

# GENÜGEKARTEN-SIMULATOR

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# USE-CASE-DIAGRAM

USER

GENUSEGARTEN

START  
SITUATION

KAUFEN o.  
VERKAUFEN

UR PFLANZEN  
HÜMPFEN

SETTINGS

PFLANZE  
VERKAUFEN

PFLANZEN  
KAUFEN

KAPITAL  
ERHÖHT SICH

PFLANZE  
EINPFLANZEN

GENTEN

SALAT  
KAROTTE  
MAIS  
RETTICH  
KÜNZIS

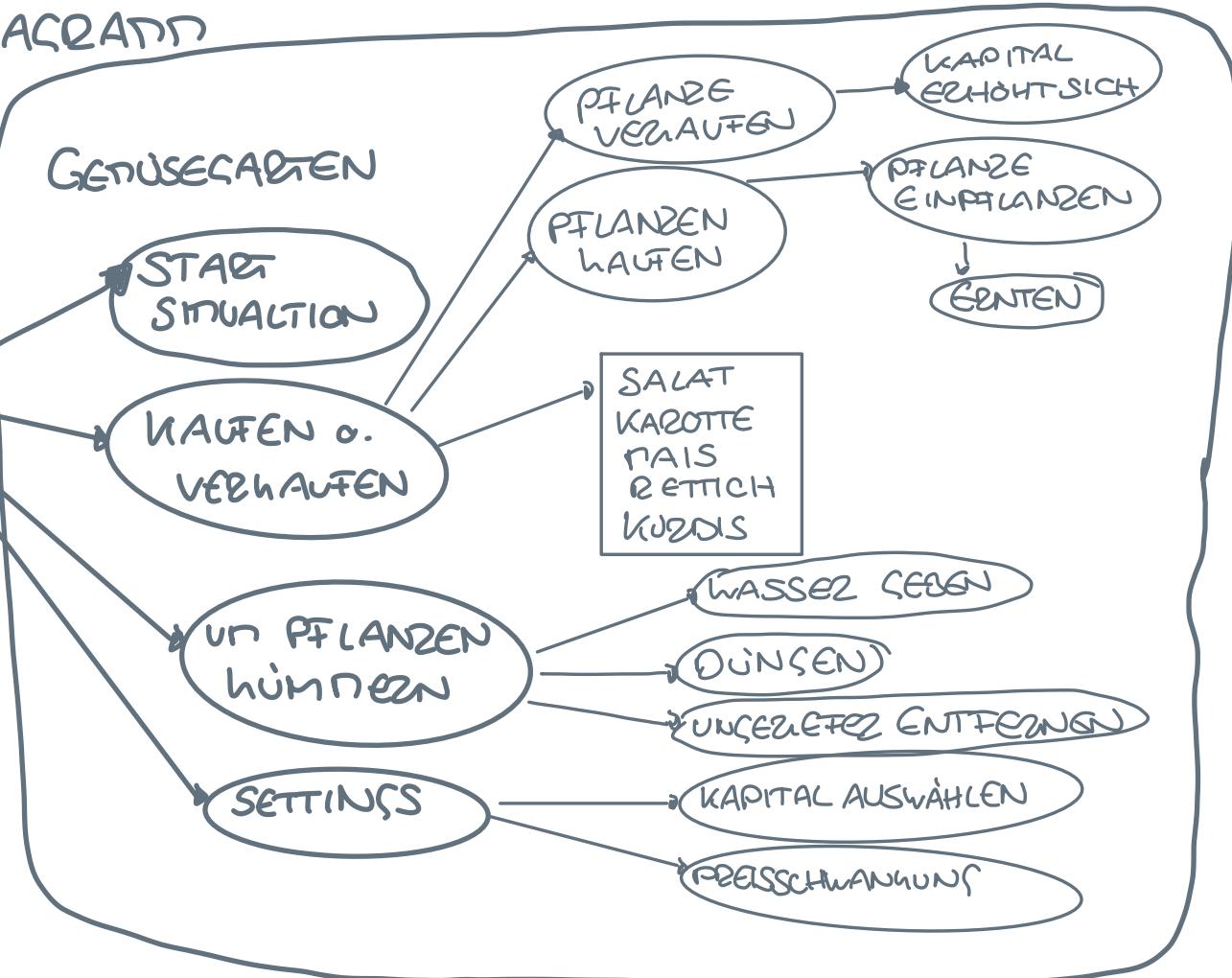
WASSER GEGEN

DÜNSSEN

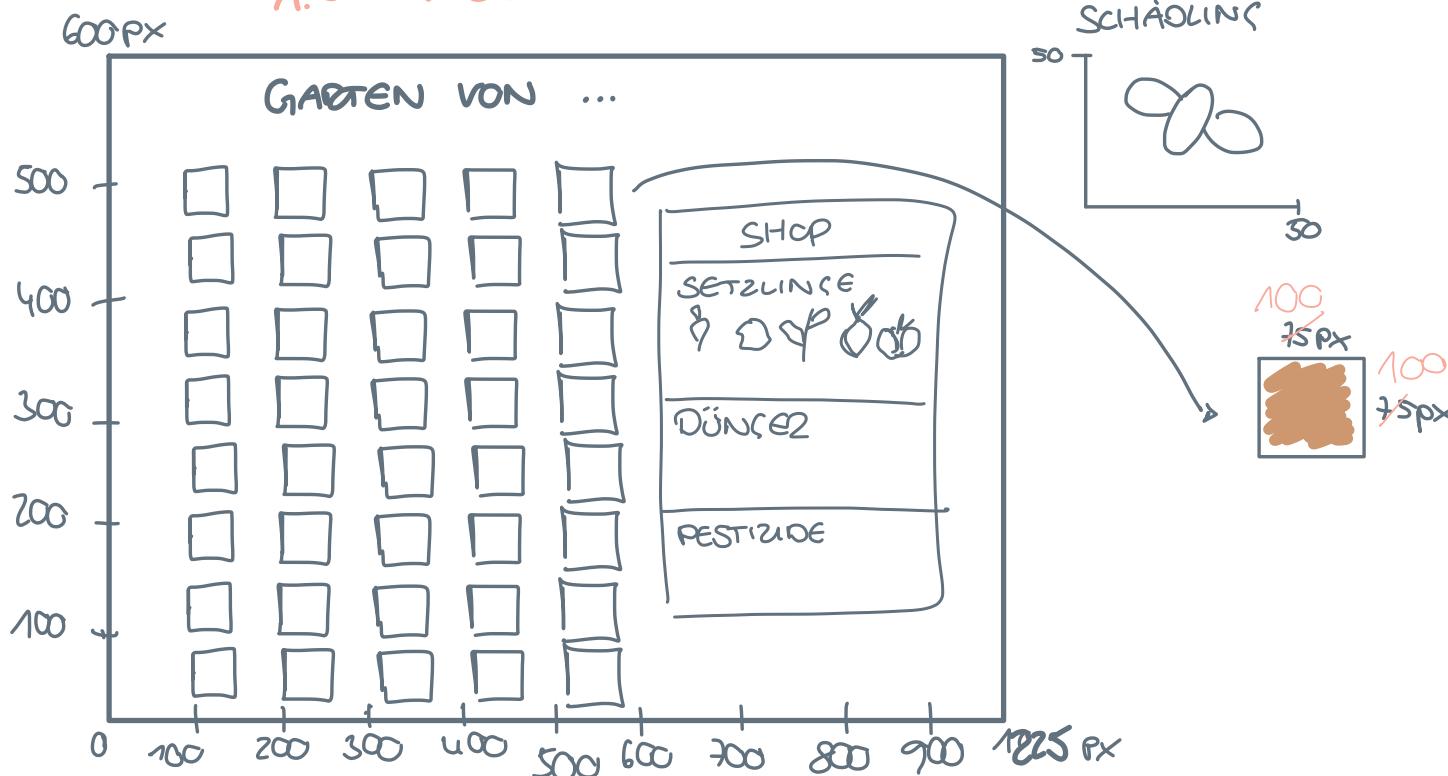
UNGEZOGER ENTFERNNEN

KAPITAL AUSWÄLLEN

PREISSCHWANKUNG



# 1. ENTWURF



`<form>`

`<div id="setup">`

`<fieldset>`

`PLAYER 2`

`Seed Capital`  
500

`<label>`

`<input type="number" name="seedCapital" min="0" max="999999" step="1" value="500"`

`<legend>`

`HIGH PRICE RANGE`

`BUY`  
`Pumpkin Seedling`  
min € 5 max € 10

`SELL`  
`Pumpkin`  
min € 15 max € 45

`<button type="button" id="start" value="Click"> Click`

`<input type="number" name="pumpkinSeedling" min="0" max="999999" step="1" value="5"`

`<input type="number" name="pumpkin" min="0" max="999999" step="1" value="10"`

`<input type="number" name="pumpkin" min="0" max="999999" step="1" value="45"`

`<legend>`

`<fieldset>`

