Edge Hill University

CIS3301 – Mobile Applications and Games Development

BSc Web Design & Development

Coursework Two - Mobile Web Application Development

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1 Introduction

The aim of this report is to document how to set up the application, as well as the testing done for the Connect Four application. The testing will include the application testing and the user testing for both the browser and the device.

2 Setup

1. Open a terminal and navigate to the "Crosby_S_22967851_CW2/web-app" directory

2. Run the command: npm install

3. Navigate to "Crosby_S_22967851_CW2/cdv-app" directory

4. Run the command: npm install

2.1 Running the build server

1. Open a terminal and navigate to the "Crosby_S_22967851_CW2/web-app" directory.

2. Run the command: ember serve
   If there is an error running the ember serve, follow the install ember steps below and then re-follow this step.

3. Open a browser and go to http://localhost:4200.

   The connect four app should then be launched in the browser.

2.2 Deploy to a device

1. Open a terminal and navigate to the "Crosby_S_22967851_CW2/cdv-app" directory

2. Run the command: cordova platform add android
   If there is an issue with running cordova follow the install cordova instructions below then re-follow this step.

3. Run the command: cordova run –device

2.3   Install ember

1. Open a terminal and navigate to the "Crosby_S_22967851_CW2/web-app" directory

2. Run the command: npm install ember-cli

3. You can test this works by running the command: ember
   This will produce a list of available commands

2.4   Install cordova

1. Open a terminal and navigate to the "Crosby_S_22967851_CW2/cdv-app" directory

2. Run the command: npm install cordova

3. You can test this works by running the command: cordova
   This will produce a list of available commands

3 Testing

3.1 Application Testing

Test Description	Results/ Comments
Does the background appear as it should?	Yes, the red and black background appears behind the board as it is suppose to.
Does the board appear as it should?	Yes, the 7 by 6 board appears as it is supposed to.
Does the start button appear as it should?	Yes, the start button appears at the top of the application as it should.
Does the start button work?	Yes, the start button begins the game and allows the user to start playing.
Does the application allow the user to place their counter?	Yes, the application allows the user to choose which column they want their counter to go in and it will drop down.
Does the counter go within the cell the user selects?	Yes, the counter goes into the middle of the cell that the user chooses.
Does the computer player place a counter when it is their turn?	Yes, once the user has placed a counter, the computer then places its counter.
Is the computer players move a valid one?	Yes, the computer player places a counter along the bottom row, or on top of a counter that has already been placed. It does not try to place a counter on a cell which already has a counter in it.
Is the user able to win?	Yes, once the user has placed four yellow counters in a row, whether that be vertically, diagonally or horizontally, the application will announce that o1 (player 1) has won.
Is the computer able to win?	Yes, once the computer has placed four red counters in a row, whether that be vertically, diagonally or horizontally, the application will announce that o2 (computer) has won.
Does the application announce a draw if all of the cells are filled and no one has won?	Yes, when all the cells have filled and no one has won, the application will say "We'll call it a draw".
Does the restart button reset the game?	Yes, the reset button removes whatever counters were on the board and starts the game from the beginning, allowing the user to place the first counter.
Does the app appear as it should when used on a device?	Yes, the app appears with its red and background, the board and the start button at the top of the app.
Does the app work as it should on a device?	Yes, the game is able to be played on a device, between the user and the computer just as it does in a web browser.

3.2 User Testing

User testing was done to see how well the app worked with actual users and to see if there are any issues that have not been found yet. The user testing follows the journey the user takes with using the app, so it will start with whether they can start the game to being able to finish the game.

3.2.1 User testing for the application on the web browser

Test Description	Results/ Comments
Is the user able to start the game?	Yes, the user easily finds the start button and begins the game.
Is the user able to place their counters?	Yes, the user clicks on a cell and their counter falls into place.
Does the user know which counter is theirs?	Yes, the user knows that they are the yellow counter as that is the one that drops when they play.
Does the user understand who has won the game?	Yes, the user knows that they have won because they have placed four yellow counters, however the text that says which player has won is not very clear as 'Player o1' is not very clear as to whether that is yellow or red.
Is the user able to restart the game after it has finished?	Yes, the user easily finds the restart button at the top of the application.
Did the user enjoy playing the game?	Yes, the user enjoyed playing the game.
Is there any changes the user can think of to improve the app?	The user suggests a key so that they know which colour they are before they start playing the game. The user also suggests being able to choose the amount of games you can play so you can do a best out of three.

3.2.2 User testing for the application on the device

Test Description	Results/ Comments
Is the user able to start the game?	yes, the user easily found the start button at the top of the application.
Is the user able to place their counters?	Yes, the user easily placed the counter, however it was suggested that the squares could be bigger as it is easy to place the counters in the wrong cell by mistake.
Does the user know which counter is theirs?	Yes, the user knows that they are the yellow counter.
Does the user understand who has won the game?	Yes, the user understands that they have won the game as they are the ones that placed the four counters. It was again suggested that the feedback could be better, as there is nothing to suggest that o1 is the user.
Is the user able to restart the game after it has finished?	Yes, the user easily finds the restart button as it is in the same position as the start button was.
Did the user enjoy playing the game?	Yes, the user enjoyed playing the game.
Is there any changes the user can think of to improve the app?	The game could be bigger so that it is easier to place counters, without worrying about them going in the wrong box.

The results from the user testing are that there are no major bugs within the app but there are improvements that can be made such as a key which tells the user which colour counter they are because at the minute they only find out when they place a counter. Another improvement is being able to choose the amount of rounds to play so that the user can choose how many games they want to play, then an overall winner is chosen from the most wins. Another suggestion was to make the game bigger, especially for device, so that when the user is placing their counters, they do not accidentally place it in the wrong box.