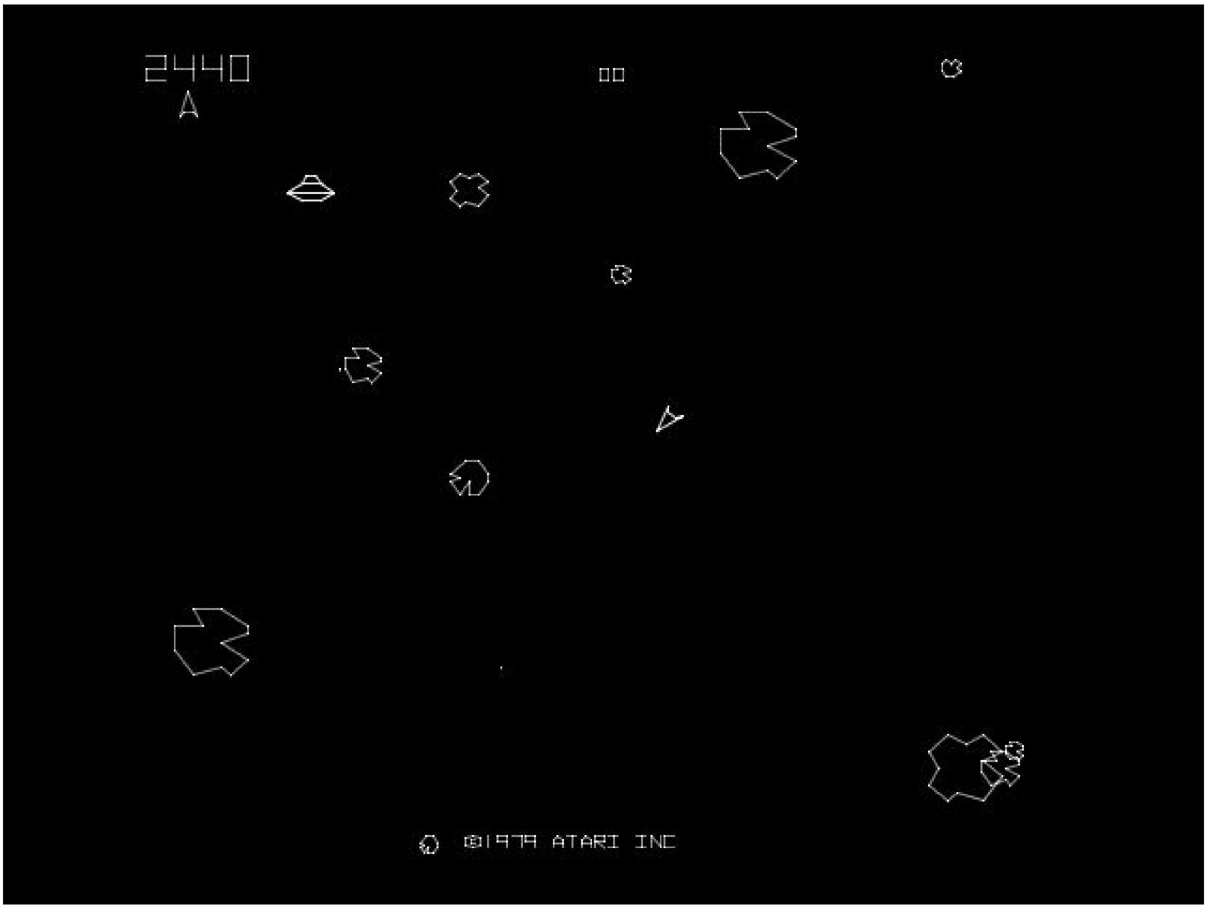
Requirements Asteroids



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1 Functional Requirements

For the game Asteroids, the requirements regarding functionality and service are grouped under the Functional Requirements. Within these functional requirements, four categories can be identified using the MoSCoW model for prioritizing requirements:

1.1 Must Haves

- The game shall show a black screen before a new game starts
- The game shall consist of a black square (background/game map)
- The game shall have a triangle (plane) that the player controls
- The game shall display round objects representing asteroids
- The game shall display a score, which shall be higher the more asteroids the player destroys
- The player shall die when hit by an asteroid
- The game shall end when the player dies
- The game shall allow the plane to move and rotate, when the correct input is provided by the player
- The game shall randomly spawn asteroids
- The game shall allow asteroids to overlap
- The player shall not be allowed to move outside the game map
- The game shall move the asteroids in a randomly determined direction
- The game shall despawn asteroids when they move outside the black square **(adjusted to moving the asteroids to the other side of the screen, like they are passing through a portal)**
- The player shall be able to shoot bullets with the plane, in the direction the plane is facing. The bullets will move in a straight line.
- The game shall despawn bullets when they move outside the black square
- The game shall destroy/despawn an asteroid when a bullet hits it
- The player shall be able to close the game
- The game shall initiate the player’s score at 0 points

1.2 Should Haves

- The player shall be able to start a new game of Asteroids
- The game shall split an asteroid into smaller asteroids when a bullet hits it. Until the asteroid is at a too small state, then it is despawned.
- The game shall reset the player’s score and other game statistics when a game ends
- The game shall show a start menu before a new game starts
- The game shall not allow the player to hold the shoot button; there shall be an interval between shots

1.3 Could Haves

- The game shall have upgrade possibilities: bullets will shoot faster, will be bigger, have special patterns.
- The game shall have an options menu, where the player can adjust volume and set keybinds.

- The player shall be able to change the key bindings, and the game volume
- The game shall have sound effects for shooting, destroying an astroid, background music, and collisions.
- The game shall have an highscore option displaying the highest scores achieved. The player shall be able to enter a name when a highscore is achieved.
- The game shall increase the speed of the asteroids when the players score increases
- The game shall have different speeds per astroid
- The game shall have multiple levels. The player will go to a new level when a certain score is reached.
- The game shall spawn asteroids on the opposite side of the map when it hits the side of the map
- The player shall be able to pause the game

1.4 Would/Won't Haves

- The game shall have a multiplayer function
- The game shall allow the player to change the background sprite
- The game shall allow the player to customize their plane

2 Non-Functional Requirements

Besides the provided functionality and services, design constraints need to be included in the requirements specification as well. These requirements do not indicate what the system should do, but instead indicate the constraints that apply to the system or the development process of the system.

- GitHub shall be used for version control
- The game is implemented in Java
- A first working version of the game is delivered on 18 september, 2016
- The game is playable on Windows (7 or higher), Mac OS X (10.8 or higher), and Linux
- The team makes use of the scrum methodology: iterative and agile software development