"Tic Tac Toe"
Browser Game
Test
Report

Version 1.0

Revision History

Date	Version	Description	Author
27.09.2018	1.0	Created	Topolov A.

"Tic-Tac-Toe" Browser Game	Version: 1.0
Test Report	Date: 27.09.2018

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1.   Introduction

1.1 Purpose

The purpose of this document is to describe the process of testing of "Tic-Tac-Toe" Browser game. This document allows you to get an idea of testing, ways of testing, description of the defects and improvements that can be made to the game.

1.2 Background

Tic-tac-toe (also known as noughts and crosses or Xs and Os) is a browser game for two players, who take turns marking the spaces in a 3×3 grid. The player who succeeds in placing three of their marks in a horizontal, vertical, or diagonal row wins the game.
Also in the game there is a chat in which players can correspond via messages.
The game can be played at the following location: http://qatest.fora-soft.com:4234/.

1.3 Scope

The purpose of testing this browser game was to check its compliance, check its main functionality and UI.

The final results of the testing process is test report with test results.

2.   Test Strategy

Compatibility testing was tested first. The game was tested on different operational systems and different screen resolutions. Then, correct working of the game was tested in different web-browsers. After that, main functionality was tested.

UI testing took place after that. All found defects were described and analyzed.
When verifying input data, such test design techniques as *equivalent classes* and *boundary values* were used.

3.   Compatibility testing.

The correct operation of the game was tested on the following operating systems with different screen resolutions:

Operational System	*Screen Resolution*	*Result*
Microsoft Windows XP 32-bit	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Microsoft Windows XP 64-bit	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Microsoft Windows Vista 32-bit	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Microsoft Windows Vista 64-bit	800x600 1024 x 768 1280 x 600 1280 x 720	Incorrect Incorrect Incorrect Incorrect

	1920 x 1080	Correct
Microsoft Windows 7 32-bit	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Microsoft Windows 7 64-bit	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Microsoft Windows 8 32-bit	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Microsoft Windows 8 64-bit	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Microsoft Windows 10 32-bit	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Microsoft Windows 10 64-bit	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct

4. Cross browser testing.

The game was tested in the following web browsers with different screen resolution:

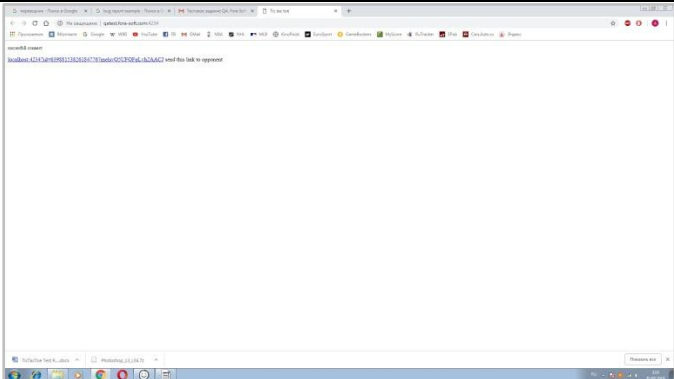| Google Chrome 58.0.3029.110 (64-bit)	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Internet Explorer 10	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct
Mozilla Firefox 62.0.2	800x600 1024 x 768 1280 x 600 1280 x 720 1920 x 1080	Incorrect Incorrect Incorrect Incorrect Correct

5. Defects.

All defects are divided into three subgroups with end-to-end numbering: launch, game process, chat box and overall functionality. Defects are sorted by the SEVERITY criteria. Testing environment is the same for all defects in the testing process.
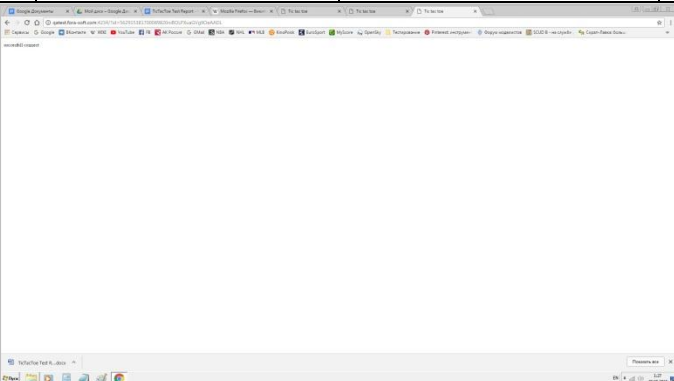
5.1. Launch defects.

During the launching of the game following bugs were found.