`START`

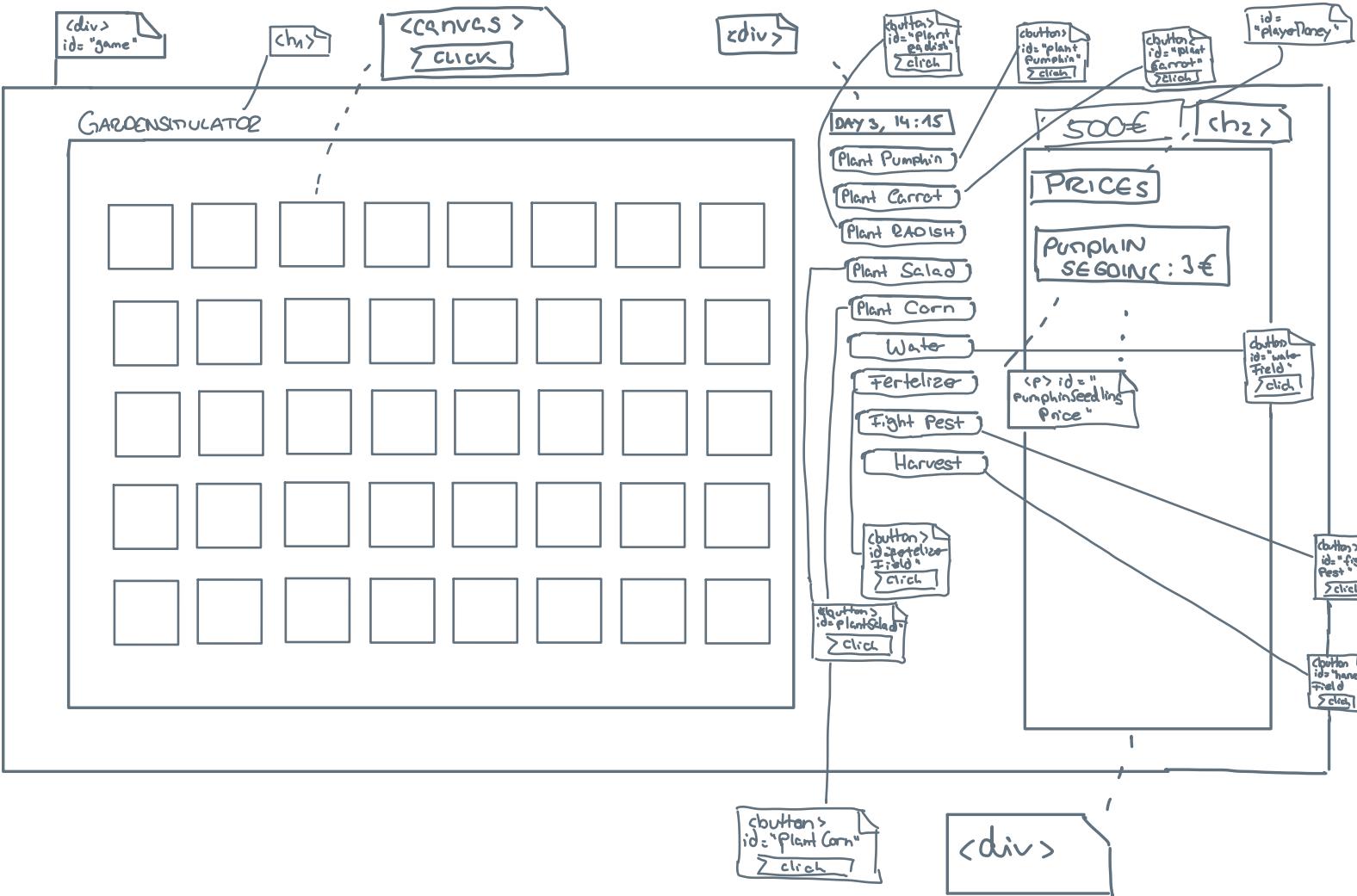
```
<input type="number" name="pumpkin" min="0" max="999999" step="1" value="15"
```

```
<button type="button" id="start" value="Click"> Click
```

```
<input type="number" name="pumpkinSeedling" min="0" max="999999" step="1" value="5"
```

```
<input type="number" name="pumpkin" min="0" max="999999" step="1" value="10"
```

```
<input type="number" name="pumpkin" min="0" max="999999" step="1" value="45"
```



POSITION OVER LINEE ECHE

(abstract)  
**GardenElement**

+ position : Vector  
+ size : Vector  
+ isHit(\_hitPosition : Vector) : boolean  
+ draw() : void  
+ constructor (position : Vector, size : Vector)

**PARASITE**

+ startPosition : Vector  
+ targetPosition : Vector  
+ speed : number  
+ draw() : void  
+ move(\_timeslice : number) : void  
+ constructor (position : Vector, size : Vector, targetPosition : Vector, generateStartPosition : Vector)

**Price**

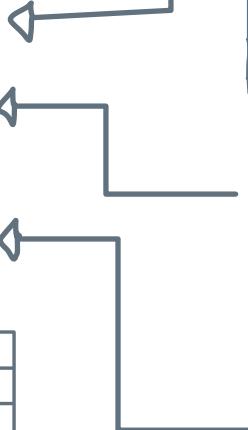
+ currentPrice : number  
+ minPrice : number  
+ maxPrice : number  
+ updatePrice() : void  
+ constructor (\_minPrice : number, \_maxPrice : number)

