

# Requirements

1. Each level will take the form of an overhead view of a mini-golf course.
  - 1.1 The view of the mini-golf course will be overlaid with a labeled grid representing the first quadrant of the Cartesian plane.
  - 1.2 The course will have a set starting point for the ball.
  - 1.3 The course will feature a hole for the destination of the ball.
  - 1.4 The course will feature obstacles in the form of sand pits between the starting point and the hole.
2. Players will decide the trajectory of a golf ball by entering or augmenting a mathematical expression.
  - 2.1 Once an expression has been entered, an overlay of the projected trajectory of the ball will be shown and will be rendered over the golf course. This overlay will update whenever the expression is altered.
  - 2.2 The ideal trajectories for each level will be designed to reinforce specific concepts from Algebra 1.
3. Once Players have decided a trajectory, they will decide the distance the ball travels along that trajectory using the Power Slider.
  - 3.1 The Power Slider will allow players to set the strength of their shot by adjusting its position. Left for softer hits and right for harder shots.
  - 3.2 Slider will reset after every shot to the left.
4. Upon determining power of the slider and pressing the shoot button, the ball will move along the trajectory to a final position predetermined by the Power Slider.
  - 4.1 If the ball's final position is within a specified distance from the hole, it will enter the hole.
  - 4.2 If the ball enters the hole, a celebratory message will be displayed, and a "Next Level?" button appears to take the player to the next level.
  - 4.3 On the final level, the "Next Level" button will instead return the player to the main menu.
  - 4.4 If the ball misses the hole, the ball will be playable from wherever it lands.

5. The game will have a main menu consisting of 3 options: Start Game, Quit Game, and Play Tutorial.
  - 5.1 If a player is in the level, they may return at any time to this menu screen.
  - 5.2 Start game will bring the player to the first level.
  - 5.3 Quit Game will exit the application.
  - 5.4 Play Tutorial will load a screen that shows how each UI element works.
    - 5.4.1 To exit the Tutorial, either Start Game or Quit game can be selected.
6. Upon beating the final level, a short fanfare will play to congratulate the player.