Environment: OS: Windows 7 Pro SP1. Browser: Google Chrome 69.0.3497.

Bug_01: the link to the game contains localhost.

Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/	The following link appears: localhost:4234?...	When entering the game, the correct link should be displayed	S2 (Critical) / P1 (High)

Bug_02: one link can connect the third party to the game.

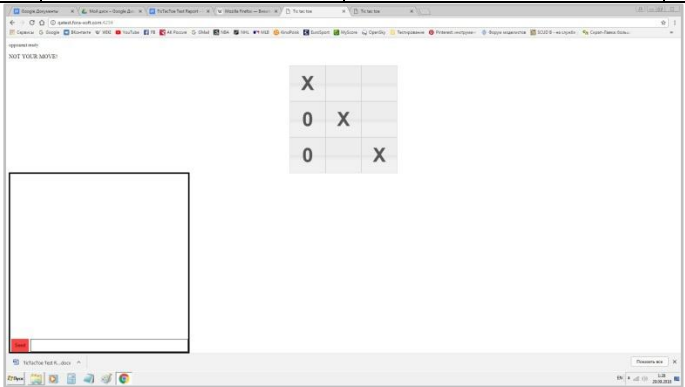| Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to 2 different players	The link can be sent to the 3rd player. He will see "successful connect" and a blank window	The link can be sent only to one player	S2 (Critical) / P1 (High)

5.2. Game process defects.

In the game process following bugs were found.

Environment: OS: <u>Windows 7 Pro SP1</u>. Browser: <u>Google Chrome 69.0.3497</u>.

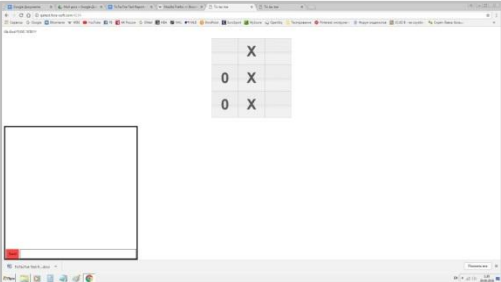Bug_03: diagonal from the top left cell does not win the game.

Description	*Actual result*	*Expected result*	*Severity / Priority*
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Make the diagonal from the top left cell	The game continues	Player wins the game	S3 (Major) / P2 (Medium)

Bug_04: when you click on the second cell of the bottom row, you can make a move twice.
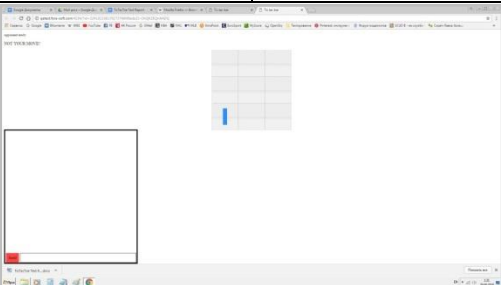
Description	*Actual result*	*Expected result*	*Severity / Priority*
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Click on the 2nd cell in the bottom row	Player can make another move with either X/O instead of the opponent	Player can make only one move at a time	S3 (Major) / P2 (Medium)

Bug_05: the winning combination is not highlighted.

Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Make the winning combination with X/O.	There is no indication on the field that the combination has won the game	The winning combination is crossed out by the line	S3 (Major) / P2 (Medium)

Bug_06: when you click on the field outside your turn, a blue square appears.

Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Click on the field when it's not your turn.	The blue square appears in the field	Nothing happens	S4 (Minor) / P2 (Medium)

5.3. Chat Box defects.

Following bugs were found in the chat box of the game.

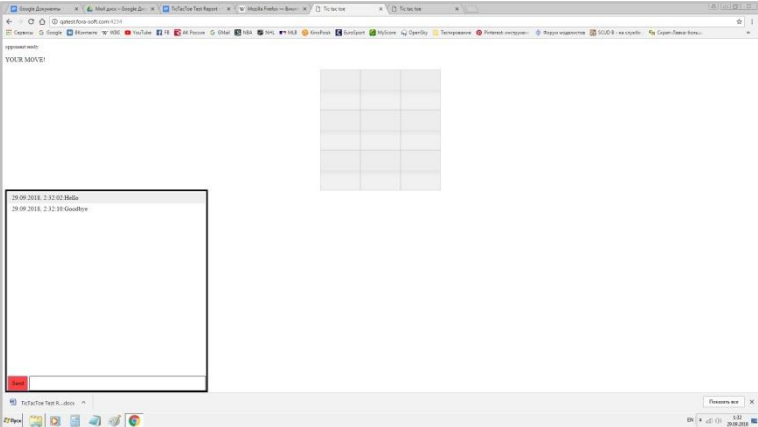*Environment*: OS: Windows 7 Pro SP1. Browser: Google Chrome 69.0.3497.

