

# Project Requirements

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1. When the game is first launched, it shall display a menu.
  - 1.1. The menu shall allow the player to start the game.
  - 1.2. The menu shall allow the player to quit the game.
  - 1.3. The menu shall allow the player to adjust the volume.
2. When the game is started, the game shall generate and display a 'snake'.
  - 2.1. A snake is a finite sequence of 'orbs' that move along a set track.
    - 2.1.1. Orbs are circles containing a non-prime number.
  - 2.2. A snake's movement speed shall be relative to its distance from the end of the track, fastest at the beginning and slowest at the end.
  - 2.3. The game shall end when any orb reaches the end of the track.
    - 2.3.1. When the game ends, it shall return the player to the menu.
  - 2.4. The game shall generate a new snake under the following circumstances:
    - i. When there are no snakes on screen
    - ii. After a certain amount of time has passed since the last snake was generated
3. The player shall be able to control the 'cannon'.
  - 3.1. When the game is started, the cannon shall generate and display a sequence of three orbs.
    - 3.1.1. When the cannon generates an orb, its number shall be a factor of an orb in a currently-displayed snake, excluding one and the orb's number.
  - 3.2. The cannon shall always rotate to follow the mouse pointer.
  - 3.3. The cannon shall 'fire' when the player presses the left mouse button.
    - 3.3.1. When the cannon fires, it shall launch its frontmost orb in the direction of the mouse pointer.
  - 3.4. After firing an orb, the cannon shall move the remaining two orbs up and generate another orb to fill the third spot.
4. When an orb fired from the cannon collides with a snake, it shall be inserted into the snake at the position of collision.
  - 4.1. When a newly inserted orb is a factor of an adjacent orb, the adjacent orb's value shall be divided by the inserted orb's value, and both orbs shall be set to that new value.
  - 4.2. Any orbs with a value of one shall be removed from the snake and all following orbs shall be moved back to fill the space.
  - 4.3. The results of any collision shall be extended in both directions to any adjacent orbs of the same number.
5. The game shall record the number of balls cleared during the current session as the player's score.
  - 5.1. The current score shall be displayed to the player.

- 5.2. The game shall keep a record of the highest score.
- 6. The player shall be able to pause the game after it has begun.
  - 6.1. The game shall suspend play while it is paused.
  - 6.2. The game shall display a pause menu while it is paused.
    - 6.2.1. The pause menu shall allow the player to restart the game.
    - 6.2.2. The pause menu shall allow the player to quit the game.
    - 6.2.3. The pause menu shall allow the player to adjust the volume.
- 7. The game shall play background music while it is ongoing.
- 8. The game shall play a sound effect under the following circumstances:
  - (a) When an orb is fired
  - (b) When an orb collides with a snake
  - (c) When a sequence of orbs is cleared
  - (d) When the game is over
  - (e) When a button is pressed in the menu