TI2206 Software Engineering: Bubble Shooter
EWI/EEMCS

Gerlof Fokkema 4257286
Owen Huang 4317459
Adam Iqbal 4293568
Nando Kartoredjo 4271378
Skip Lentz 4334051

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Functional

Must-have features

- When the user starts the application, a main menu with three buttons will be presented. Inside the user is able to do the following actions:
  - When the user clicks on the *play* button, then a new single player game is started.
  - When the user clicks on the *multiplay* button, then a new multi player game is started.
  - When the user clicks the *settings* button, then the user will change screens to the options menu.
  - When the user clicks the *quit* button, then the application will terminate. This results in closing the application.
- The following generic game rules will apply, independent of single- or multiplayer mode:
  - When the user enters the playfield, the user will be presented a field filled with bubbles.
  - When the user has fired a projectile and it hits another bubble, the projectile will stick to that bubble.
  - When the user shoots a projectile and it hits the ceiling, the projectile will stick to the ceiling.
  - When a group of at least 3 adjacent bubbles with the same color has been formed by shooting a projectile, this group of bubbles will disappear and the user's score will increase with:
    *2 * bubbles - 3* points.
  - Given that the user has fired, when the user is able to fire again a bubble of random color (out of a selection of five) will spawned as the new projectile.
  - Given that a bubble was hit and removed, if the adjacent bubbles do not connect to either the ceiling or other bubbles (that ultimately connect to the ceiling), then the bubble is removed, and the user's score will increase.
  - When a bubble reaches the floor (bottom of the screen), the player loses and the game ends.

- Given the user has started a new game, by clicking on the *play* button in the main menu, the user can do the following actions inside the single player game:
  - When the user presses the *left arrow key*, the cannon will rotate to the left.
  - When the user presses the *right arrow key*, the cannon will rotate to the right.
  - When the user presses the *spacebar* button on the keyboard, the user will shoot a projectile in the direction the cannon is facing.
- Given the user has started a new multi player game, by clicking on the *multiplay* button in the main menu, the user will be presented with a multi player game:
  - After starting a multiplayer game from the menu, the player can choose to host a server or to join a server.
    - When the user chooses to host a server, the game will wait until another player connects.
    - When the user chooses to join a server, the user will be presented with a dialog, where he can enter an IP address and join an existing game.
  - Up to two players have to be able to play together.
  - A screen with two Boards is presented, thus each player has a separate board.
  - Players can shoot Bubbles to the Board of their opponent through the wall separating the boards.
  - The game mode will be *sudden death*.
    - The player with the highest score after the time limit wins.
    - If a players bubbles reach the bottom of the board within the time limit then the player immediately loses.
- The game should be logged into a file, given a game has started, including the following elements:
  - When the user has pressed the *left* or *right arrow key* causing the cannon to rotate to the left or right, the new angle after rotation will be logged.
  - When there is a projectile in the field, shot by the user by pressing the *spacebar*, the positions of the projectile will be logged during its travel.
  - When a projectile collides with a bubble on the board, the index of the grid (having a position), to which it will stick to is logged.

- Unexpected exceptions should all be logged into a file, given that the application has started.

Should-have features

- Given the user has started a single player game, the user can exit the game (go back to main menu) by pressing the *ESC* key on the keyboard.
- Given the player has started a single player game, when all bubbles are removed the player wins!

Could-have features

- Given the user has started the application and is in the menu, clicking on a button will play a sound effect.
- Given the user has started the application, background music will be played right away.
- The user should be able to select the background music and background wallpapers.
- Given the user clicks on the settings button, the user will be presented the options menu, where the user can do the following actions:
  - When the user clicks the + button below the *Change Volume*, the background music volume will rise.
  - When the user clicks the - button below the *Change Volume*, the background music volume will go down.
  - When the user clicks the + button below the *Change SFX*, the sound effects volume will rise.
  - When the user clicks the - button below the *Change SFX*, the sound effects volume will go down.
  - When the user presses the *ESC* key, the user will return to the main menu screen.
- Given the user has started a single player game, when the user presses the *ESC* key, the game will pause.

Won't-have features

- Given a user has started a game, the user can gather and fire power ups.

Non-functional

- A simple version should be finished within one week (13/09/14).
- The development team consists of five group members.
- The game must be written in Java using the following supporting tools:
  - maven
  - jUnit
  - git
- The development process (including the sprints) will be using SCRUM, with the help of the following web based tool:
  - ScrumDo
- Meetings
  - Friday 20:00 - 05/09/2014 (Daily sprint)
  - Monday 20:00 - 08/09/2014 (Daily sprint)
  - Tuesday 9:45 - 09/09/2014 (Sprint planning)
  - Wednesday 20:00 - 10/09/2014 (Daily sprint)
  - Friday 20:00 - 12/09/2014 (Sprint review)
  - Tuesday 9:45 - 16/09/2014 (Sprint retrospective + Sprint planning)
  - Wednesday 20:00 - 17/09/2014 (Daily sprint)
  - Friday 20:00 - 18/09/2014 (Daily sprint)
  - Saturday 20:00 - 20/09/2014 (Daily sprint)
  - Tuesday 9:45 - 23/09/2014 (Sprint retrospective + Sprint planning)
  - Wednesday 20:00 - 24/09/2014 (Daily sprint)
  - Friday 20:00 - 26/09/2014 (Daily sprint)
  - Saturday 18:00 - 27/09/2014 (Daily sprint)
- The game must support the following OS:
  - Microsoft Windows
  - Linux
  - OS X