Bug_07: player can't use Enter button to send the message.

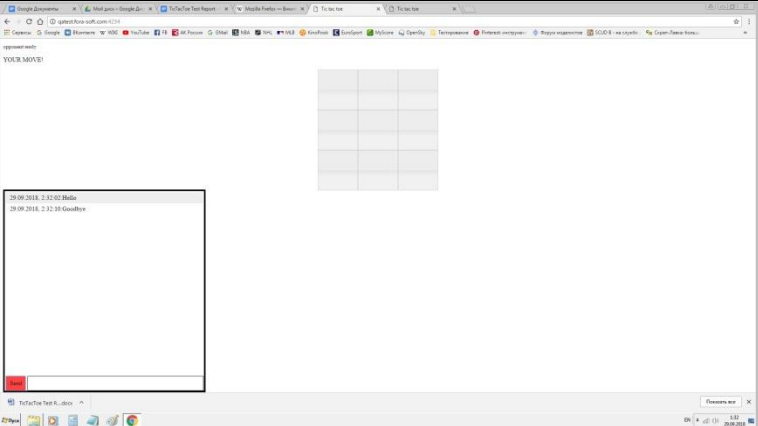| Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player	Nothing happens. Message can't be sent with the Enter button.	Message is sent.	S4 (Minor) / P2 (Medium)

3. Send the message with the Enter button			

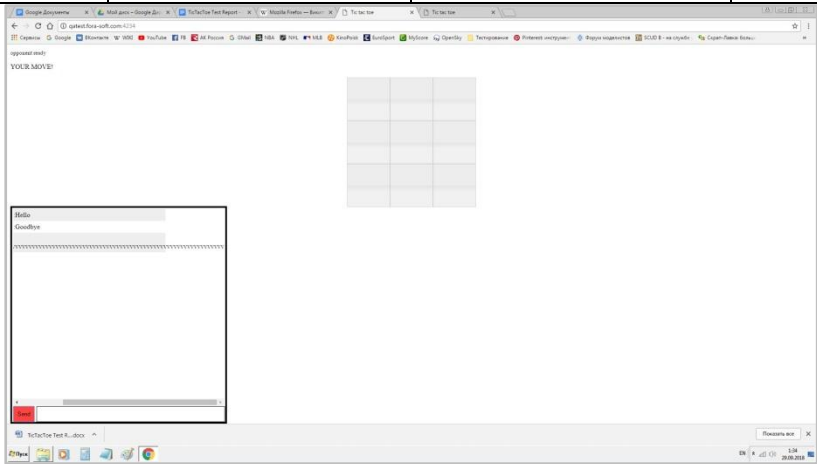Bug_08: in the chat window it is not clear what message belongs to the player.

Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Send the message two times	There is no identification in the chat window on which message was written by a certain player	Each message should be given the name of the player who wrote it	S4 (Minor) / P3 (Low)

Bug_09: incorrect sorting of messages in the chat.
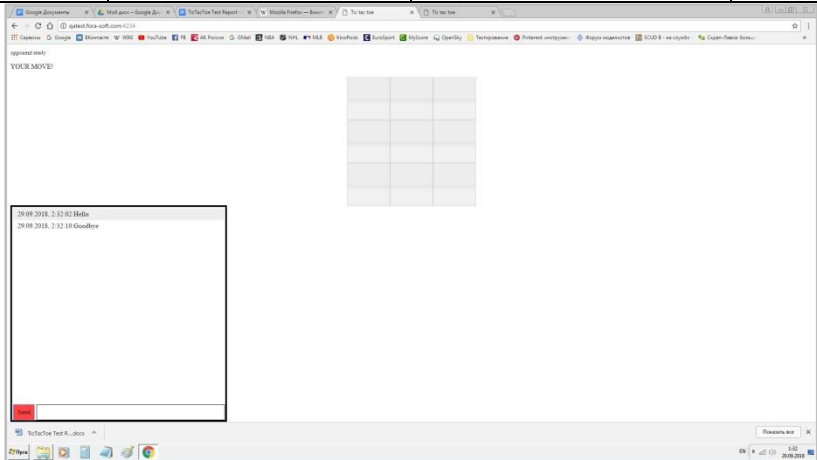
Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Send the message two times	Messages are sorted from late to early	Messages are sorted from early to late	S4 (Minor) / P3 (Low)

