

# User stories

## Mancala menu:

- main menu
  - Play Player vs Player
  - Rematch
  - **Restart - cancelled**
  - Edit player names
  - Show highscores
  - Quit Mancala
- help menu
  - Show manual

## When game ends:

- Display a popup with results
- update the highscore

## Play Player vs Player:

- A new game is setup, the board is set in the default state: 6 houses for both players and 4 seeds in each house, stores are empty. By default it is the Player1 turn.

## Rematch:

- Game is set into the default starting state, the player who made the first move in the cancelled game will not make the first move in the rematch game.

## **Restart: cancelled, not implemented -> same as Play Player vs Player**

- Game is set into the default starting state, the player who made the first move in the cancelled game will make the first move in the rematch game.

## **Enter player names: Actually, we implemented this as 2 popup windows, which ask for player names.**

- Displays a popup window with two forms for player names. The label of the 1st form is Name of player1 and the label of the 2nd form is Name of player2. By default the forms are filled with: Name of player1: Player1 and Name of player2: Player2. The popup window has an Ok button and a Cancel button.

## **Show highscore: The implementation does not have the close and reset buttons.**

- Displays the top10 highscores in a popup window and two abuttons "Close"and"Reset"

## **Exit: In implementation has Quit Mancala**

- Terminates the program

#### Show manual:

- Displays a popup window with the rules of the game.

User stories for the game Mancala.

[User stories](#)

[Timo](#)

[David](#)

[Lasse](#)

[Krisjan](#)

## Timo

1

Title	<b>Charlie launches the game executable mancala.jar</b>
Pre condition	Charlie has no instances of our Mancala program running on his computer
Action	Charlie opens the terminal on computer and types <b>java -jar mancala.jar</b> in a directory containing our game executable. The Java VM loads the program into memory and starts running the code. The code initializes all necessary components and loads all needed data and displays a window.
Post condition	Charlie has an instance of our Mancala program running. The window shows an empty board with two stores and 2x6 houses. No game is yet in process.

2

Title	<b>Alice starts a “Player vs Player” game</b>
Pre condition	Alice has a running instance of mancala on her computer. She has not yet started the game. She just launched the application. The window shows an empty board with two stores and 2x6 houses.
Action	Alice navigates to the top left corner of the window and clicks on the “Mancala” menu. The main menu is displayed. She chooses to play <b>“Player vs Player”</b> and clicks the menu item “Play player vs player”. The menu disappears and the game window is displayed with 4 seeds in each of the houses.
Post condition	The board is filled, each of the 12 houses contain 4 seeds and both stores contain 0 seeds. Alice can start to play by clicking on one of her houses. It

	is Alice's turn. Alice did not change the default player names, thus Alice's player is named Player1 and the other player Player2.
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3

Title	<b>Bob presses "X" button on the window during the game</b>
Pre condition	It is Bobs turn. Bob has 0,5,2,0,0,0 seeds in his houses (from left to right).
Action	Bob presses [X] button of the window.
Post condition	The game is ended and the Mancala application terminates.

4

Title	<b>Charlie starts a "rematch" game in "Player vs Player mode"</b>
Pre condition	Charlie and Alice have finished playing one round on the standard board. They had entered player names. Charlie started and won the last game. A popup window is displayed that shows the results of the last game.
Action	Alice looks at the game report and wants to play a rematch. She clicks "Rematch" button. The popup window disappears and the board is reset to the default setting. Every house contains 4 seeds, stores are empty and it is Alice's turn.
Post condition	A new game between Alice and Charlie is started. The board is in the default starting state with 4 seeds in each house. It is Alice's turn as last time it was Charlie's turn.

5

Title	<b>Charlie makes the first move of the game</b>
Pre condition	Charlie has a running instance of mancala on her computer. Charlie has entered player names Player1: "Charlie" and Player2: "Bob". Charlie has started the player vs player and the board is in the default beginning state. It is Charlie's turn.
Action	Charlie clicks on the 1st house from the left and the seeds are moved from that house to the next houses.
Post condition	The board is not in its default beginning state. Charlie's first house from the left is empty and houses:2,3,4,5 contain 5 seeds, while house 6 contains 4 seeds. No seeds are in stores. It is Bob's turn.

