

## Java Abstract Window Tool Kit and Swing Programming Study on the Game Tic Tac Toe

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**Abstract:** The game tic tac toe is basically the commonly played and known game through out the world. This game does not allow only one player to win all the time and the winning or losing in this game depends on the strategies and the known rules and techniques that are applied in a tactful way by the players. The best player will never lose the game. This study basically involves and gives the information and knowledge about the game tic-tac-toe and strategy to win the game which gives the solutions to win the game ,and it helps the people or the reader to know about the programming language java on which this particular game has been developed.

**Keywords:** Crosses and Noughts.

### I. INTRODUCTION

The game tic-tac- toe which is also called as crosses and naughts is basically a paper –pencil game and logical game.

This game is basically a two player game which is played between either a computer or user or it is played between any two users.

This game is basically played in a 3\*3 grid and we cannot increase the size of the grid.

In this game,the player who places all his three crosses or naughts in either horizontal ,vertical or the diagonal positions will win the game.

This game is basically a logic behind the pupils mind and this game can be easily achieved if we know the tricks and logics of the game.

This game basically follows some rules and tricks .The player who knew all these rules and the application of the rules while playing the game can easily achieve the game.

In this the best play from both the players automatically leads to the draw of the game.

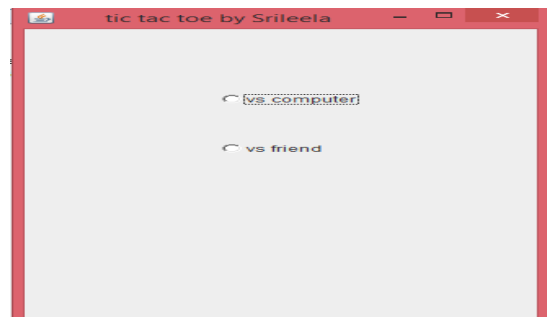
### II. STRATEGY OF THE GAME

The player can win the game if they apply the following techniques, and this game is played between either computer or a player or it can be played between any two players. The following techniques help the players to win the game.

- If the player has two in a row, then they can place the 3<sup>rd</sup> one to win the game.

- If the opponent player has two in a row, then we must place our cross or naught in the row so as to block the opponent. So that they lose the chances for winning or cracking the game.

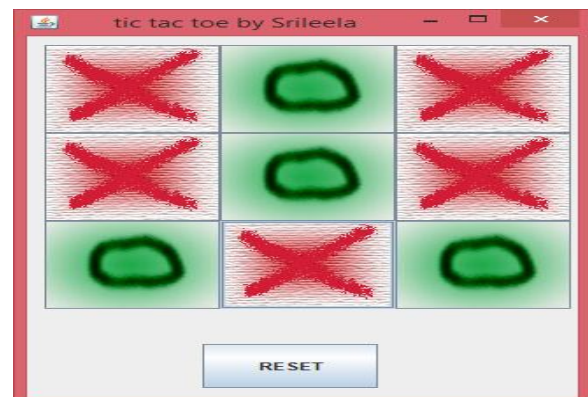
**Fork:** Create an opportunity where the player has two threats to win (two non-blocked lines of 2).



**Blocking an Opponent's Fork:**

**Option 1:** The player should create two in a row to force the opponent into defending, as long as it doesn't result in them creating a fork. For example, if "X" has two opposite corners and "O" has the centre, "O" must not play a corner in order to win. (Playing a corner in this scenario creates a fork for "X" to win.)

