

# X - TD

SOEN 6441 - Build 2

Team 10

Cheng Long Zhang, Hai Yang Sun, Jean Raymond Daher,  
Mohammad Ali, Meng Yao Wang, Zhe Zhao

# Agenda

Architecture

Demonstration

About

# Agenda

Demonstration

Features

About

# Demonstration

# Features

# Critter

```
<CritterWave>
  <timeGap></timeGap>
  <critters>
    <Critter>
      <hp></hp>
      <speed></speed>
      <imageName></imageName>
    </Critter>
    ...
  </critters>
</CritterWave>
```

# Critter

```
<CriticWave>  
  <timeGap></timeGap>  
  <critters>  
    <Critter>  
      <hp></hp>  
      <speed></speed>  
      <imageName></imageName>  
    </Critter>  
    ...  
  </critters>  
</CriticWave>
```

# Critter

```
<CritterWave>  
  <timeGap></timeGap>  
  <critters>  
    <CritterMultiplier>  
      <critterName></critterName>  
      <hpMultiplier></hpMultiplier>  
      <speedMultiplier></speedMultiplier>  
    </CritterMultiplier>  
    ...  
  </critters>  
</CritterWave>
```



# Critter

critter\_x.xml

CritterWave

CritterMultiplier

Critter

CritterManager

# Effect

Effect & Ability

SlowEffect -> Frozen Effect / Hypnotize Effect

PoisonEffect

MotivateEffect

# Effect



Permanent damage



Temporary Impact

# AffectableValue

```
+ originalValue:double  
+ affectedValue:double
```

# AffectableValue

```
+ originalValue:double  
+ affectedValue:double
```

```
//critter  
private int totalHp;  
private int hp;  
private AffectableValue speed;  
  
private int reward;  
private int stealAmount;
```

# AffectableValue

```
+ originalValue:double  
+ affectedValue:double
```

```
//critter
```

```
private int totalHp;
```

```
private int hp;
```

```
private AffectableValue speed;
```

```
private int reward;
```

```
private int stealAmount;
```

```
//tower
```

```
private AffectableValue range;
```

```
private AffectableValue damage;
```

```
private AffectableValue cdTime;
```

# MapItemSelector

```
getCritter(source:MapItem, range:double, amount:int, strategy:String)
```

# MapItemSelector

- + items:[MapItem]
- + filterByCircularArea(origin:MapPoint, radius:double):MapItemSelector
- + filterByType(types:[Class]):MapItemSelector
- + filterByAmount(amount:int):MapItemSelector
- + filterByExcluding(item:MapItem):MapItemSelector
- + sortByDirectlyClosestToPoint(point:MapPoint):MapItemSelector
- + sortByOnPathClosestToEndPoint():MapItemSelector
- + sortByWeakest():MapItemSelector
- + sortByStrongest():MapItemSelector
- + sortByRandom():MapItemSelector
- + sortByStrategy():MapItemSelector



# MapItemSelector

```
MapItemSelector selector = map.getItemSelector();  
List<MapItem> targets = selector  
    .filterByType(Critter.class)  
    .filterByCircularArea(this.getLocation(), ...)   
    .sortByStrategy(this.getStrategyName(), this)  
    .filterByAmount(1)  
    .getItems();
```

# Archive

```
<GridMap>
  <startPoints>
    <MapPoint x="" y="" /> ***
  </startPoints>
  <endPoints>
    <MapPoint x="" y="" /> ***
  </endPoints>
  <paths>
    <MapPath>
      <locations>
        <MapPoint x="" y="" /> ***
      </locations>
    </MapPath> ***
  </paths>
</GridMap>
```

# Archive

```
<GridMap>
  <startPoints>
    <MapPoint x="" y="" /> ***
  </startPoints>
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    <MapPoint x="" y="" /> ***
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  <paths>
    <MapPath>
      <locations>
        <MapPoint x="" y="" /> ***
      </locations>
    </MapPath> ***
  </paths>
</GridMap>
```

# Archive

Build a bridge between object and xml elements

## IArchive

encode - object to xml element

decode - xml element to object

## Adaption

MapPoint, MapPath, GridMap, Play

Tower Manager, Tower, Tower Subclasses

Critter, CritterWave, CritterMultiplier

# Archive

Build a bridge between object and xml elements

```
<GridMap>
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    <MapPoint x="" y="" /> ***
  </endPoints>
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    <MapPath>
      <locations>
        <MapPoint x="" y="" /> ***
      </locations>
    </MapPath> ***
  </paths>
</GridMap>
```

# Archive

Build a bridge between object and xml elements

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<GridMap>
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    <MapPoint x="" y="" /> ***
  </endPoints>
  <paths>
    <MapPath>
      <locations>
        <MapPoint x="" y="" /> ***
      </locations>
    </MapPath> ***
  </paths>
</GridMap>
```

# Archive

Build a bridge between object and xml elements

```
public class NameForArchiving{
    public static final String Class = "MapPoint";
    private static final String X = "x";
    private static final String Y = "y";
}

public void decode(Element element) {
    this.x = Double.valueOf(element.attributeValue(NameForArchiving.X));
    this.y = Double.valueOf(element.attributeValue(NameForArchiving.Y));
}

public Element encode() {
    Element element = new DefaultElement(NameForArchiving.Class);
    element.addAttribute(NameForArchiving.X, Double.toString(x));
    element.addAttribute(NameForArchiving.Y, Double.toString(y));
    return element;
}
```

# Design Pattern Usage



# Design Pattern Usage

## Play

Singleton - a shared instance which has coins, life and map

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## Play

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## Scene

Observer - Watch the coins and life change on Play, and update labels

Adapter - Some inner classes is responsible for transferring MapItem to IInspectable

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## Play

Singleton - a shared instance which has coins, life and map

## Scene

Observer - Watch the coins and life change on Play, and update labels

Adapter - Some inner classes is responsible for transferring MapItem to IInspectable

## Tower

Abstract Factory - Get a tower manager first then create a tower.

# About

# Team 10

Code, Doc, Test Everyone

Zhao Zhe

Architecture Design

Critter Display / Effect Display

Sun Hai Yang

Tower File IO Archive

Effect

Mohammad Ali

Map File IO Archive

Jean Raymond Daher

Critter / Wave / IO Archive

EditingScene

Zhang Cheng Long

MapItemSelector

PlayingScene

Wang Meng Yao

MapItemSelector

69

Classes or Interfaces

300

Commits

800

Commits  
from start



Thank you