Gomoku Game

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As we all know that the Gomoku game is a traditional game that it has born very long time. The purpose of why we plan to do the Gomoku game is that we want to make this game widely known and better passed on. My team member and I both come from China, and at the same time the Gomoku game is also originated from China. Living in such a diversity world, we want to develop and expand our traditional culture and let people like it. Go back to the Gomoku game itself, it was created in ancient China about five years ago. One day, Xuanyuan Huangdi, who is the ancestor of the Chinese nation, unintentionally drew 17 horizontal lines and 17 vertical lines, and this unintentional invention created the first Gomoku game. After the continuous spread of Gomoku game in China, it became famous, and more and more people play it as a relaxing tool. Then, it was later introduced to Japan. In 1899, after Japan improved the rules of the traditional Gomoku game, it began to develop. After the development in Japan, the traditional Gomoku game was introduced to Europe at the beginning of the 20th century. After a long development in Europe, more and more countries around the world began to know and learn the Gomoku game. In the 21st century, many countries have held the Gomoku competitions. Now, the Gomoku game has become an indispensable recreational game in many people's daily life.

Compared with other similar board games, the game rules of the Gomoku game are the simplest and easiest for people to learn. The game rules for the Gomoku game are:

(1) Each player in the game holds a piece of the same color (e.g., One person holds black, and another person holds white).

(2) Start with an empty board.

(3) Black first or white first does not matter, but only one can be next at a time.

(4) The chess piece is placed on an empty spot on the chessboard. After the chess piece is set to a fixed point, it must not move to the point, or it cannot be removed from the chessboard or not placed in any position on the chessboard.

(5) Taking turns is the right of both parties, but either party is allowed to give up the right to lay children (i.e.: PASS right).

(6) The first player who forms a five-point line (horizontal, vertical or diagonal) will win the game.

Generally speaking, the game rules of the Gomoku game is easy to understand. In our project, we have put the rules into project main menu. When user open the project, it is obvious to see the menu. Once the user opens the game rule menu, user can see all the rules

for the game. Also, user can switch back to the game rule menu at any time. When user finish reading the game rules and totally understand it, user is ready to play the Gomoku game.

When we were going to design our project, the first thing we thought is that we want to add more elements about Chinese culture into this project, such as the pictures for the game main menu, sub menus, background music and so on. With that in our mind, we started to discuss how to design the interface for the project. On week 1, we just created the basic interface for the project, which contained the project title, four buttons for satisfy users' necessities. The four buttons are: Play, Rules, Setting and About. Then, we also changed the default interface background to a traditional Gomoku chess board picture, and the chess board is surrounded with red maple leaves, at the same time there are some clouds on it, which makes this app become more artistic and attract people's attention. On week 2, we added more functions for our project. For the main menu, we added the exit function on the right top. For the play menu, we added two functions on the right top, which are back to homepage function and start new game function. For the other menus such as Rules, Setting and About menus, we added five functions for each of them. The five functions are same, which are back to homepage function, play game function, game rules function, setting function and about information. Obviously, these functions are very necessary and convenient so that user can easily switch each menu no matter which menu the user are, and user does not need to exit the current menu and then open another menu. It saves user's time.

For each menu, we designed and worked really for a long time. For the rules menu, as described above, we simply added the game rules for the Gomoku game. For the sound menu, we were about to the game background music. Once user click the play music icon, it will play music which can make people relax. For the about menu, we uploaded the basic information for the project, which is the project name and project group member. Under this information, we also added the history of the Gomoku game for user to understand how the Gomoku game comes from and how it develops. It will stimulate more interest for the Gomoku game. Moreover, for each interface of five menus, we changed their background for a traditional Chinese painting. In the picture, there are two people, and both of them wear ancient Chinese traditional costumes, playing the Gomoku game on the ground. In the middle of the picture, there is a dragon which is the symbol of the Chinese nation. It makes our app an old-fashioned feel.

Among each menu, the most difficult part is how to finish the play game function which is the core part for the project. Until week 3, we finally decided what we are going to do for the play menu. As we first see its name, we know that this menu provides the main functions for games. For the play menu, we added the most important part for the game, which is the chess board. The chess board is square and consists of 15 lines in vertical and horizontal

directions so that 15 x 15 formed 225 intersections. On the chess board, user can choose either black or white pieces to play. The user who first forms a five-point line will win the game. Since this is a player battle game, it needs at least two people play this game. Players can decide who goes first by the method what they want to use. Once the first player decides which color (black or white) he will use, the last player has to choose the remaining pawns. Inside the play menu, we also added more functions, which are undo functions, back function and reset function. For undo functions, we separated into two parts, one is called undo white and anther one is called undo black. When user click undo white, the program will clear the previous operation for white pieces. Also, undo black does the same operation for black pieces. For back function, user can go back to the homepage. For reset function, the chess board will reset to empty. In order to improve users' experience of the Gomoku game, we also added two more functions on the right top of the play menu interface. The two functions are: back to homepage and start new game. Actually, these two functions do the same thing with back function and reset function. But they do provide user more choices to select functions based on their habits.

On week 4, what we did is that we uploaded music for setting menu. We search online for the ancient traditional Chinese pure music which can make user relax. When user click the music icon, user can play the Gomoku game with that music. Also, people can switch back to close the background music whenever they want. After finishing the play music function, the last thing to deal is that to fix some bugs. During this period, the difficult things are fixing the play game function and uploading the music. For play game function, when we first drew the chess board in the center of the interface, we just put it directly in the XML file. However, it did not work because it cannot record the position of each chess. Then, we discussed about few days to figure out how to solve the problem. We created a new java file and made the chessboard function for the chess board so that it can display the chess board when the user runs and record each chess position for determining the Gomoku game winner and do other operations for user. Inside the setting function, we had troubles on playing music function. We uploaded the music, but when we ran the program, it was gong to exit accidently. By checking each function, we had no errors. We were struggling with this situation about three more days. Finally, we noticed that there were some logic errors causing this problem. Then, we fixed the play music function, and it runs. The project is done, and all functions work perfectly, and it achieves our expected goal.

By finishing this project, it can not only introduce the traditional Chinese culture to others, but also promote and develop the Gomoku culture so that more people can feel the charm of the Gomoku game and have fun in it. The Gomoku game can improve people's thinking ability and intelligence. It is easy to learn, popular among people, and the level of

international competitions is high. The Gomoku game is not only an important tool for communication between Chinese and Western cultures, but also the crystallization of ancient and modern philosophies. This is the reason why we choose to make the Gomoku game project.