(enumeration) >  
**UserAction**

PLANT  
FERTILIZE  
WATER  
FIGHT\_PEST  
HARVEST

(enumeration) >  
**CropAction**

PUMPKIN  
SALAD  
CORN  
RADISH  
CARROT



**EmptyField**

+ draw() : void

**SALAD**

+ constructor (-size : Vector, -position : Vector)  
+ draw()

**PUMPKIN**

+ constructor (-size : Vector, -position : Vector)  
+ draw()

**CARROT**

+ constructor (-size : Vector, -position : Vector)  
+ draw()

**TAIS**

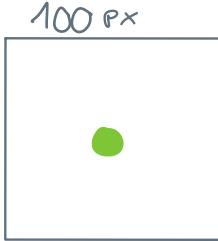
+ constructor (-size : Vector, -position : Vector)  
+ draw()

**RADISH**

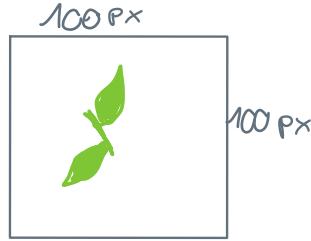
**PlantedField**

+ waterLevel : number  
+ fertilizerLevel : number  
+ waterLowerBound : number  
+ waterUpperBound : number  
+ fertilizerLowerBound : number  
+ fertilizerUpperBound : number  
+ waterConsumption : number  
+ fertilizerConsumption : number  
+ isPestInfested : boolean  
+ ageInDays : number  
+ growthDurationInDays : number  
+ daysUntilDeath : number  
+ sickDays : number  
+ isSellable() : boolean  
+ isDead() : boolean  
+ waterField(\_waterAmount : number) : void  
+ fertilizerField(\_fertilizerAmount : number) : void  
+ simulateToday() : void  
+ draw() : void  
+ constructor (\_position : Vector, \_size : Vector, waterLowerBound : number, waterUpperBound : number, waterConsumption : number, fertilizerLowerBound : number, fertilizerUpperBound : number, fertilizerConsumption : number, daysUntilDeath : number, sickDays : number)

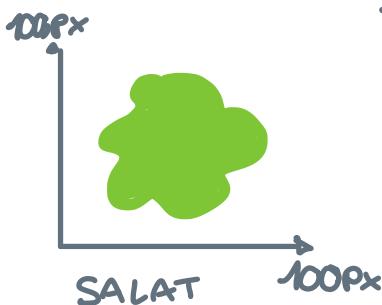
# WACHSTUMSPHASEN PFLANZE



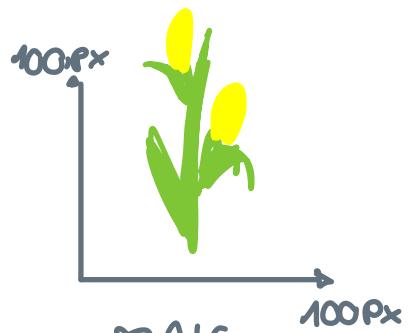
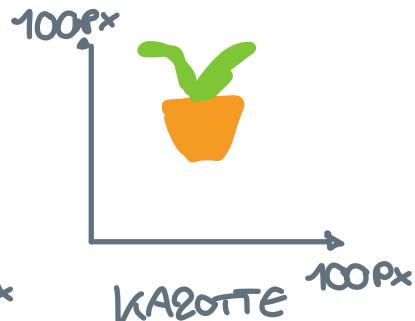
1. WACHSTUMSPHASE  
PFLANZE FÄRBLT EINSEITIG,  
FÄRBLT ÄNDERT SICH  
SCHON JE NACH GEMÜSE



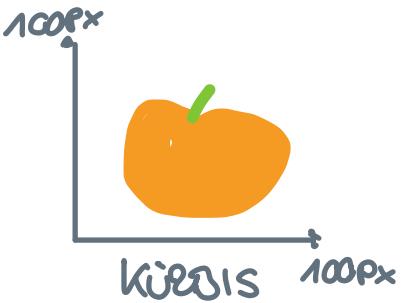
2. WACHSTUMSPHASE  
FÄRBLT ÄNDERT SICH  
JE NACH GEMÜSE



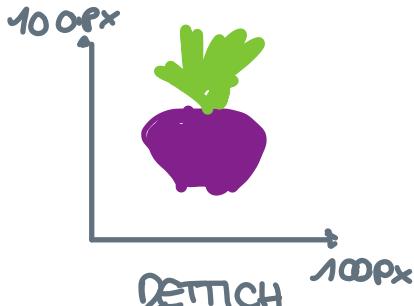
FÄRBLT GEMÜSE  
SALAT #7EC636  
KAROTTE #Ed9121  
MAIS #FFFCA9  
RETTICH #A74FB0  
KÜRSIS #FF7S18



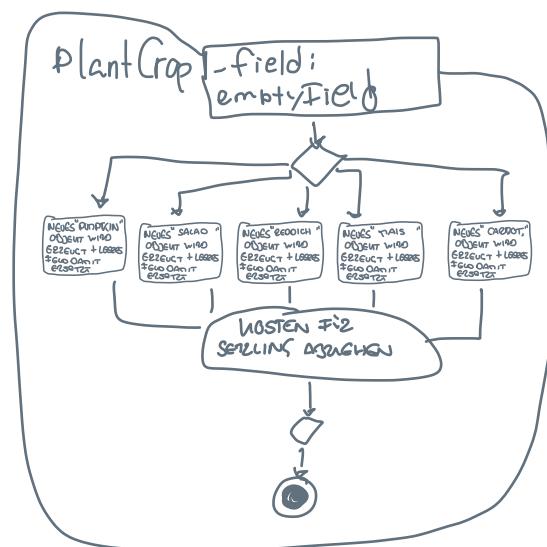
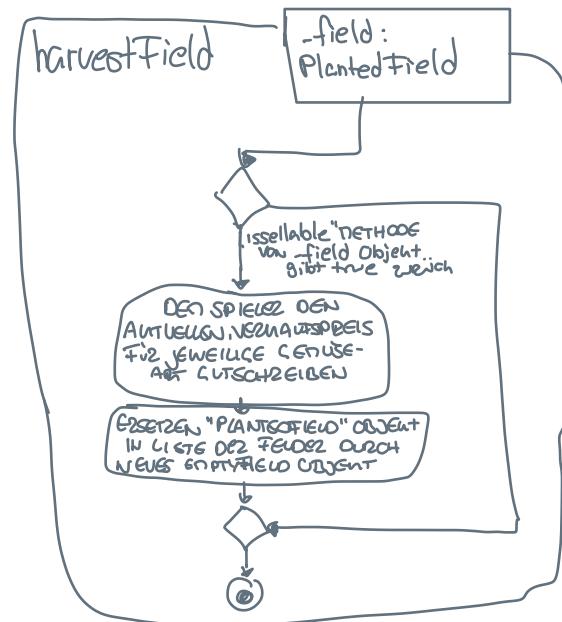
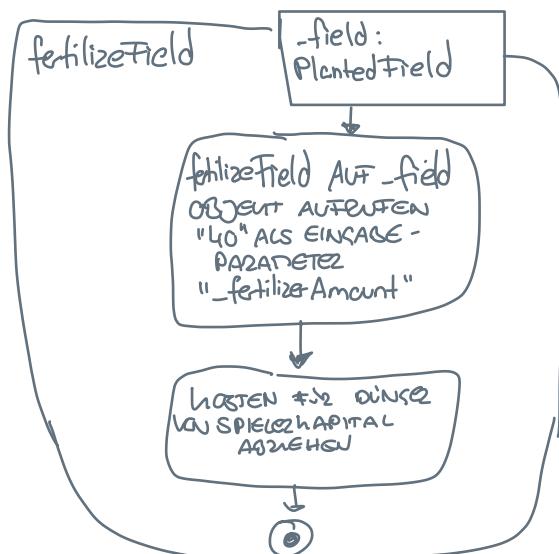
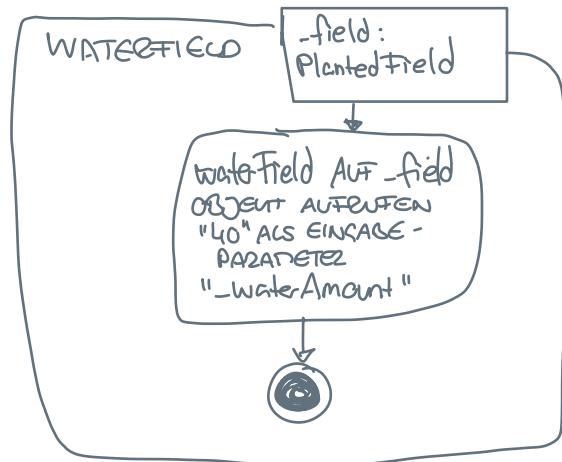
MAIS



