CTY APCS1 pd5
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Final Project Proposal

Animal Circus!

Description:

1. You are running a circus
    a. Start with some amount of money
2. Get details about the circus
    a. Number of children/adults attending
    b. Decide on pricing of circus (affects attendance)
3. Decide how to invest your moves and money
    a. Start with some number of actions
        i. Buying an animal is considered an action
        ii. Training an animal is also an action
            1. Different animals have different characteristics/tricks
            2. Different popularity/appeal to children/adults
            3. Different price to feed/maintain
    b. Continue until all actions are used
4. The Circus!
    a. Choose which animals and what tricks they perform
    b. Complete Animal Tetris (a game where you place animal into the given 2D Array board) - maximize the number of animals on the board
    c. Print out the tricks of only the animals that were placed on the board
5. Results!
    a. Print out messages about how the audience liked the performance
    b. Print out the amount of money made
    c. Print out the amount of fame points made
6. Continue?
    a. Do you want to do the circus again?
        i. If yes, let's train! (Go to Step 2)
        ii. If no, game ends (Go to Step 7)

7. End
    a. Print out score, money, fame, etc.

Topics and Concepts

1. Inheritance
    a. Abstract class for the animals
    b. Subclasses for each type of animals (e.g. dogs, cats) – all have their own attributes (tricks, price, appeal, etc.)
    c. Further subclasses for specific breeds of that animal
2. Polymorphism
    a. Animal subclasses can implement interfaces such as LargeAnimal or EndangeredSpecie that give them different traits
3. Encapsulation
    a. Animal abstract classes setters and getters
4. Loops
    a. Loop to count number of moves used
5. 2D Array
    a. Shows the board
    b. Updates when a new animal is added or moved
6. Keyboard
    a. Take in user's inputs for choices

Training Example

Class Player has an attribute of type array that keeps track of owned animals

[Dog1, Cat1]

If an animal is bought, array is updated

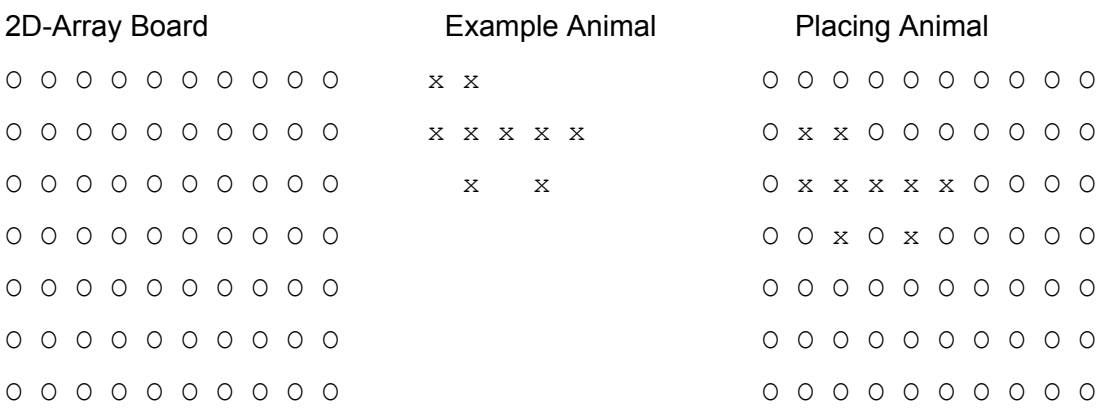
[Dog1, Cat1, RedPanda1]

If Player chooses to train an animal, options are given:

You have 5 actions left, which animal would you like to train?

1. Dog1
2. Cat1
3. RedPanda1

Circus Example



Using the top left corner of the animal as a reference point, given an input of coordinates, the animal can be placed into that location on the board.