

Space Invaders : Requirements

Group 22

TI2206 Software Engineering Methods

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1 Functional Requirements

Intro about MosCow method.

1.1 Must Haves

The Space Invader game must meet the following requirements:

- The game shall start when the player presses any key on the keyboard.
- The game shall load a grid of 10 x 4 enemies in the form of aliens before a new game starts.
- The game shall load a player in the form of a spaceship on the bottom of the screen before a new game starts.
- The player shall have three lives after a new game has started.
- The player loses one life when it is hit by an enemy bullet.
- The enemies shall move from left to right in between the borders of the game screen.
- The enemies shall move a pixel downwards upon hitting a border of the game screen.
- The game shall end if the player's lives are depleted.
- The game shall end if the enemies reach the same height as the player.
- The player shall be able to move his/her character on a horizontal axis using the left and right arrow keys on the keyboard.
- The player shall be able to shoot bullets on a vertical axis towards the top of the screen using the spacebar.
- The enemies shall shoot bullets on a vertical axis towards the bottom of the screen.
- An enemy shall disappear if it is hit by a bullet shot by the player.
- A player shall obtain ten points upon hitting an enemy with a bullet.
- The game shall load with an initial score of zero points.
- The game shall show the total amount of points obtained on the top of the screen.
- The game shall show the amount of lives on the top of the screen.
- The game shall notify the player on the screen after the game ends.

1.2 Should Haves

The Space Invader game should meet the following requirements:

- The player shall be able to restart the game after the game ends.
- The game shall be able to display a start screen before the game starts.
- The game shall be able to display the overall highscore on the screen.
- The enemies shall move 5% faster upon hitting the border of the game screen.
- The game shall load 4 barricades between the enemy and the player before a new game starts.
- The barricades shall become damaged after being hit by an enemy bullet.
- The bullet shall disappear after hitting a barricade.
- The player shall be able to pause the game.

1.3 Could Haves

The Space Invader game could meet the following requirements:

- The game shall have different levels which can be played by the player.
- The player shall be able to collect power-ups by shooting a red enemy.
- The game shall have a power-mup which increases shooting speed for five seconds.
- The game shall have a power-up which increases movement speed for five seconds.
- The game shall play a music track while the game is in progress.
- The game shall have sounds effects if a bullet is fired and if a bullet hits an enemy.
- The game shall display an explosion effect after an enemy or player is hit by a bullet.
- The player shall have momentum while moving.

1.4 Would/Won't Haves

The Space Invader game could meet the following requirements:

- The player shall be able to upgrade its spaceship after a wave of enemies.
- The player shall be able to interact with the game using the mouse.

2 Non-Functional Requirements

Intro about non-functional requirements.

- The program shall be executable on Windows (7 and higher), Mac OS X (10.8 and higher), and Linux.
- The game shall be implemented using the Java programming language.
- The game shall be implemented using Java version 8.
- The code will be analyzed using Checkstyle before each push to GitHub.
- A first fully working version of the game shall be delivered at September 11, 2015