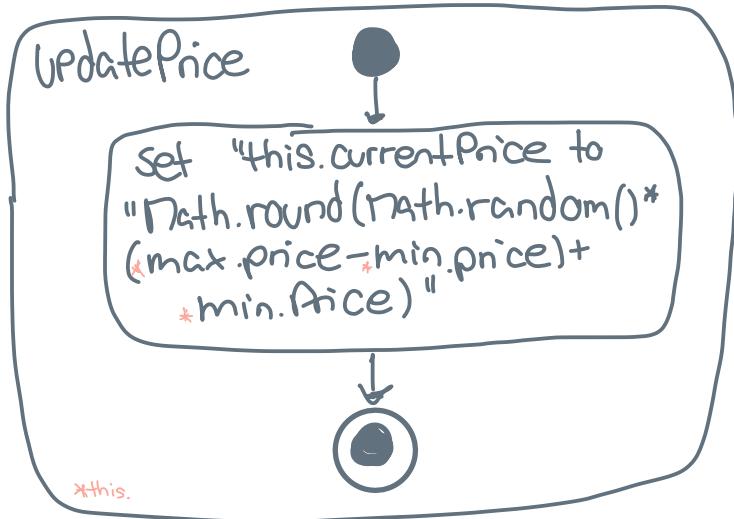
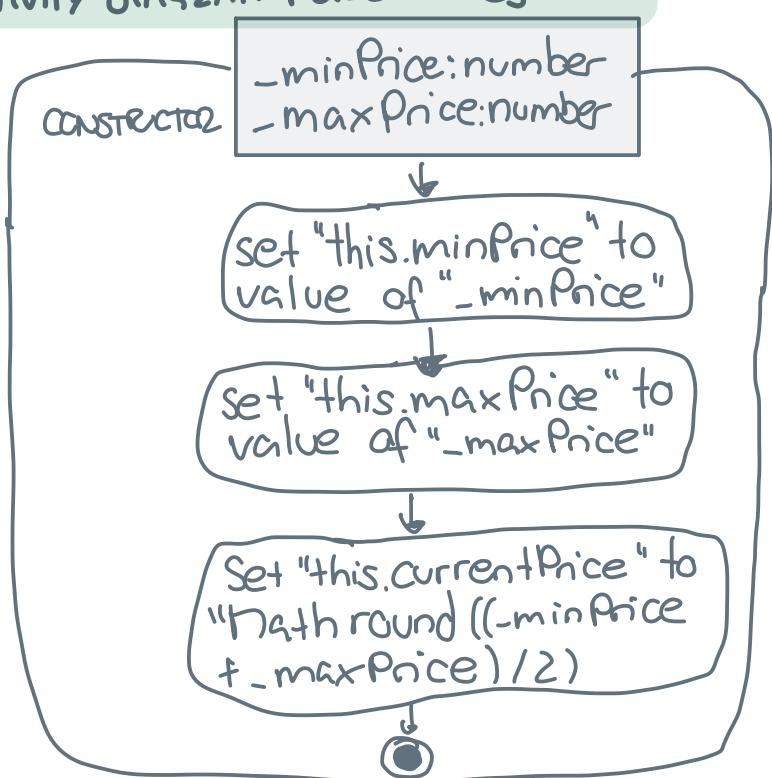
KÜRSIS 100px



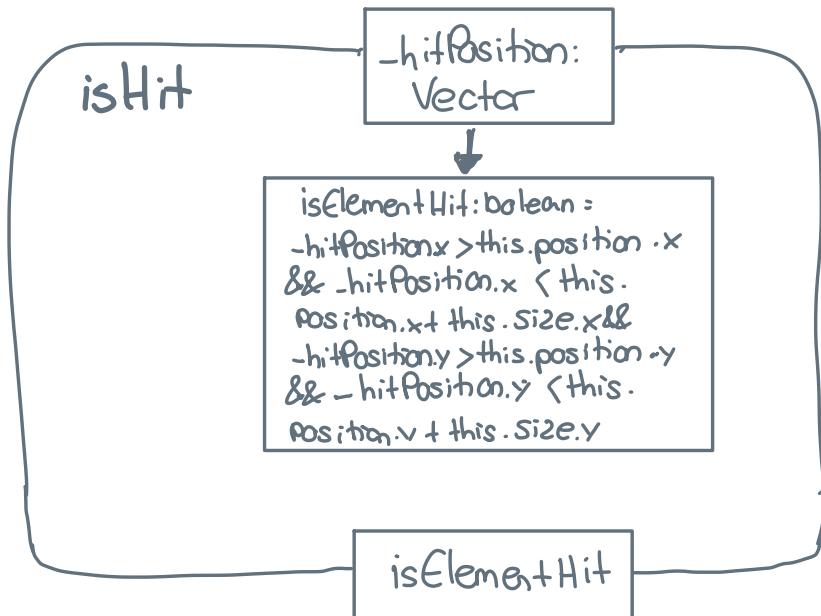
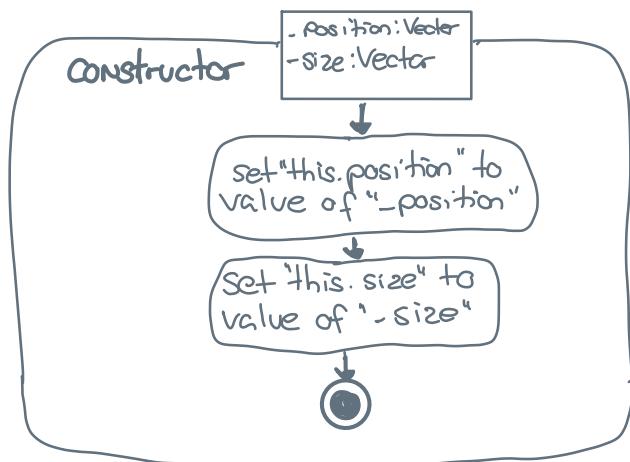
RETTICH 100px



