

HOMework # 2

Question 1:

Write a program that allows two players to play a **game of tic-tac-toe**. Use a **two dimensional char array** with three rows and three columns as the game board. Each element of the array should be initialized with an asterisk (*). The program should run a loop that:

- Displays the contents of the board array.
- Allows player 1 to select a location on the board for an **X**. The program should ask the user to enter the row and column number.
- Allows player 2 to select a location on the board for an **O**. The program should ask the user to enter the row and column number.
- Determines whether a player has won, or a tie has occurred. If a player has won, the program should declare that player the winner and end. If a tie has occurred, the program should say so and end.

Player 1 wins when there are three Xs in a row on the game board. The **Xs** can appear in a row, in a column, or diagonally across the board. **Player 2 wins** when there are three Os in a row on the game board. The **Os** can appear in a row, in a column, or diagonally across the board. A **tie occurs** when all of the locations on the board are full, but there is no winner.

Question 2:

Implement the find and replace function similar to MS word. You have to find the first matching instance of the 'findstring' with the 'replacestring' in the 'mainstring'.

Example 1:

mainString: "I love computing. It is so much fun"

findString: "computing"

replaceString: "Lahore"

mainString changes to: "I love **Lahore**. It is so much fun"

Example 2:

mainString: "I love computing. It is so much fun"

findString: "fun"

replaceString: "going to the library"

mainString changes to: "I love computing. It is so much **going to the library**"

Possible Functions prototypes:

- `int stringLength(char str []);`
//To find the length of the string
- `int findString(char mainStr[], char subStr[]);`
//find if a substring is present in the main string and return its starting index if found, return -1 otherwise
- `void replaceWithBiggerString(char mainStr[], char replaceStr[], int index, int lengthFindStr);`
//replace a substring which is bigger than the findStr

- `void replaceWithSmallerString(char mainStr[], char replaceStr[], int index, int lengthFindStr);`
//replace a substring which is smaller than the findStr
- `void replaceWithEqualString(char mainStr[], char replaceStr[],int index);`
//replace with a string of same size as find string
- `int findReplace(char mainStr[],char findStr [],char replaceStr []);`
// return the starting index at which substring is found and replacement were made and return -1 if substring not found and no replacements were made .
- Then write a **main function** to check the functionality of all these functions.