Requirements specification document

Bubble shooter

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# Functional Requirements

In this section the requirements regarding functionality and service are listed. The requirements are described using the MoSCoW model, grouped in four categories: functionalities that the system must have, should have, could have and will not have.

## Must haves

* The game starts with an empty board with a start button
* If the start button is pressed, the game shall start with a hexagon consisting of 91 balls
* Around the hexagon there will be 4 walls at a distance equivalent to the width of 19 balls put next to each other
* The balls have one of the 6 different colors: blue, green, orange, purple, red, yellow
* The player will have a ball at the top of the screen which he can shoot in a certain direction
* The player will shoot by pressing the left mouse button, the ball going towards the position the cursor had at that time
* The ball the player shot can bounce off the walls
* The ball the player shoots will be a one of the 6 colors, randomly chosen
* If at least two adjacent balls with the same color as the ball the player shot, the balls will disappear (including the shot ball) and the player receives a point for every disappeared ball
* In the hexagon are also special balls that have a slightly different behavior: they double the score the player gets in that round if they are removed
* The special balls are removed
* If the player doesn’t score, the ball will attach to where it hit
* The ball in the middle has none of the 6 colors and can not disappear
* The whole hexagon of balls will rotate around the middle ball every time the shot ball hits the hexagon
* The player shall be able to change the dimension of the board and the number of balls the initial hexagon consists of.

## Should have

* The hexagon will rotate depending on the distance traveled by the ball fired by the player
* If the player doesn’t score a point after 5 shots a random number of additional balls will be added to the hexagon
* The number of additional balls that will be added shall variate between 5 and 15.
* A ball that has hit the wall more than 4 times shall disappear, the shot counting as a miss
* If any ball of of the hexagon touches the wall the game is lost and a window will pop up with the score that the player has achieved. The window will also include a restart button and a home button.

## Could have

* The player shall be able to pause the game by pressing the Escape button. A window will pop up containing a restart button and a home button.
* The game shall play music in the background
* A sound will be played when the player scores a point
* The player shall be able to turn the background music off
* The game shall reward the player bonus points when a certain amount of points have been made in one shot
* The game will show a pointer arrow at the direction the player wants to shoot the ball

## Would/Won’t haves

* The player is able to change the board background
* The game shall have the option to share the score on social networks
* The player is able to change the ball speed
* The player is able to disable wall bounces

# Non-functional Requirements

In this section design constraints are described. These constraints have no effect regarding what the system does, but on the development process of the system.

* The game shall be playable on Windows (7 or higher)
* The game shall be implemented in Java
* For the iterations after the delivery of the first fully working version, the Scrum methodology shall be applied
* For the implementation of the game the following software and frameworks will be used: git, Maven, PMD, GitHub, FindBugs, Travis CI, JUnit
* The implementation of the game shall have at least 75% of the lines covered by automated tests