## ACTIVITY DIAGRAM Price CLASS



# ACTIVITY DIACRAN GARDEN Element Class



# ACTIVITY DIAGRAM PLANTED FIELD CLASS

## Constructor

-position: Vector, \_size: Vector,  
\_waterLowerBound: number,  
\_waterUpperBound: number,  
\_waterConsumption: number;  
\_fertilizerLowerBound:  
number, \_fertilizerUpperBound:  
number, \_fertilizerConsumption:  
number, \_growthDurationDays:  
number, \_daysUntilDeath:  
number

Call super constructor  
with -position & \_size values

Set "this.\_waterUpperBound"  
to value of "\_waterUpperBound"

Set "this.\_waterConsumption"  
to value of "\_waterConsumption"

Set "this.\_fertilizerLowerBound"  
to value of "\_fertilizerLowerBound"

Set "this.\_fertilizerUpperBound"  
to value of "\_fertilizerUpperBound"

Set "this.\_growthDurationDays"  
to value of "\_growthDurationDays"

Set "this.\_daysUntilDeath"  
to value of "\_daysUntilDeath"

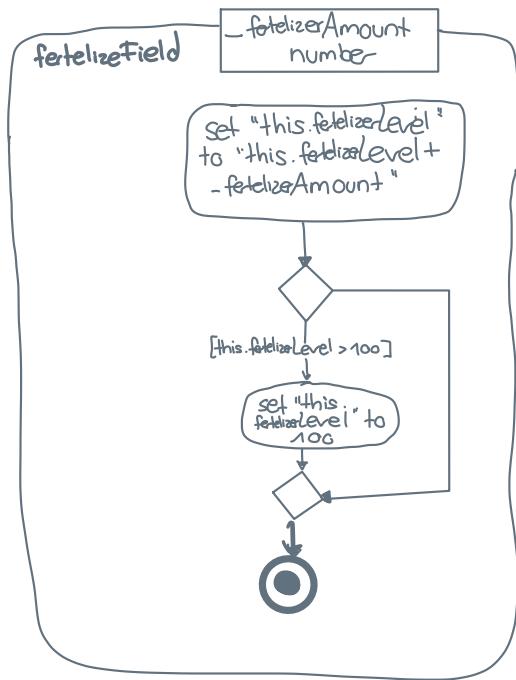
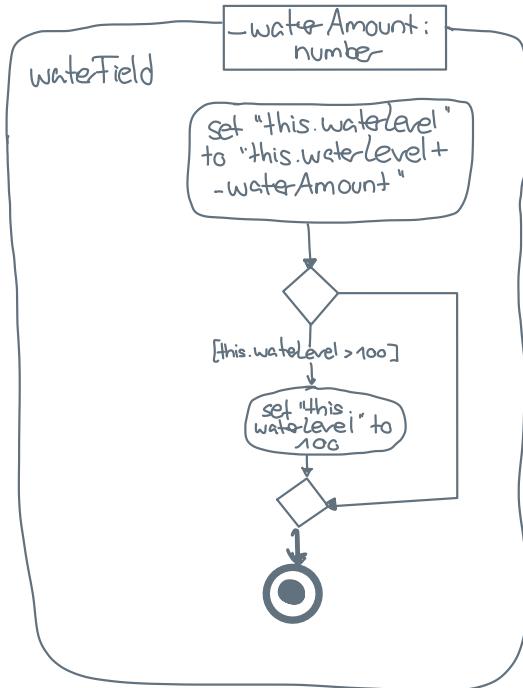
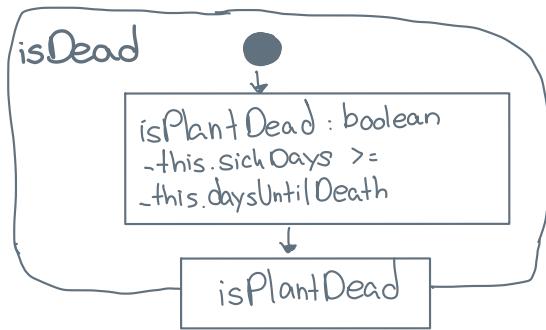
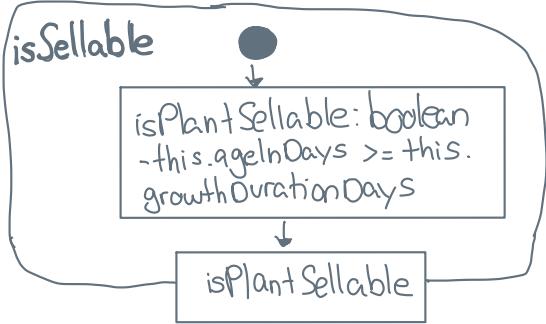
Set "this.\_waterLevel"  
to 30