Bug_10: message highlighting disappears when scrolling to the right.
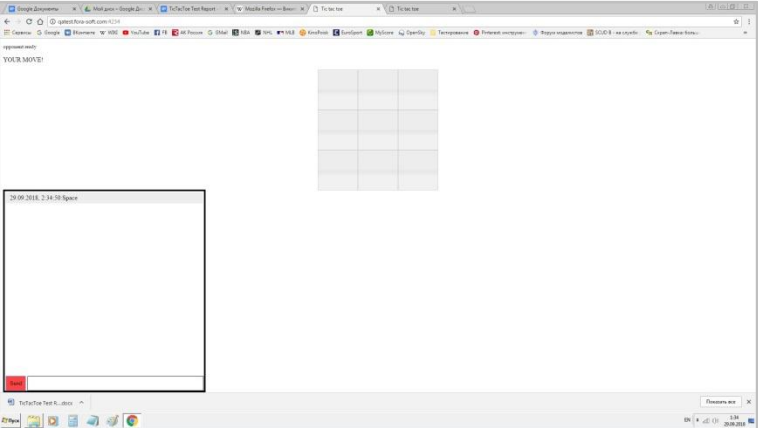
Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Send the long message to the chat box 4. Scroll to the right	When you exit beyond the boundaries of visibility (to the right) and when scrolling to the right, message highlighting disappears	Message is highlighted regardless of it's lenght	S4 (Minor) / P3 (Low)

Bug_11: the time in the chat does not match the local time.
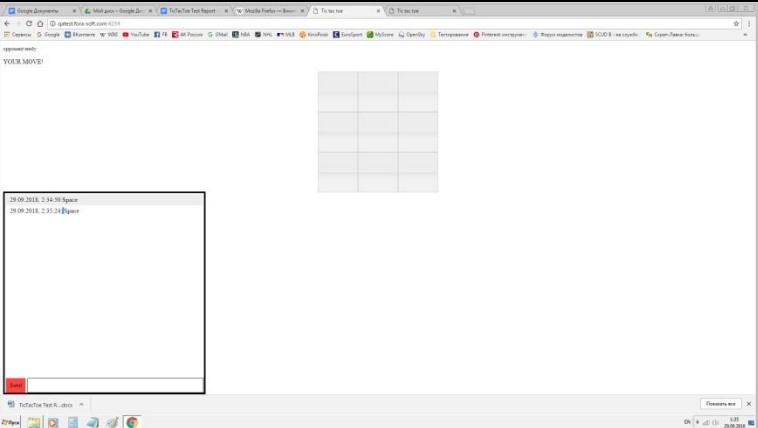
Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Send the message to the chat box	The time in the chat box is one hour longer	The time in the chat box equals local time	S4 (Minor) / P3 (Low)

Bug_12: there is no space between the colon and the beginning of the message.
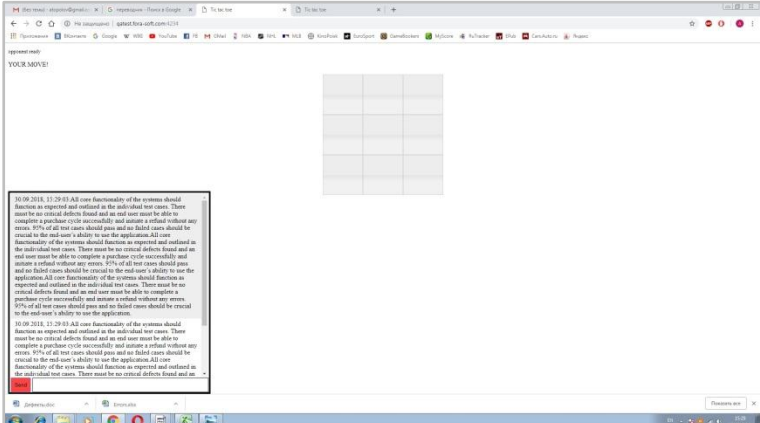
Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Send the message to the chat box	There is no space between the colon and the beginning of the message	There is space between the colon and the beginning of the message	S4 (Minor) / P3 (Low)

Bug_13: when you enter 3 spaces before the message, the message appears with only one space.

Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Send the message to the chat box with 3 spaces before the message	The message appears with only one space	The number of spaces equals the number of entered spaces	S4 (Minor) / P3 (Low)

Bug_14: message longer than 15 lines is duplicated when sent.
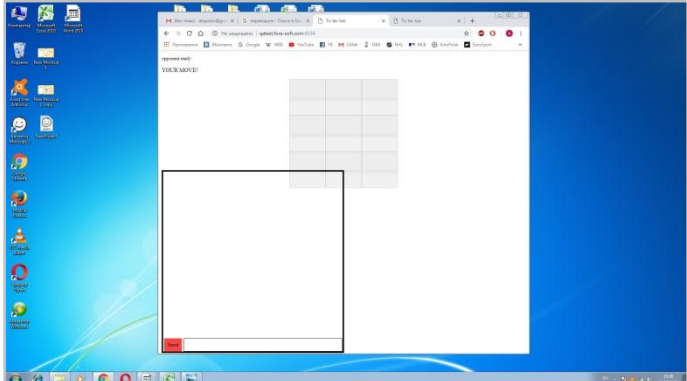
Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Send the message longer than 15 lines	The message is duplicated	Only single message is sent to the chat box	S5 (Trivial) / P3 (Low)

5.4. Other defects.

During the testing process of the game several other defects were found.

Environment: OS: Windows 7 Pro SP1. Browser: Google Chrome 69.0.3497.

Bug_15: when the window is reduced, the game field shifts.

Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Resize the browser window	The game field shifts (moves)	The game field stays at the same position	S2 (Critical) / P1 (High)

Bug_16: errors in writing the phrase: "Oh God".

| Description	Actual result	Expected result	Severity / Priority
1. Open http://qatest.fora-soft.com:4234/ 2. Send the link to the 2nd player 3. Make the winning combination	The phrase: "Oh God!!YOU WIN!!! appears	The phrase should be written as follows: "Oh, God! You won!"	S5 (Trivial) / P3 (Low)
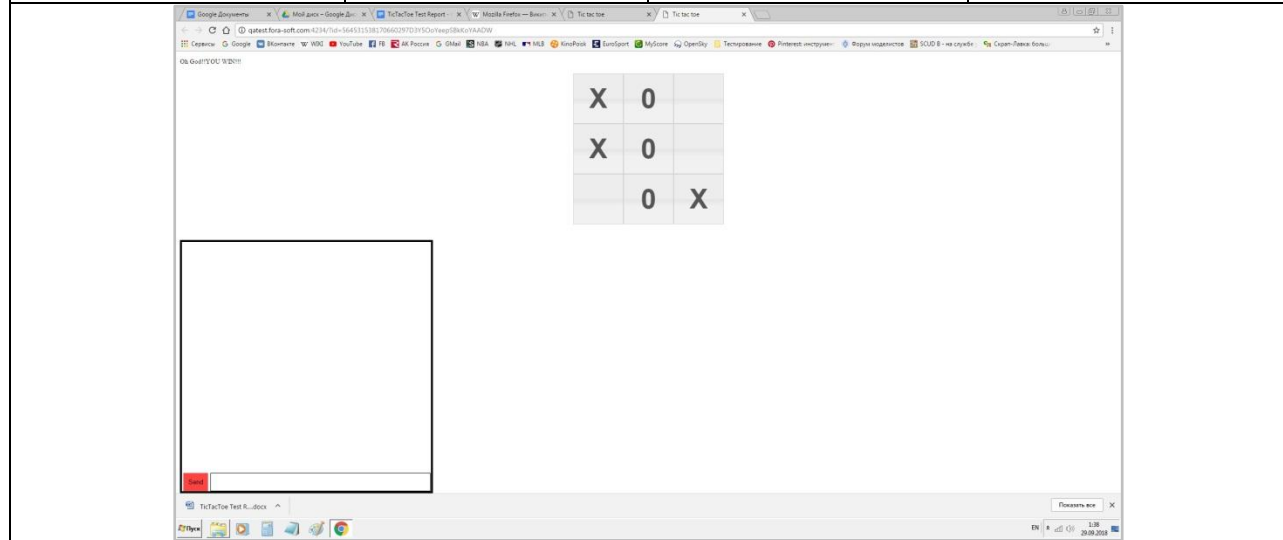
6. Improvements.