6

Title	<b>Charlie enters the names of the players</b>
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Pre condition	Charlie's computer runs an instance of mancala. The game has not started. Names of the players are not entered. The default names are Player1 and Player2.
Action	Charlie clicks on the mancala window to initialize the game. He sees the empty board, as noone has yet played the game. He navigates to the main menu in the top left corner of the screen and clicks on it. The main menu appears and Charlie clicks on the menu item "Enter player names". A popup window appears with 2 forms for player names. The text above the first form says "Name of player1" and the text above the 2nd form says "Name of player2." By default the forms are filled with Player1 and Player2. Charlie enters Charlie into the first form and Bob into the second form and clicks "OK". The popup window closes.
Post condition	The name of Player1 is Charlie and the name of Player2 is Bob.

7

Title	<b>Bob displays manual from help menu</b>
Pre condition	Bob's computer runs an instance of mancala. The game is in a default setup and it is Bob's turn. The manual is not displayed.
Action	Bob navigates to the help menu item from the top of the screen and clicks on it. The menu is displayed and Bob clicks on "Show manual". A new popup window named "Manual" is displayed to Bob.
Post condition	The manual is displayed to Bob. It is not possible to move the seeds.

## David

8

Title	<b>Bob closes the manual and exits the help window</b>
Pre condition	The manual is displayed to Bob in a popup window. The game is in a default setup and it is Bob's turn. It is not possible to move the seeds.
Action	Bob reads the manual and decides to close it. He navigates to the "X" button in the top right corner of the popup window and clicks on it. The manual closes.
Post condition	The popup window with the manual is closed. It is possible to move the seeds and make the first move of the game.

9

Title	<b>Alice restarts a game</b>
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Pre condition	Alice is running an instance of mancala and is playing a game with Bob and has entered player names. Bob started the game. Alice has captured 15 seeds while Bob has captured 25 seeds. Bob has 5 seeds left in the rightmost house. Alice has 8 seeds left, 2 in each 4houses from the left side and the 2 rightmost houses are empty. It is Alice's turn.
Action	Alice navigates to the main menu. She clicks on the main menu item and the menu is displayed. She finds the menu item "restart game" and clicks on it. The menu dissapears and the game board is back in the default starting state and it is still Bob's turn.
Post condition	The game is reset and the board is in the default starting state. It is still Bob's turn make the first move.

10

Title	<b>Bob sows seeds and places one into his store</b>
Pre condition	Bob is playing mancala with Alice and has entered player names. Alice has 10 seeds in her store and Bob has 12 seeds in his store. From player's view and from left to right the houses are filled: Alice: 5 2 3 3 2 1 Bob: 1 1 1 3 0 4. It is Bob's turn.
Action	Bob clicks on his last house, which contains 4 seeds. 1st seed is put into his store, other three equally into 3 of Alice's houses that are next to Bob's store.
Post condition	It is Alice's turn. Bob has 13 seeds in his store, Alice has 10 seeds in her store. Alice's houses: 6 3 4 3 2 1 Bob's houses: 1 1 1 3 0 0.

11

Title	<b>Application shows Bob's and Alice's scores after their game has ended</b>
Pre condition	The game between Alice and Bob has ended with Alice winning by score 25 to 15.
Action	The application shows the end score on the display and on a popup window.
Post condition	25 to 15 score is displayed to Alice and Bob on a popup window.

12

Title	<b>Application updates the TOP10 list</b>
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Pre condition	Game between Bob and Alice has ended and the scores of Alice and Bob are computed. Bobs score is 36 and Alice had 12. Bob won the game.
Action	Application pops the list of TOP10 scores from the memory and adds Bob's name and score to the end of the list. Then it sorts the list according to score in decreasing order. Last element has the score 34 and it is removed. The application pushes the list back.
Post condition	A new TOP10 list the has Bobs score of 36 is compiled and saved to the memory.

13

Title	<b>Alice chooses a house to play</b>
Pre condition	Alice is playing mancala with Bob and has entered the player names. Alice has 0,5,3,1,0,2 seeds in her houses (from left to right). Bob has 1 1 1 2 3 4 seeds in his houses (from left to right). Alice has 8 seeds in her store and Bob has 7 seeds in his store. It is Alice's turn.
Action	Alice plays the 4th house (from left).
Post condition	Alice has 0,5,0,2,1,3 seeds in her houses (from left to right). Bob has 1 1 1 2 3 4 seeds in his houses (from left to right). Alice has 8 seeds in her store and Bob has 7 seeds in his store. It is Bob's turn.

