

Elaina Rivers

Shah Qureshi

Jake Simoes

Jophene Campbell

James Marshall

## CS-417 Cheeseburger Squad Final Project

## How to run

1. Clone git repository to system (main branch)
2. Open program files in IDE of choice
3. Run/debug Main.java

## Patterns

- State Pattern
  - Start/Stop Button [Elaina]
    - ButtonContext.java
    - ButtonState.java
    - StartedState.java
    - StoppedState.java
  - Tile [Jake]
    - PlantTile.java
    - TileState.java
    - GrassState.java
    - DirtState.java
- Command Pattern
  - Menu [Elaina]
    - Command.java
    - Invoker.java
    - AddAnimal.java
    - SlowDown.java
    - SpeedUp.java
    - StartStop.java

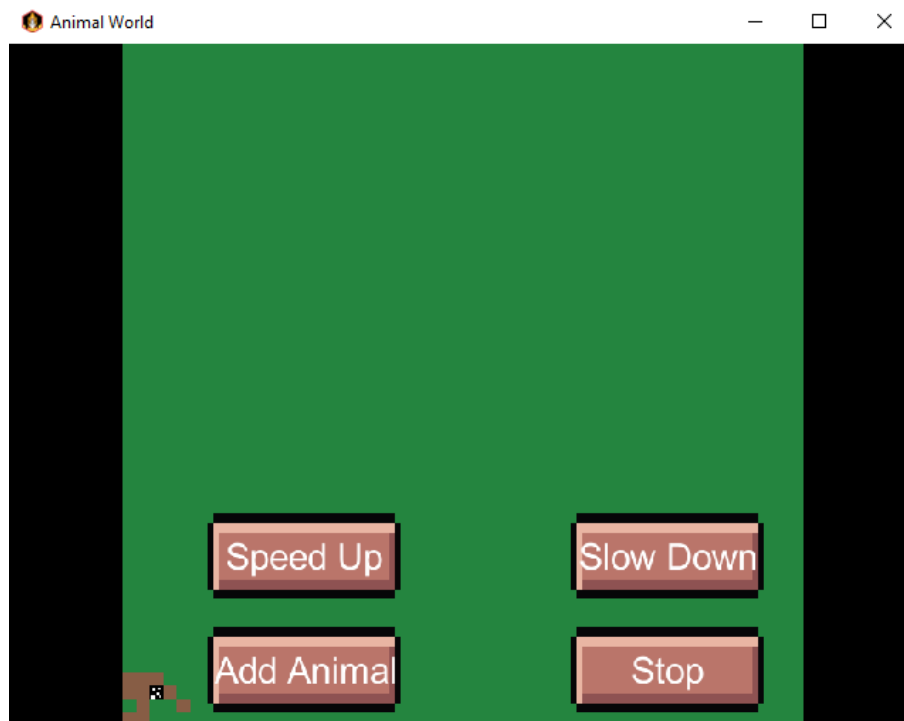
- Singleton
  - Board.java [Elaina/Jake]
  - TextureSingleton.java [Jake]
  - CreatureFileLoaderSingleton.java [Jophene]
- Abstract Factory [James]
  - Feeding Behavior
    - FeedingBehavior.java
    - StrategyFactory.java
    - FeedingFactory.java
- Memento [James]
  - Simulation Save States
    - SimulationCaretaker.java
    - SimulationOriginator.java
    - SimulationMemento.java
- Strategy [Shah]
  - MovementBehavior.java
  - RandomMovement.java
  - FightMovement.java
  - FlightMovement.java
- State [Shah]
  - AnimalState.java
  - ForagingState.java
  - FleeingState.java
  - HuntingState.java
- Mediator [Shah]
  - AnimalMedaitor.java
  - ConcreteAnimalMediator.java
- Decorator
  - Animal Decorator [Jophene]
    - AnimalDecorator.java
    - EnhancedSpeedDecorator.java
    - EnhancedVisionDecorator.java
    - StrengthBoostDecorator.java
- Observer [James]
  - BoardObserver.java
  - TileObserver.java

- TurnPassSubject.java
  - TurnSubject.java
- Proxy [Jake]
  - PlantTileProxy.java
- Prototype Pattern [Jophene]
  - Animal.java
  - FeedingBehavior.java
  - MovementBehavior.java
  - CarnivoreBehavior.java
  - HerbivoreBehavior.java
  - OmnivoreBehavior.java