Set "this.\_fertilizerLevel"  
to 30

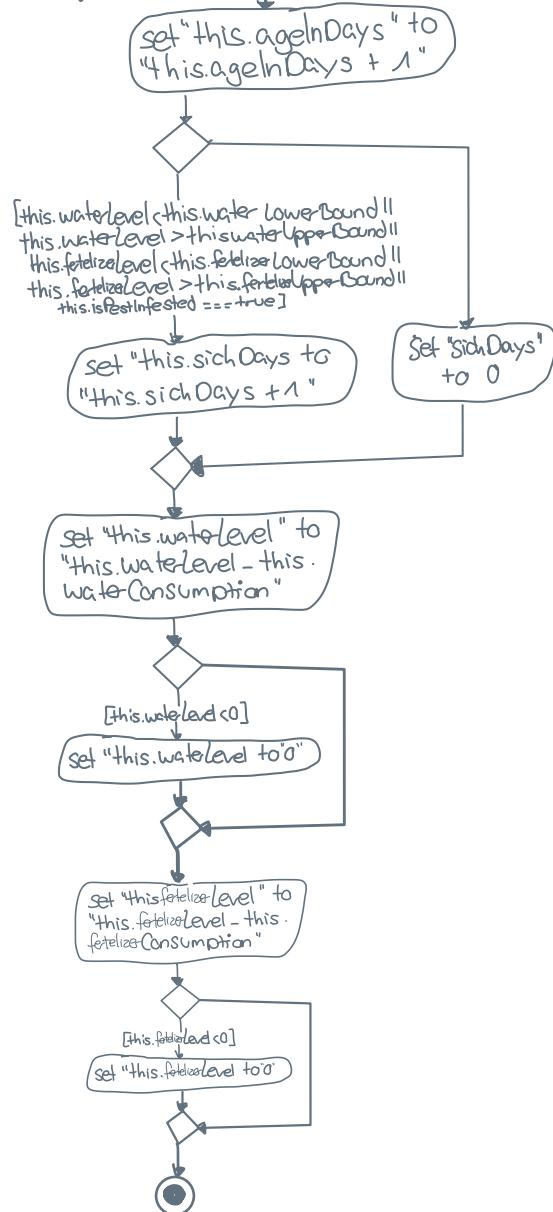
Set "this.\_isPestInfested"  
to false

Set "this.\_ageInDays"  
to 0

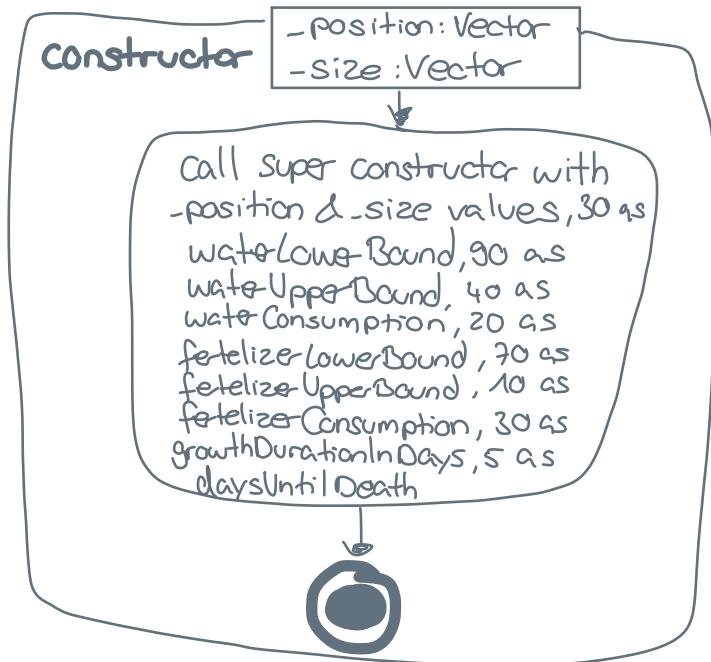
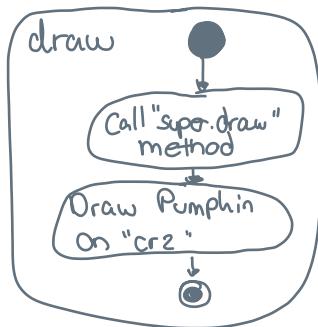
Set "this.\_sickDays"  
to 0



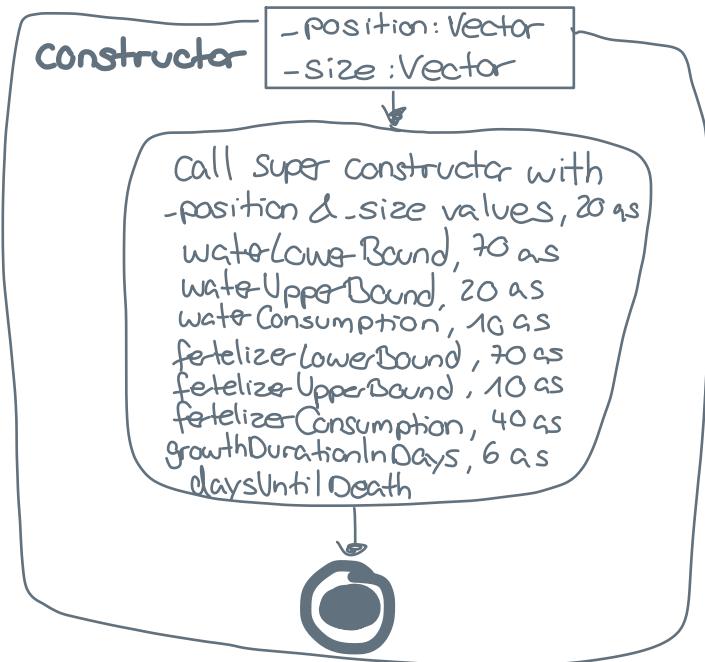
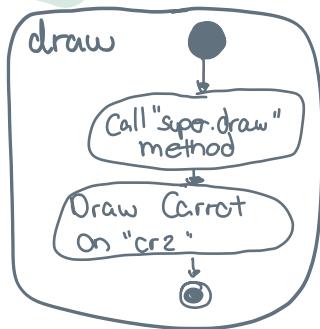
# simulateDay



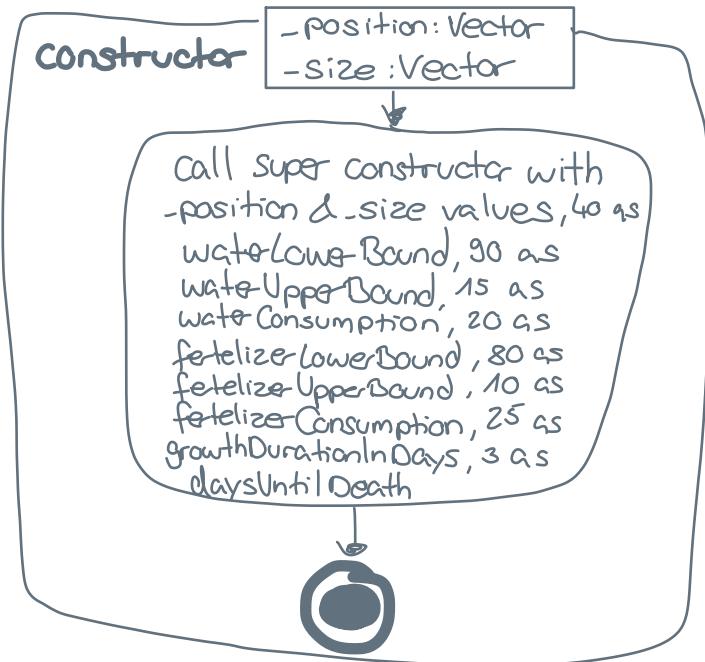
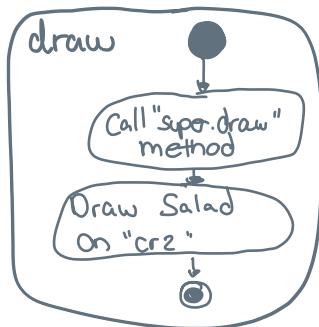
# ACTIVITY DIAGRAM PUMPKIN CLASS