**Option 2:** If there is a configuration where the opponent can fork, the player should block that fork.

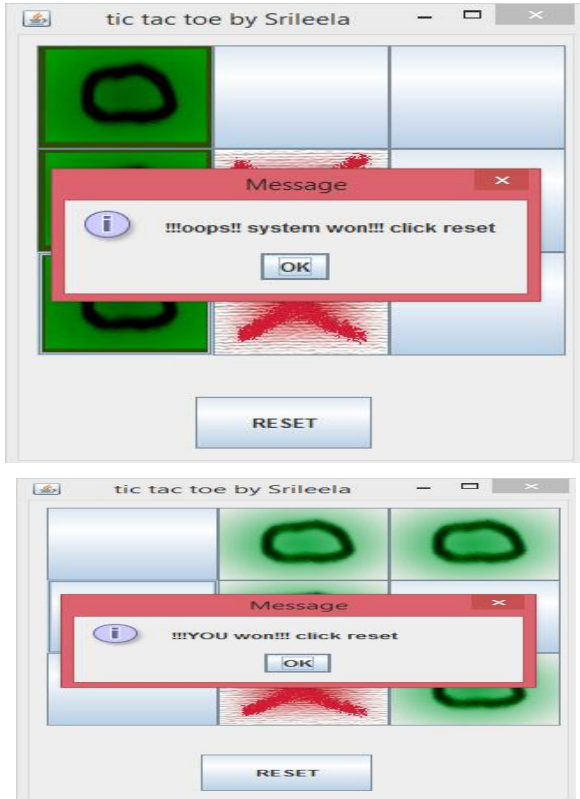


**Centre:** A player marks the centre.

**Opposite Corner:** If the opponent is in the corner, the player plays the opposite corner.

*Empty Corner:* The player plays in a corner square.

*Empty Side:* The player plays in a middle square on any of the 4 sides.



### III. CATEGORY OF THE PROJECT

The language that is used in implementing this project is JAVA and on the java NETBEANS IDE editor of java.

JAVA is basically the truly object oriented language which implements all the concepts of an object oriented language like classes ,objects, Inheritance, polymorphism , abstraction , encapsulation etc..

Java is basically a platform independent language and it basically works on the write once and run anywhere concept ,and this concept in java works out only because of the byte code of the java.

Because of the byte code of java, we can run the java code in any kind of the platforms and the java code is compiled and interpreted and converted into the byte code and the Java Virtual Machine helps to run the byte code.

In this game the packages in java like java swing package and java AWT package helped to create this game and these packages in java mainly work for the graphical purposes and to create any kind of the desktop applications.

### IV. REASONS TO CHOOSE JAVA AS A PLATFORM

Java is basically the object oriented language and easy to use and implement kind of the language.

Java is basically Unicode: The main feature of Java is that it follows the Unicode format I;e in java a char will occupy 2 bytes .It varies from the languages which use the ASCII code mechanism.

Java is basically both the compiled and interpreted language I;e the java code is first compiled and then interpreted and converted into the byte code format.

Java is basically a platform independent language because in java the code is compiled and interpreted and converted into the byte code which can run on any type or any kind of the platform, I;e java follows the write once and run anywhere format.

Java is basically a simple and high level language. Java can be written in the simple language which all the normal persons can understand I;e it is written in a high level language and the byte code is the middle level language and the bit code is the low level language.

Java is also a case sensitive language I;e in java the uppercase should be written in upper case only and the lower case letters should be written in lowercase only.

Java is a multithreaded language this feature in java makes it possible to write the programs that can perform multiple tasks simultaneously and it helps to build up the interactive programs or applications.

Java is most robust and secured language I;e it first helps the programmer to check and resolve the errors in a secured way.

Java is designed for the distributed environment and it helps to deal with the distributed environment such as internet.

### V. PURPOSE AND FUTURE SCOPE OF THE PROJECT

The main purpose of this project is it encourages the people who played this game to think in a logical way to win the game, which increases the ability to think logically.

It is just a two player time pass game between system and user or between any two users.

It is a user friendly game.

It is a two player game which is between user and the system or between any two users.



One can increase their logical thinking by playing this game.

A person do not require any extraneous knowledge to play this game.

In this game only two inputs can be accepted I;e naughts and crosses.

This project is basically developed by using simple Core Java and it can be upgraded using graphical user interfaces.

One major change that can be done is that instead of naughts and crosses we can use the finger prints of the user playing the game.

In this project we can add a timer and the menu bar to start the new game to know the score and no. of games played.

#### VI. REFERENCES

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