For a better gameplay, the following improvements were proposed, which can be implemented into the game:

1. The ability to assign nicknames to players.
2. Indication in the game window about the player's name: Player 1, Player 2
3. Ability to send messages to the chat by pressing the Enter button.
4. Specify the name (number) of the player in the chat when displaying messages.
5. Adding the ability of the game against AI (Computer)
6. Adding a runtime timer
7. Adding the ability to play an additional game without closing the window.
8. Adding a game account indication
9. Adding Emodji to the chat.
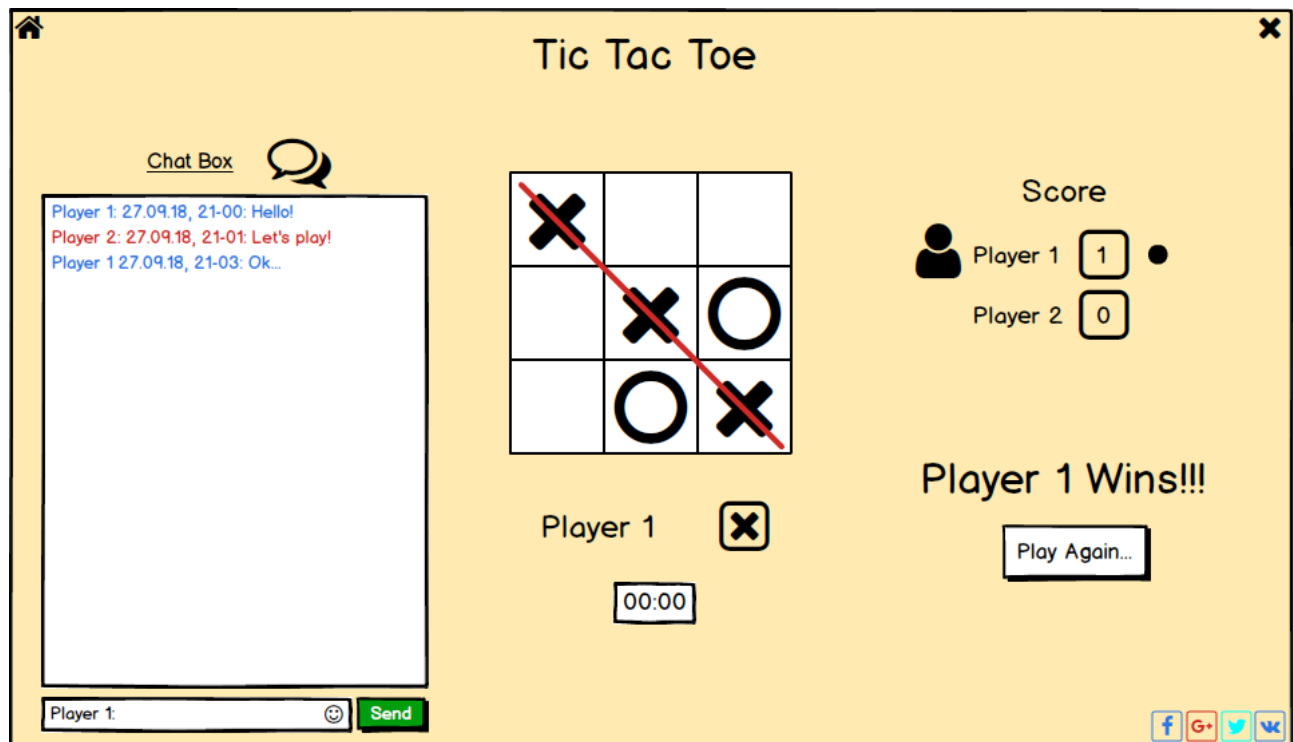10. Possibility to expand the playing field to 5x5.