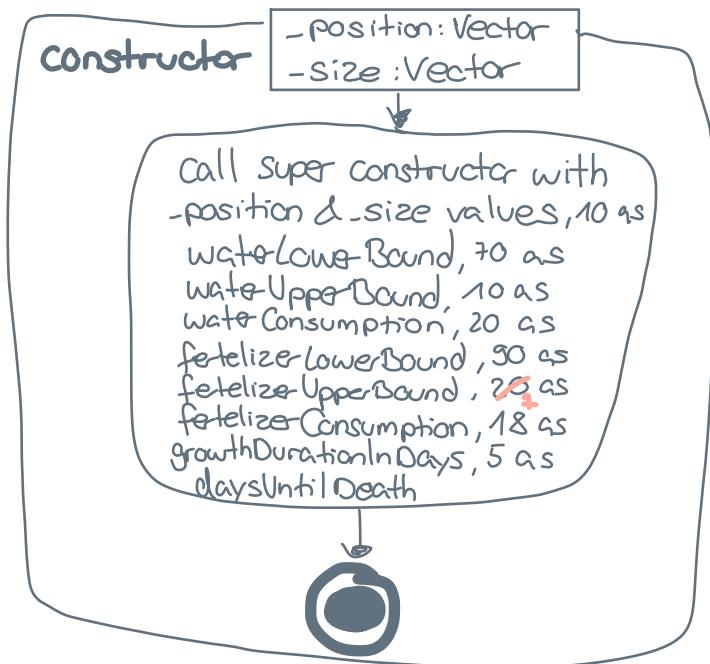
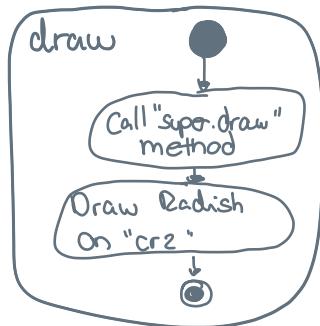
# ACTIVITY DIAGRAM CARROT CLASS



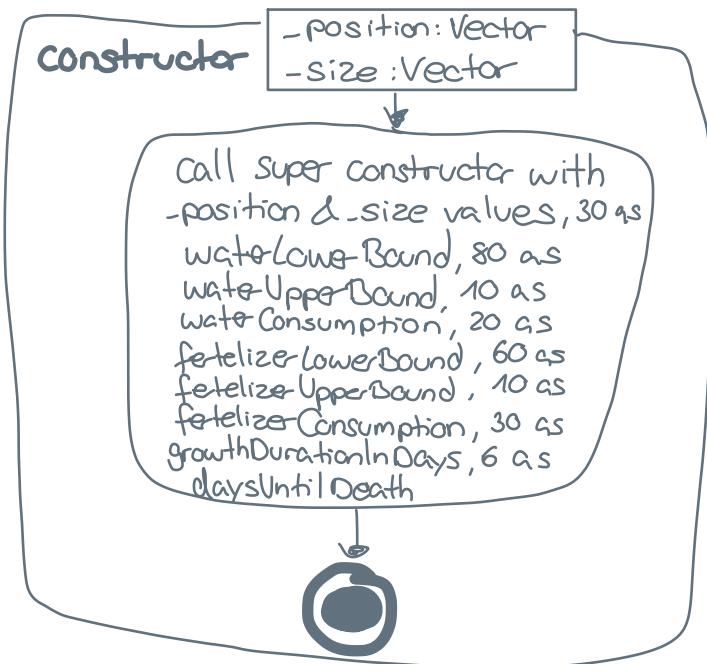
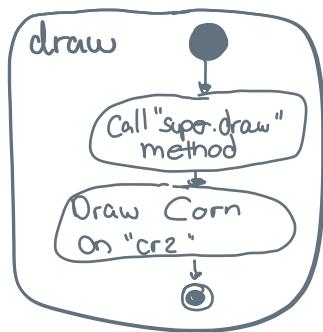
# ACTIVITY DIAGRAM SALAD CLASS



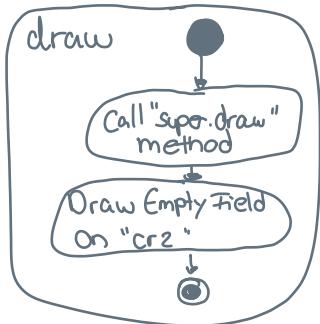
# ACTIVITY DIAGRAM RADISH CLASS



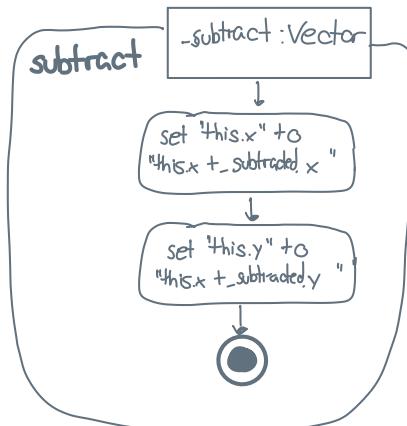
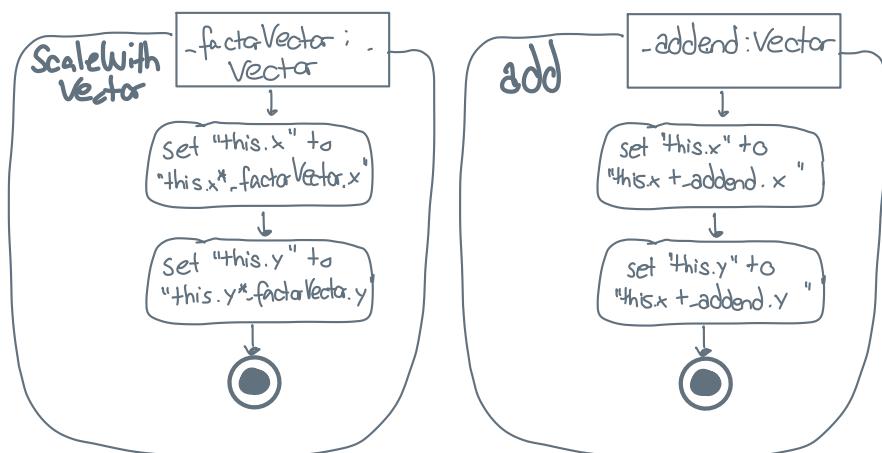
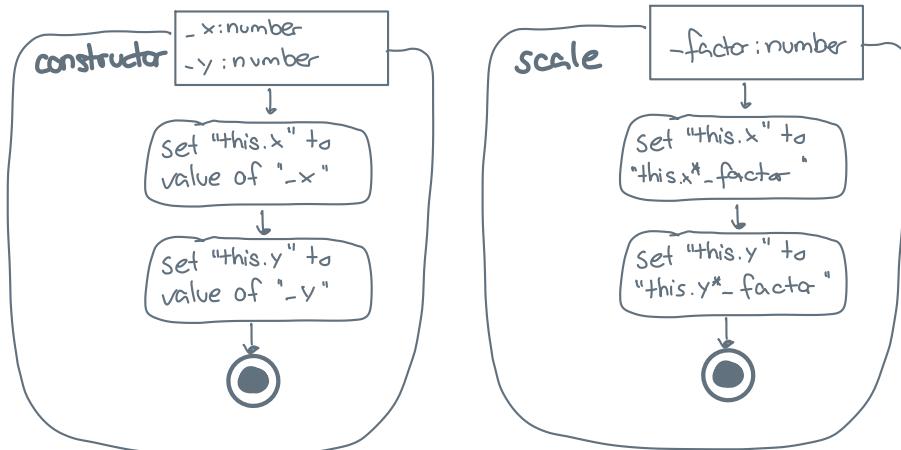
# ACTIVITY DIAGRAM CORN CLASS