14

Title	<b>Alice sows seeds but does not place one into opponents store</b>
Pre condition	Alice is playing mancala with Charlie and has entered the player names. Alice has 1 1 0 0 2 9 seeds in her houses (from left to right). Charlie has 2 2 1 6 4 2 seeds in his houses (from left to right). Alice has 10 seeds in her store and Charlie has 8 seeds in his store. It is Alice's turn.
Action	Alice chooses to sow seeds from his last house with 9 seeds. She clicks on that house and 1 seed is placed into her store, 6 are equally placed into Charlie's houses. Charlie's store is skipped and 2 seeds are placed equally into 2 of Alice's leftmost houses.
Post condition	It is Charlie's turn. Alice has 11 seeds in her store, while Charlie has 8 seed in his store. Alice's houses: 2 2 0 0 2 0 Charlie's houses: 3 3 2 7 5 3.

**Lasse**

15

Title	<b>Charlie captures Bobs seeds</b>
Pre condition	Charlie is playing against Bob and has entered the player names. It's Charlies turn. Charlie has (from left to right) 0,1,0,4,2,4 seeds in houses. Bob has (from Bobs left to right) 0,0,3,6,2,1 seeds in his houses. Charlie has 13 seeds in his mancala and Bob has 12.
Action	Charlie moves the 1 seed from the second house from left to the third house from left.
Post condition	Charlie captures Bobs seeds from bobs 4th house from Bobs left. Charlie gets 6 + 1 seeds to his mancala. It is Bobs turn. Charlie has 20 seeds in his mancala and Bob has 12. Charlie has (from left to right) 0,0,0,4,2,4 seeds in houses. Bob has (from Bobs left to right) 0,0,3,0,2,1 seeds in his houses.

16

Title	<b>Alice tries to play Bobs house</b>
Pre condition	Alice and Bob play mancala and player names have been entered. It is Alice's turn. Bob has (from Bobs left to right) 0,0,3,6,2,1 seeds in his houses. Alice has (from left to right) 2 3 4 2 3 seeds in her houses.
Action	Alice tries to play Bobs 4th house (from Bobs left).
Post condition	It is Alices turn. Bob has (from Bobs left to right) 0,0,3,6,2,1 seeds in his houses. Alice has (from left to right) 2 3 4 2 3 seeds in her houses.

17

Title	<b>Bob gets a free second move</b>
Pre condition	Bob is playing mancala with Charlie and player names have been entered. It is Bobs turn. Bob has (from Bobs left to right) 0,0,3,6,2,1 seeds in his houses and 14 seeds in his store. Charlie has 2 2 3 1 3 1 seeds from left in his houses and 10 in his store.
Action	Bob moves the seed from his last house to the store.
Post condition	Bob gets a second move. It is Bobs turn. Bob has (from Bobs left to right) 0,0,3,6,2,0 seeds in his houses and 15 seeds in his store. Charlie has 2 2 3 1 3 1 seeds from left in his houses and 10 in his store.

18

Title	<b>Bob sows seeds in order to get a free move by the next turn</b>
Pre condition	Bob is playing mancala with Charlie and player names have been entered. It is Bobs turn. Bob has 0,0,6,2,1,0 seeds in his houses (from left to right). Charlie has 1 2 3 4 5 0 seeds from left to right and 14 seeds in his store, while Bob has 10 in his.
Action	Bob moves the seed from his second last house to the last house.
Post condition	It is Charlie's turn. Bob has 0,0,6,2,0,1 seeds in his houses (from left to right). Charlie has 1 2 3 4 5 0 seeds from left to right and 14 seeds in his store, while Bob has 10 in his. Bob can get a free move after Charlie's turn.

19

Title	<b>Declaring Bob as the winner</b>
Pre condition	Charlie is playing mancala with Bob and player names have been entered. Charlie has 15 seeds in his store and Bob has 25. The last move has just been played. The game ended.
Action	Charlies store count is compared to Bobs store count.
Post condition	Since 15 is smaller than 25 Bob is declared as the winner.

20 - Actually a use case.

Title	<b>Compare Bobs and Alices store seed count</b>
Pre condition	Bob has 20 seeds and Alice has 28.
Action	20 is compared against 28
Post condition	20 is smaller than 28. Bob has less seeds than Alice.

21

Title	<b>The game ends in a draw, with 24 seeds in both stores</b>
Pre condition	Bob is playing mancala with Alice and the player names have been entered. Bob has 22 seeds in his store and Alice has 24 seeds in her store. Alice's houses from the left: 0 0 0 1 0 0. Bob's houses from the left: 0 0 1 0 0 0. It is Bob's turn.
Action	Bob clicks on his house with the only seed and the seed is placed into the next house. This causes Alice's seed to be captured and both Bob's and Alice's seed are moved into Bob's store. The game ends.