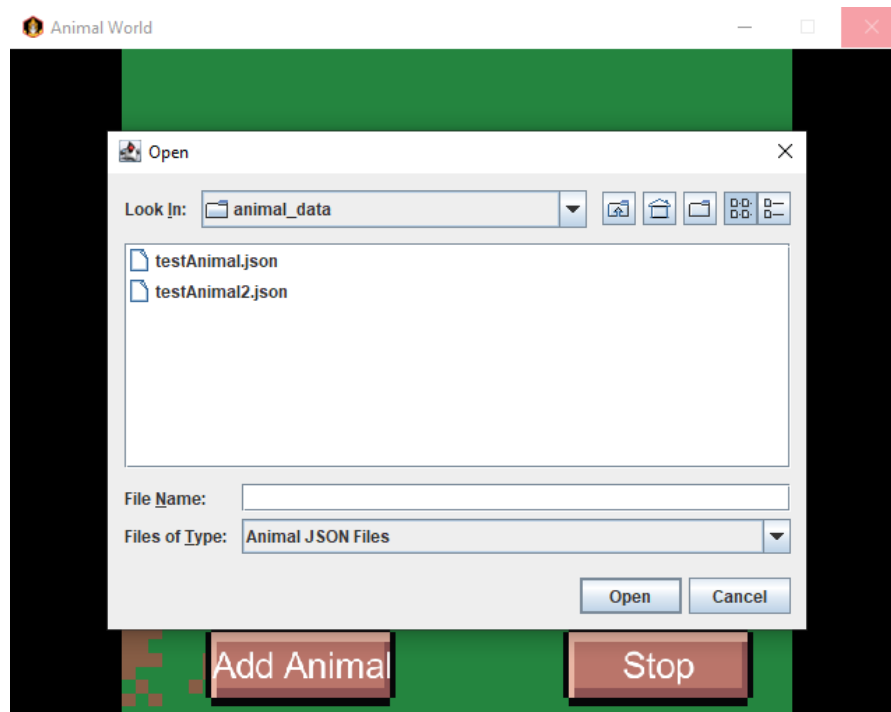
## Known problems/Partially implemented patterns

- AddAnimal Command
  - Only initializes some parameters of Animal
- AnimalsStatistics
  - Has to do with frequency of output
  - Treats each instance of an animal separately; does not compare Animals
- Save States (Memento)
  - All parts implemented; untested and unsure if working as intended
- Loading animal JSON Files at the beginning
  - For context, “Add Animal” Button works fine

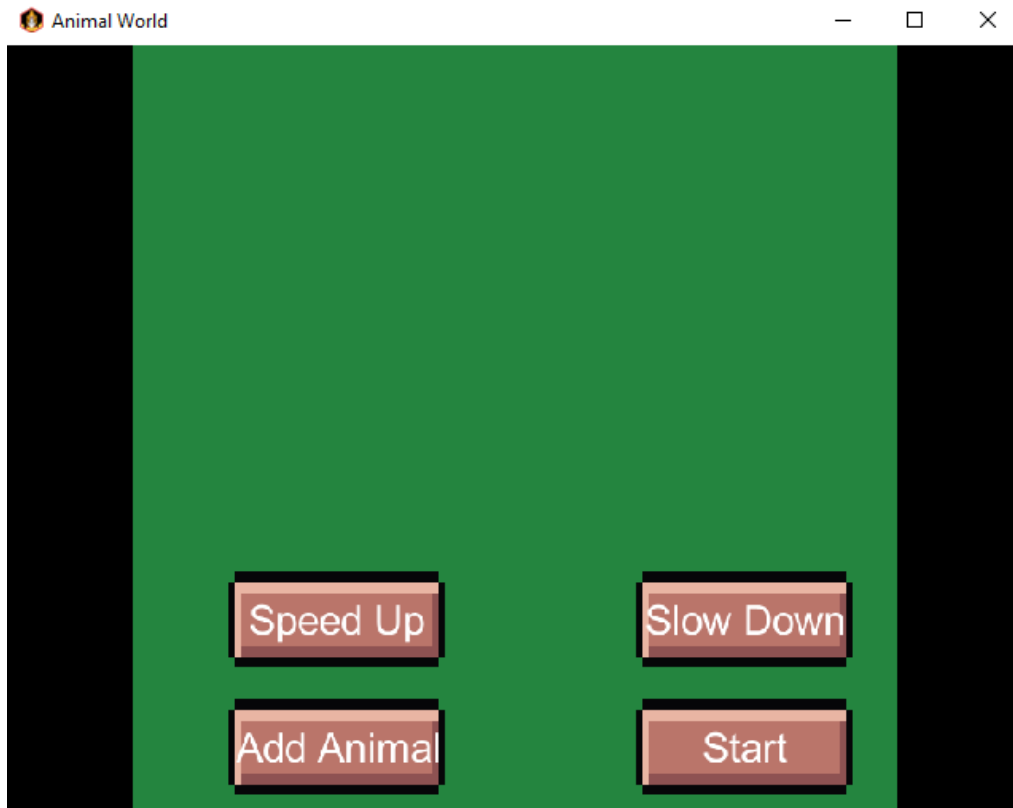
## Screenshots



Simulation after it starts.



Simulation after “Add Animal” is pressed.



Simulation while it is paused and all animals are dead.



Simulation with many Animals.