Project 2: Pong Alternative

Students will implement a well-written and engineered alternative to the Pong Project.

Learning Objectives

Students will be able to ...

- Research, ideate, and apply personal interests to an application that includes:
    - 1 or more moving sprites
    - 2 or more user keyboard controlled sprites
    - The sprites should interact in a way that allows the users to accumulate a score or value.
- Practice good style and conventions to create readable and maintainable code

Overview

Read over Lesson 2.7 and the Pong Project (project_2.md) file. Your challenge is to create a project of your own that contains similar elements.

Details

1. **Possible Ideas**
    - **Jurassic world**
      The Stegosaurus lived in the Upper Jurassic period around 155 to 145 million years ago. It is one of the most easily recognized dinosaurs, with its distinctive double row of kite-shaped plates on its back, and the long spikes on its tail. The armor was necessary as it lived with such meat-eaters as Allosaurus and Ceratosaurus. Learn more about dinosaur's
      here; https://en.wikipedia.org/wiki/Category:Late_Jurassic_dinosaurs_of_North_America

      Imagine that a few Jurassic era dinosaurs are living in Alaska and now being endangered by our changing climate which has caused melting glaciers and sharp icebergs. These beautiful creatures roam around randomly, unaware of

impending threats to their survival. Your goal is to move your truck (user-controlled-sprite1) to catch a dinosaur, so they can be safely transported to another habitat where they are safe to roam and survive. Meanwhile a moving iceberg (user-controlled-sprite2) is endangering the animals. When the dinosaur comes in contact with the iceberg, it is injured, and it's movement is affected...

- **Penny Catcher**
  The Penny, also called a one-cent piece, is a coin worth one one-hundredth of a dollar. Learn more about the Penny here: https://en.wikipedia.org/wiki/Penny_(United_States_coin)

  Imagine that the Penny has been discontinued and after many years, hardly any young person has seen a penny. You go to your grandfather's attic to look for something, and by accident, spill several baskets of coins. Coins are flying around randomly. Your job is to catch the pennies with your basket as fast as possible. Some coins are falling into cracks in the wood. Some coins are not pennies (and you don't care about them). To complicate matters, a window washer pops by and he happens to be a numismatist (pronounced "noo-miz-ma-ticks") someone who collects coins. He is also trying to catch the pennies, thus competing with you...

- **On Your Own**
  Come up with your own creative idea!

2. **Required Checkpoints**

   i. Create 2 or more user controlled sprites; Create 1 or more randomly moving sprite.
   ii. When the random-sprite touches certain wall/object it changes movement and/or direction.
   iii. Final due date: When the user-controlled sprite and random-sprite touch, something happens to the score or counter. When the score or counter reaches are certain value, or condition, the animation or game is over.

Planning Worksheet

Part of the design process is planning. The "Pong Planning Worksheet" is an example of how to plan. Create a similar planning worksheet first before writing any code. Describe your own "game play" or animation rules using 1-2 paragraphs.

Grading Scheme/Rubric

Functional Correctness (Behavior)	
Players can control sprites with required keys	2 points
Random-sprite begins from a fixed location and returns there after certain event(s)	3 points
Random-sprite bounces correctly and moves within the window space	4 points
Random-sprite's movement changes after certain event(s)	3 points
Score is changed when some interaction happens between sprites	3 points
Animation ends when some score is achieved	2 points
Winner or conclusion is announced when animation ends	1 point
Users can begin a new animation	1 point
Total	19 points
Technical Correctness (Implementation)	
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Animation or game logic is smooth, polished, and intuitive	3 points
Program shows good creativity and effort	2 points
Program is well-documented and exhibits good style	2 points
Checkpoint 1	4 points
Checkpoint 2	4 points
Total	15 points
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Grand Total	34 points