Post condition	There are no seeds in the houses. The game ended with Bob having 24 seeds in his store and Alice with 24 in her store. Result is declared to be a draw.
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## Krisjan

22

Title	<b>Alice chooses "Show highscores" menuitem from the main menu.</b>
Pre condition	Alice has opened mancala.jar
Action	Alice looks at the game window and tries to find information about highscores. She browses the menu and chooses main menu by clicking on the main menu that is located on the top left corner of the screen. The main menu is displayed after she clicks on main menu. She sees the menu item show highscores in the main menu and clicks on that item. A new popup window is displayed, which is called Highscores. The window shows current highscores of Mancala.
Post condition	Alice has opened the show highscores menuitem and is viewing the highscores from a popup window called Highscores.

23

Title	<b>Bob presses "Exit" option from the main menu.</b>
Pre condition	Bob opened the wrong version of mancala.jar and his computer is running the old version of mancala.
Action	Bob wants to exit the wrong version and goes to the main menu item. He clicks on main menu item and the main menu is displayed. Then he sees the menu item Exit at the bottom of the main menu and clicks on it. The game window closes.
Post condition	Bob does not see a game window and his computer is not running mancala anymore.

24

Title	<b>Charlie stops Bob from capturing his seeds</b>
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Pre condition	Charlie is playing mancala with Bob and the player names have been entered. It is Charlie's turn. Charlie's houses from the left: 2 2 0 5 3 4. Bob's houses from the left: 2 3 0 6 3 1. Bob has 9 seeds in his store and Charlie has 8 in his.
Action	Charlie moves his rightmost seeds by clicking on the rightmost house. One seed is placed into his store and 3 others are divided equally into Bob's leftmost houses.
Post condition	It is Bob's turn. Bob has 9 seeds in his store and Charlie has 9 in his. Charlie's houses from the left: 2 2 0 5 3 0. Bob's houses from the left: 3 4 1 6 3 1. Bob is not able to capture Charlie's seeds with this turn.

25

Title	<b>Alice moves her last seed to her store.</b>
Pre condition	Alice and Bob are playing mancala and the player names have been entered. Bob has one seed in all of his six houses Alice has only one seed left in the house that is next to her store. Alice has more seeds in her store than Bob. It is Alice's turn to move.
Action	Alice clicks on her rightmost house, which contains one seed. The seed is moved to her store. The game ends and a popup window appears that contains the text: "Game is over" and information about the game result.
Post condition	Alice does not have any seeds in her store. Bob has six seeds in his houses, one for each house. The game has ended. Bob will not be able to move his seeds.

26

Title	<b>Alice stops Bob from getting a free move</b>
Pre condition	Alice is playing mancala with Bob and the player names have been entered. It is Alice's turn. Alice's houses from the left: 2 2 0 5 3 7. Bob's houses from the left: 2 3 0 6 3 1. Bob has 8 seeds in his store and Alice has 6 in hers.
Action	Alice clicks on her rightmost house. One seed is placed into her store and other 6 are divided equally between Bob's houses.
Post condition	It is Bob's turn. Alice's houses from the left: 2 2 0 5 3 0. Bob's houses from the left: 3 4 1 7 4 2. Bob has 8 seeds in his store and Alice has 7 in hers. Bob cannot make a move that gives him a free move.

27

Title	<b>Bob sows seeds in order to stop Alice from ending the game.</b>
Pre condition	Bob and Alice are playing mancala and the player names have been entered. Alice has 1 seed left in her rightmost house. Bob has 4 seeds left, from left to right 0 0 0 1 1 2. Alice has 22 seeds in her store and Bob 21 seeds in his. It is Bob's turn.
Action	Bob clicks on his rightmost house and one seed is placed in his store and one is placed into Alice's leftmost house.
Post condition	Bob has 4 seeds left, from left to right 0 0 0 1 1 0. Alice has 22 seeds in her store and Bob 22 seeds in his. It is Bob's turn.

28

Title	<b>Bob sows seeds so that Alice has to end the game with the next move</b>
Pre condition	Bob and Alice are playing mancala and the player names have been entered. Alice has 1 seed left in her rightmost house. Bob has 11 seeds left, from left to right 1 3 0 5 0 2. Alice has 17seeds in her store and Bob 19 seeds in his. It is Bob's turn.
Action	Bob clicks on his leftmost house and the seed will be placed into the next house.
Post condition	It is Alice's turn. Alice has 1 seed left in her rightmost house. Bob has 11 seeds left, from left to right 1 3 0 5 0 2. Alice has 17seeds in her store and Bob 19 seeds in his.

