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ISTE 121-02

Due: April 25, 2014

Group: #7

Breakthrough Design Document

As with any other major project, both team members met up and discussed on how to approach this project. We first broke up the project into many smaller problems to be solved one step at a time. The first problem to be solved was how to create the GUI which the users will be playing on. After some discussion we decided to go with the array list of buttons approach and loop through them to be able to move the pieces as opposed to creating the buttons individually. Originally we discussed all buttons in the GUI should be individually created and have action listeners implemented for each button. However, further discussion and thought rendered this approach as time consuming and inefficient. Over the next few weeks, this approach did not change as we always met up first to discuss which smaller problem needs to be solved and which one is more urgent than the other. Finally we discussed the game in accordance with the breakthrough rubric and we also included new rules within the game that makes the game mirror a variation of chess known as zombie chess. Furthermore, the design of the pieces is based upon Mortal Kombat, with Scorpion as zombie pieces and Sub-Zero as human pieces.

Next, we encountered both technical and non-technical issues when we were remaking this project. The first and foremost problem was the new addition of rules that had to be implemented. The first rule we added was making Scorpion able to add more pieces to the board once he captures an opponent’s piece (known as resurrection rule in zombie chess). However the most prominent issue was trying to implement a double turn rule which we encountered many coding problems with. When we tried to implement the double turn rule for Scorpion (zombie) we were unable to make the pieces move at all. On the flip side, the double turn rule was not needed to be implemented as our game was a mix between zombie chess and breakthrough, we discovered implementing a double turn rule might give one player an unfair advantage over the other player. Therefore the double turn rule did not make it into the final program but we were able to successfully implement another rules. Both players are able to move pieces diagonally one space and forward one space. The most complex rule implemented was mirroring a zombie apocalypse where Sub-Zero (human player) cannot capture zombie pieces but can only push opponent’s pieces one step backward. This complex rule had many issues including being pushed back diagonally one space instead of forward one space as it will allow the opponent to capture the piece once the move is completed. Finally, the only non-technical problem we encountered was scheduling issues as both team members were busy on different days and weekend discussions had to be done through email or text.

There were limited or no group interaction issues as both team members had equal contribution towards the project. We have already divided the entire project into smaller problems and both team members decided which problems were easier to solve, therefore the responsibilities were split between both members. All meetings were held in the IT lab and decided after each prior meeting time was over but was always subject to change due to unforeseen or unpredictable schedule changes from team members. Both team members worked equally on GUI, action listeners, rules coded, and design of the pieces.

Lastly, for future students we would recommend that students implement a couple of rules outside the standard breakthrough game rules. I recommend instructors can provide extra credit for implementing new rules that mirror other variations of original 8x8 board games. Being able to include extra rules can be a valuable learning experience for future students. Finally, students should also be able to pick out whichever 8x8 board game they would like to mirror and implement it within their final program or be creative and implement their own set of rules in addition to standard breakthrough game rules.