

Snake.368 Documentation

- All event listener functions:
 - 'keydown': listen for arrow keys to change the direction of the snake
 - 'keyup': listen for space key to pause or resume the game
 - 'click': player click on easy, medium, or hard button to choose the difficulty level of the game.
- function **startGame ()** :
 - Pre: Player has chosen a difficulty level
 - Post: Start playing theme music and call function **main()** to run the game
- function **main()**:
 - Pre: **startGame()** gets called
 - Post: call **window.requestAnimationFrame(main)** to tell browser to call **renderGame()** and **update()** after the time between the last render and the current render passes a threshold time to update animations before next repaint.
- function **gameUpdate()**:
 - Pre: **startGame()** gets called
 - Post: update snake position based on its current direction. Check if the game over. If the game is not over, check if the snake is on an apple, a growing potion, or a speed up potion for updates.
- function **renderGame(gameboard)**:
 - Param: the game board
 - Pre: the time between the current render and the last render passes a threshold time.
 - Post: Repaint the game board based on the function **updateGame()**
- function **isOnSnake(item)**:
 - Param: an item object
 - Pre: **gameUpdate()** gets called
 - Post: Check if the position of the snake is the same as the position of the item by using **some** method
 - Return: true if a square.row == item.row and square.col == item.col (square is a portion of the snake)
- function **increaseSnakeLength()**:
 - Pre: **isOnSnake(apple)** returns true
 - Post: Increase the snake length by 1. This is done by copying the last object of snake array, move the snake by 1 unit, push that last object to the snake array of new position objects.

- function **speedUpSnake()**:
 - Pre: **isOnSnake(speedup)** returns true
 - Post: Increase the speed of the snake for 2 seconds, and increases the scores for any eaten apples in that 2 seconds
- function **growSnake()**:
 - Pre: **isOnSnake(growingPotion)** returns true
 - Post: Increase the length of snake by 5 and doubles the current score
- function **createApple()**:
 - Pre: **isOnSnake(apple)** returns true
 - Post: Create a new apple object in a random position that is not the same as growingPotion, speedUpPotion, or the snake position
- function **createSpeedupPotion()**:
 - Pre: **isOnSnake(speedup)** returns true
 - Post: Create a new speedUpPotion object in a random position that is not the same as growingPotion, apple, or the snake position
- function **createGrowingPotion()**:
 - Pre: **isOnSnake(growingPotion)** returns true
 - Post: Create a new growingPotion object in a random position that is not the same as apple, speedUpPotion, or the snake position
- function **checkGameOver()**:
 - Pre: updateGame() gets called
 - Post: check if the head of the snake is either on its body or is off the board.
 - Return: true if either **isOffBorder()** or **headIsOnBody()** returns true
- function **headIsOnBody()**:
 - Pre: **checkGameOver()** gets called
 - Post: check if the head of the snake is on its body
 - Return: true if snake[0].row and snake[0].col is the same as any objects other than itself of the snake array
- function **isOffBorder()**:
 - Pre: **checkGameOver()** gets called
 - Post: check if the head if the snake is outside the border
 - Return: true if the head of the snake[0].row or snake[0].col is larger than 25 or lower than 1

- function **sound(src, autoReplay):**
 - Param: string src, boolean autoReplay
 - Pre: **startGame()** gets called
 - Post: create themeMusic and soundEffect objects. If it is themeMusic, autoReplay is true, otherwise, autoReplay is false. The objects has methods **play()** and **stop()** methods to play and stop the music