29

Title	<b>Bob resets the highscore list</b>
Pre condition	Bob has a runnig instance of mancala on his computer. The highscore list contains a top10 best highscores.
Action	Bob navigates to the top left corner in the mancala game window and clicks on the main menu item. The main menu is displayed to Bob and he moves his mouse to "Show highscores" menu item and clicks it. A popup window appears with top 10 highscores and with 2 buttons "Reset", "Close" below the top10 list. Bob clicks on "Reset" and the top10 list is emptied.

Post condition	Bob has a running instance of mancala on his computer. The highscore list is empty and does not contain results. The highscore popup window is displayed.
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30

Title	<b>Bob creates a trap in order to capture Alice's seeds next turn</b>
Pre condition	Bob is playing mancala with Alice and the player names have been entered. It is Bob's turn. Bob's houses from the left: 1 1 3 1 0 4. Alice's houses from the left: 1 4 2 1 4 3. Bob has 15 seeds in his store and Alice has 8 seeds in her store.
Action	Bob clicks on his 2nd house from the left and the only seed is placed into the third house.
Post condition	It is Alice's turn. Bob's houses from the left: 1 0 4 1 0 4. Alice's houses from the left: 1 4 2 1 4 3. Bob has 15 seeds in his store and Alice has 8 seeds in her store. Alice cannot stop Bob from capturing her seeds with Bob's next move.

31

Title	Alice runs from Charlie's attempt to capture her seeds.
Pre condition	Charlie is playing mancala with Alice and the player names have been entered. It is Alice's turn. Charlie's houses from the left: 2 2 0 5 3 4. Alice's houses from the left: 2 3 0 2 3 1. Alice has 11 seeds in his store and Charlie has 10 in his.
Action	Alice clicks on her 4th house from the left and one seed is placed in the 5th house and one into the 6th house.
Post condition	It is Charlie's turn. Charlie's houses from the left: 2 2 0 5 3 4. Alice's houses from the left: 2 3 0 0 4 2. Bob has 11 seeds in his store and Charlie has 10 in his. Charlie cannot capture Alice's seeds with the next move.

32

Title	Checkend method returns true after Bob's move.
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Pre condition	Bob and Charlie are playing mancala and have a running instance on Bob's pc. They have entered player names and Bob started the game. Bob has 4 seeds left in his rightmost house and 20 seeds in his store, his other houses are empty. Charlie has 1 1 4 3 0 0 seeds in his houses (from left side to right) and 15 seeds in his store. It is Bob's turn.
Action	Bob clicks on his rightmost house and the house is emptied. After the move checkend method returns true inside the application, which stops the game and disables Charlie's houses.
Post condition	Checkend method returned true and game ended, with Bob winning 21:15. Bob's houses are empty and he has 21 seeds in his store. Charlie has 2 2 5 4 0 0 seeds in his houses and 15 sees in his store.

33

Title	Bob sows a full cycle
Pre condition	Bob is playing mancala with Charlie and has a running instance on manacala on his pc. They have entered player names and are playing. It is Bob's turn. Bob has 0 0 0 1 0 15 seeds in his house (from the left) and 8 seeds in his store. Charlie has 0 0 0 0 2 1 seeds in his houses (from his left) and 21 seeds in his store.
Action	Bob clicks on his last house and the seeds are sowed and a full cycle of seeds is placed into the houses.
Post condition	It is Charlie's turn. Bob has 1 1 1 2 1 1 seeds in his houses and 10 seeds in his store. Chalie has 2 1 1 1 3 2 seeds in his houses and 21 seeds in his store.

34

Title	Bob's and Charlie's result is added to the TopTen highscore list.
Pre condition	Bob and Charlie have a running instance of mancala on Bob's computer. They have entered the player names. It is Bob's turn. Bob has in his houses from left to right 0 0 0 0 0 4 and 20 seeds in his store. Charlie has in his houses 1 1 4 3 0 0 and 15 in his store. The TopTen list is empty.
Action	Bob plays his last house and one seed is placed into his store and 3 are placed equally into Charlie's houses (from left). The game ends and Bob's and Charlie's results are compared to the TopTen list and the TopTen highscore list is updated and both results are added to the TopTen list.

Post condition	The game has ended. Bob won with the score 21:15. The TopTen list contains Bob and his score in the first place and Charlie with his score in the second place.
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35

Title	GetOpponent()
Pre condition	Mancala is running between Bob and Charlie. The capture function is fired and inside this the getOpponent() function is fired on player1.
Action	The getOpponent() is fired on player1 - Bob and the player2 - Charlie is returned.
Post condition	player1.getOpponent() returns player2 (Charlie).