing the concepts we learnt throughout the semester. It made us well versed with the concept of using lists within a list as that was repeated quite a few times in our code. While researching about GUI, we also got to know about packages like “Tkinter” which we tried adding to our code as well. To conclude, this project did not only refresh some of the old concepts, it also strengthened some of the things which we recently learned, and we also got to know about some new things.