Also, several sketches were made for a better understanding of how the game and its functionality should look.
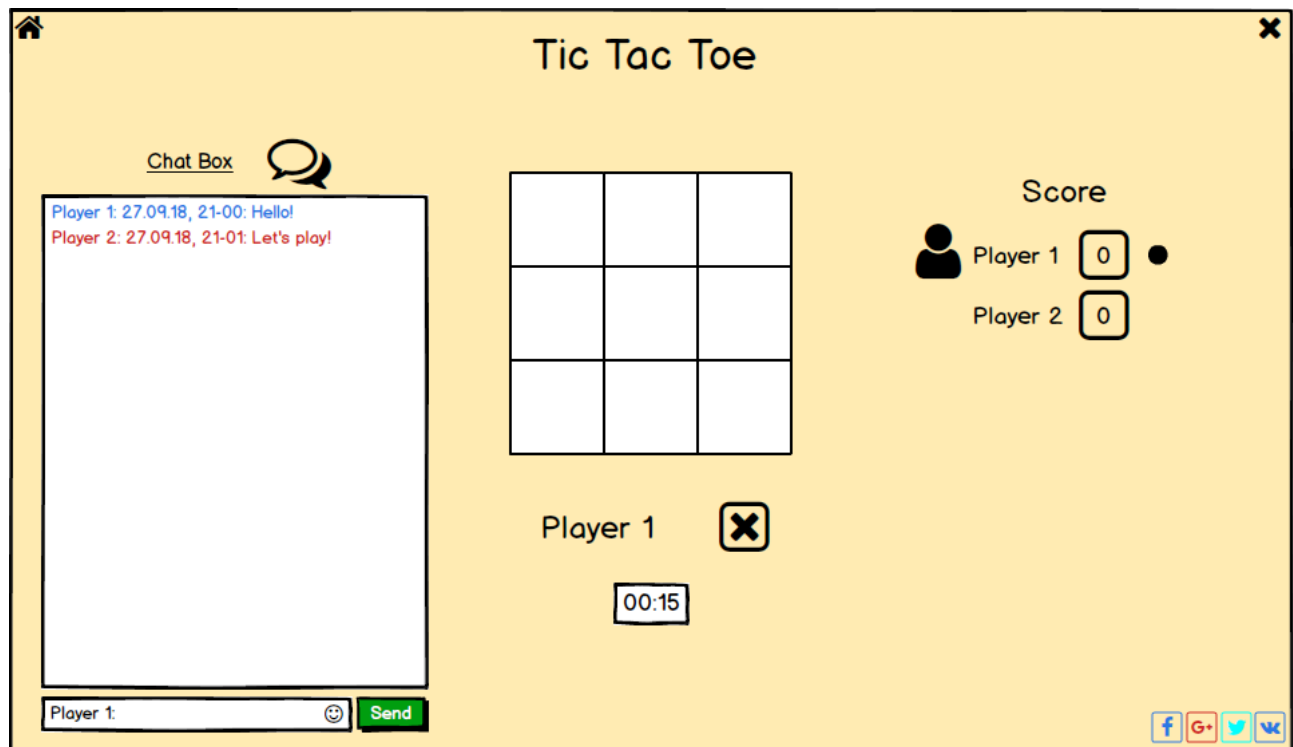
Sketch 1:

Sketch 2:

7.   Test report.

During the testing process of the "Tic-Tac-Toe" browser game following things were tested and analyzed:

