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Player

Players are able to choose their own names and they will get an empty Inventory and an amount of EcoPoints at the beginning of the game.

GameMapSub

A class inherited from GameMap, to tick all the squares in the game map when it rains.

ChallengeWorld

A class inherited from World, to tick the gameMap in challenge mode.

Bush

This is the children class of Ground.
A list of fruit will be created. Fruit produced by bush will be added in the list.
A “tick” method will override the one in parent class and add fruit produced into the list. An “allowableAction” method will add an action for player to pick fruit from bush.

Tree

This is the children class of Ground.
A list of fruit will be created. Fruit produced by trees will be added in the list.
A “tick” method will override the one in parent class and add fruit produced into the list. An “allowableAction” method will add an action for the player to pick fruit from a tree.
An “incrementPlayerEcoPoints” will add eco points of all players in the map once a fruit is produced.

Rain

To get an instance of Rain. A raining method is implemented to allow the rain fall. There are four attributes such as isRaining, rainFall, instance and rainInterval. The getRainFall() getter method is to get the random value for rainfall. isRaining() method is to check if it is raining.

Dinosaur

This class will be the abstract class that will be inherited by Stegosaur, Brachiosaur, Pterodactyl and Allosaur. It will implement attributes which are type, gender, growth stage. The children class will have some methods overriding the parent class for specific cases, such as attack action of allosaurus, food to eat by different dinosaurs.

A “die” method will remove the dinosaur from the map when the dinosaur is dead.

A “canBreedWith” Boolean type method will return true if the condition of breeding is met.

A “getAllowableActions” method is created to return a collection of the Actions that the otherActor can do to the current Actor in the Brachiosaur class.

Stegosaur

There will be methods inherited from Dinosaur class.

There will be attributes such as foodLevel, maxFoodLevel, hunger.etc.

A “getAllowableActions” method will override the following method in parent class by adding an attack by player action.

A "getEatAction" will create a new Eat action when the location is edible (eatable) for stegosaur.

A “canEat” method will return true if the food is edible for stegosaur.

Brachiosaur

There will be methods inherited from Dinosaur class.

There will be attributes such as foodLevel, maxFoodLevel, hunger.etc.

A “playTurn” method will override the following method in parent class for the brachiosaur to step on the bush and kill the bush.

A "getEatAction" will create a new Eat action when the location is edible (eatable) for brachiosaur.

A “canEat” method will return true if the food is edible for brachiosaur.

Allosaur

There will be methods inherited from Dinosaur class.

There will be attributes such as foodLevel, maxFoodLevel, hunger.etc.

An array list will be created to add the dinosaurs that are attacked by the allosaur.

A “playTurn” method will override the following method in parent class by adding an attack behaviour to behaviour hashmap for the allosaur attack stegosaur.

A "getEatAction" will create a new Eat action when the location is edible (eatable) for allosaur.

A “canEat” method will return true if the food is edible for allosaur.

A “ getAttackAction” method is implemented for a dinosaur attack action.

Pterodactyl

There will be methods inherited from Dinosaur class.

There will be attributes such as foodLevel, maxFoodLevel, hunger.etc.

A “playTurn” method will override the following method in parent class by adding catch fish behaviour to behaviour hashmap for the pterodactyl to catch fish

A “canEnterWater” boolean type method will return true and is for pterodactyl to enter lake.

A "getEatAction" will create a new Eat action when the location is edible (eatable) for allosaur.

A “canEat” method will return true if the food is edible for allosaur.

A “ layEgg” method will override parent class method for the pterodactyl to lay egg only on tree.

Food

This class will be the parent class of Egg , Fruit, Fish and MealKit.

It will implement a “cost” method and “amount of food level increase” method that will be inherited by Egg, Fruit and MealKit.

Egg

There will be a “cost” method that is inherited from the Food class.

There are also “numberBreedTurns” and “numberHatchingTurns” inherited from the Dinosaur class.

An egg instance (Egg egg = new Egg()) will be created once an egg is bought.

Once an egg is hatched based on their number of turns, the Egg instance will be removed and a Dinosaur instance will be created.

Fruit

A class that inherits methods from Food class. There will be a “cost” method and “amountFoodLevelIncreased” method that is inherited from the Food class.

- rotTurns is created to check the number of turns fruit lays on the ground.
- A Fruit instance will be deleted after being left on the ground for 15 turns.
- A Fruit instance will be deleted after being eaten by a dinosaur.
- A Fruit instance will be added in Inventory if it is picked up by a player.

Fish

A class that inherits from Food class. Will be added to the list of Lake class.

MealKit

A class that inherits methods from Food class. A “type” attribute is created to decide the type of MealKit (vegetarian or carnivore). An instance of MealKit will be removed once it is eaten by Dinosaur, provided that the Dinosaur hasn’t reached the maximum food level.

Corpse

A class that inherits from the Item class and implements an Eatable interface to be eaten by carnivore dinosaurs. A corpse will be removed after reaching the threshold of dead turns.

Inventory

Inventory contains an array of items that are collected by the player. Java Array is being used as the size of inventory needs to be at a fixed size to prevent unfairness. Items are not allowed to be added once the inventory is full. Each item that is being collected consumes one space of the inventory Java array.

LaserGun

It contains a “cost” attribute of 500 eco points. Once the amount of stegosaurus has reached a point, laser guns will be used to attack stegosaurus, the stegosaurus instance will be removed.

VendingMachine

A Java Array that contains the items to be sold to the players. There might be more than one vending machine on the map which it will then extend from the Ground class to fix the position.

EcoPoint

It acts as the game currency. It doesn't require to create a class as it can be created as an attribute in the Item class (such as Egg, MealKit, etc.). It can be added to or subtracted from after a Player makes a purchase on a vending machine.