**Assignment #6: Scratch Game**

**Link to game:** [**https://scratch.mit.edu/projects/180011985/#player**](https://scratch.mit.edu/projects/180011985/#player)

Cat and Mouse Game

* What are the rules of the game?
  + Users can move the cat left and right with the arrow keys.
  + Users can press the spacebar to shoot a projectile.
  + Mice fall from the sky at random locations.
  + If a mouse reaches the bottom, the player loses a life.
  + If the player shoots a mouse, the mouse is deleted, and the player gets a point.
  + Once a player reaches 0 lives, they lose.
* How does that translate into code?
  + Need to define the cat, need to have it recognize a press of the left and right arrow keys as well as a release, how fast to move the cat
  + Need to define a projectile, have it recognize a spacebar press and release, and how fast to move the projectile
  + Need to define the mice, figure out random locations, and fall speed
  + Need to define a hit on the mouse with projectile, delete mouse, and increment score by one point
  + Determine a starting amount of lives, decrement lives each time a mouse reaches the bottom, and end the game when lives reaches 0
* Will we need to use loops? If/else statements?
  + Yes and yes.
* What variables will we need?
  + Cat
  + Mouse
  + Lives
  + Score
  + Projectile
  + Random
  + Round
  + Bonuses/Power-ups
  + Game Speed/Difficulty
* Under what circumstances will our variables change?
  + Cat – will change position when left and right keys are pressed
  + Mouse – will change starting position based on random calculation, will change vertical position as it falls, will be removed when hit by a projectile
  + Lives – will decrement each time a mouse reaches the bottom, may increment if a bonus life is captured
  + Score – will increment each time a mouse is hit by a projectile
  + Projectile – create and remove projectile when fired and it makes contact, either with a mouse or the end of the screen, modify projectile if a power-up is collected
  + Random – calculation needs to update starting position of mouse, may also be used to determine fall rate of bonus/power-up items
  + Round – will increment when a certain number of mice are used, or a certain score is achieved
  + Bonuses/Power-ups – will fall at a random rate, possibly limited to a certain number of times per round
  + Game Speed/Difficulty – will increment with each round
* My own touches
  + Cat and mice will be cars
  + Use cat, mouse, and car sound effects
  + My own bonuses/power-ups
  + Create my own music