1. Compatibility
2. Cross browser testing
3. Launching of the game
4. Functionality
5. User interface

16 defects were found in the game. For better understanding there are several diagrams listed below.
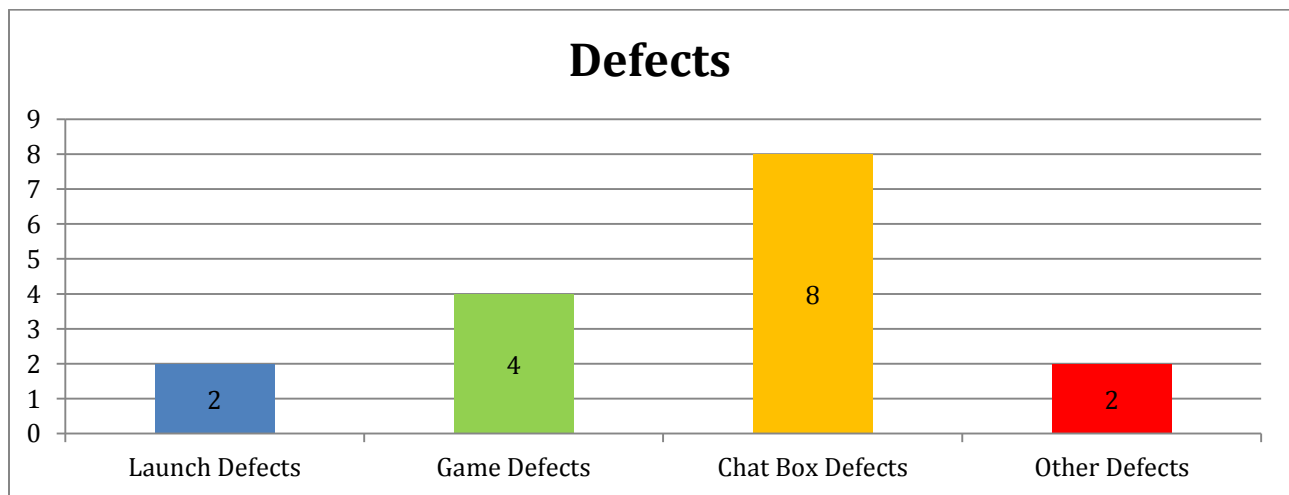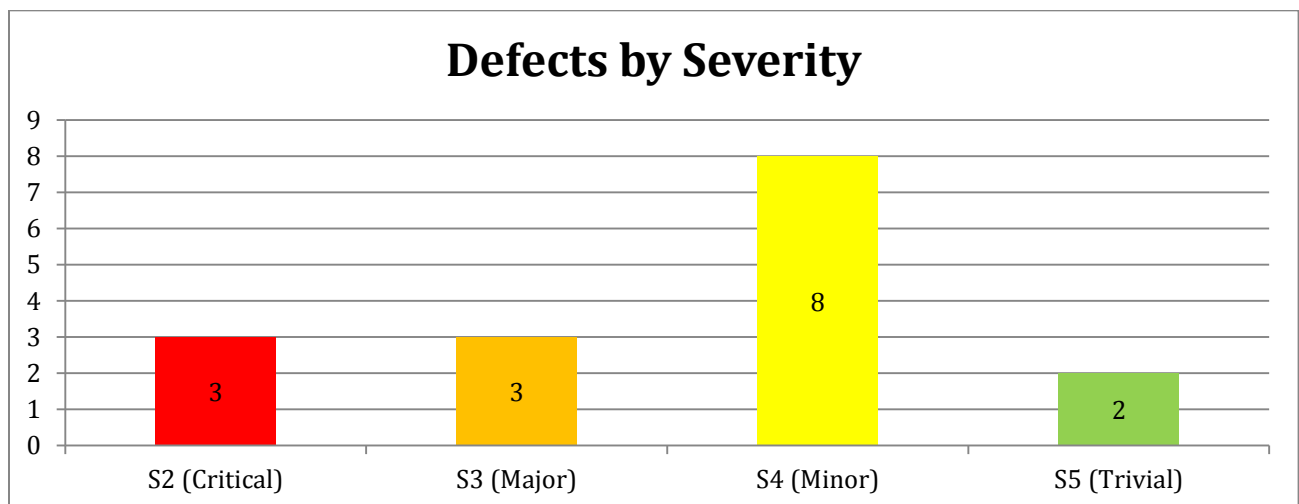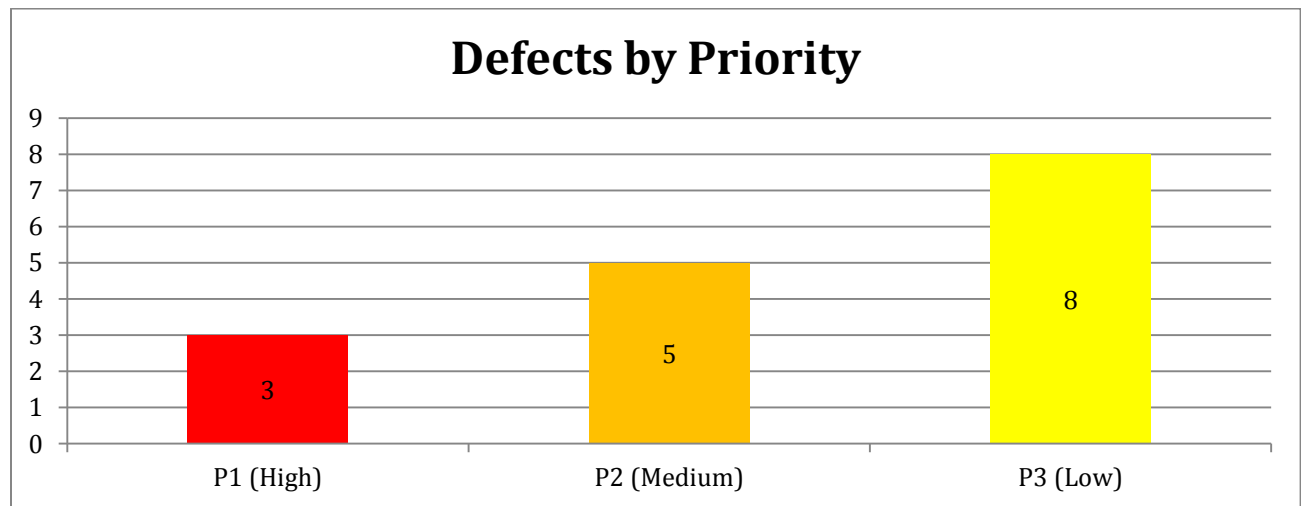
Diagram 1:

Diagram 2:

Diagram 3:

8. Final conclusion.

Since 3 Critical (S2) defects were found during the testing process, as well as 3 Major (S3) defects according to SEVERITY that require immediate elimination, release of the "Tic-Tac-Toe" Game should be postponed until all Critical and Major (S2 and S3) defects are eliminated.