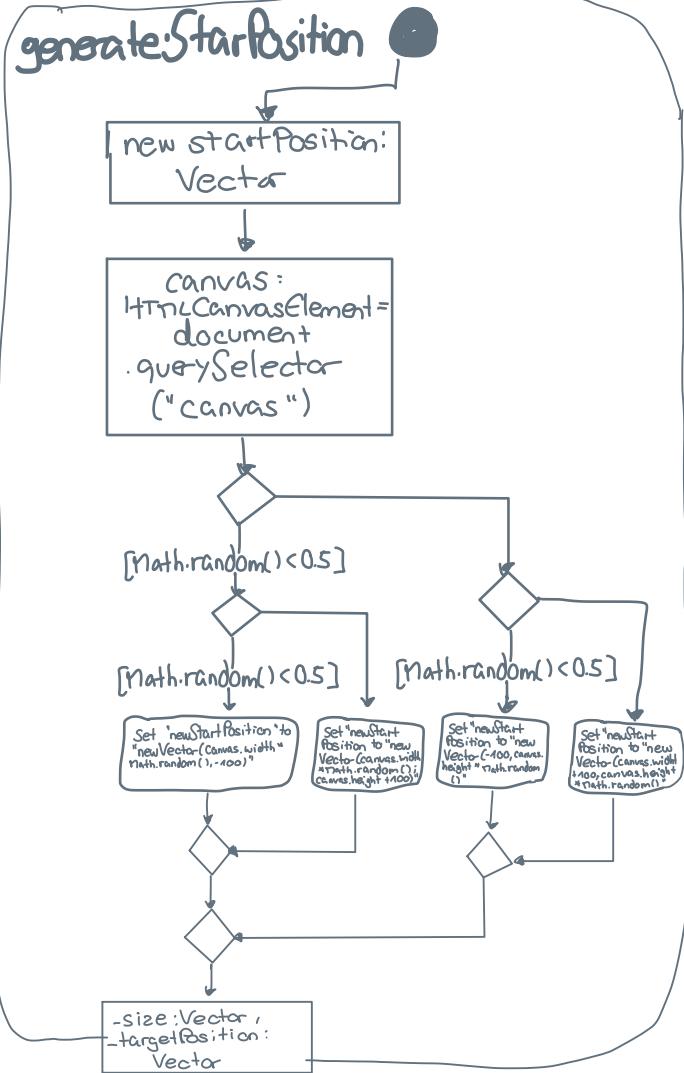
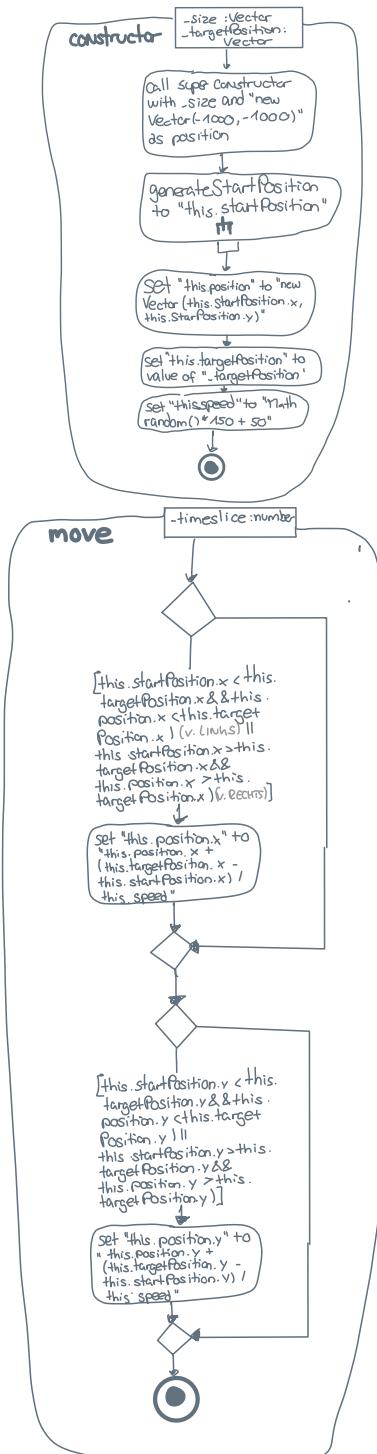
# ACTIVITY DIAGRAM EMPTY FIELD



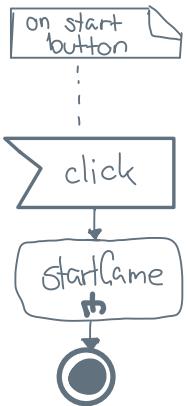
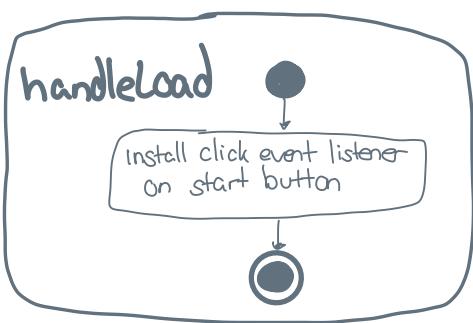
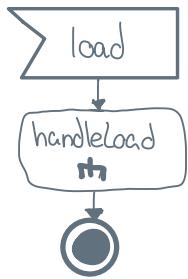
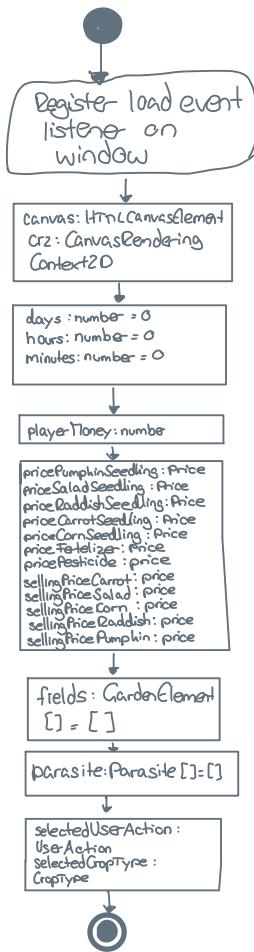
# ACTIVITY DIAGRAM VECTOR CLASS



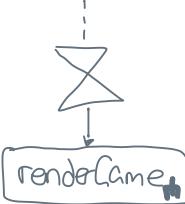
# ACTIVITY DIAGRAM PARASITE CLASS



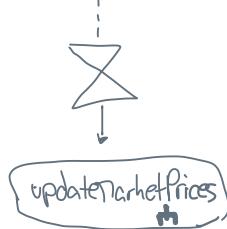
# ACTIVITY DIAGRAM MAIN



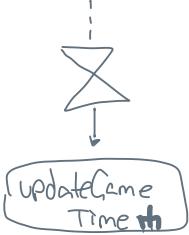
every 20 ms



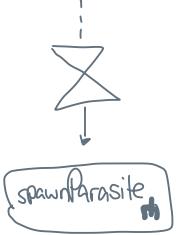
every 2 seconds



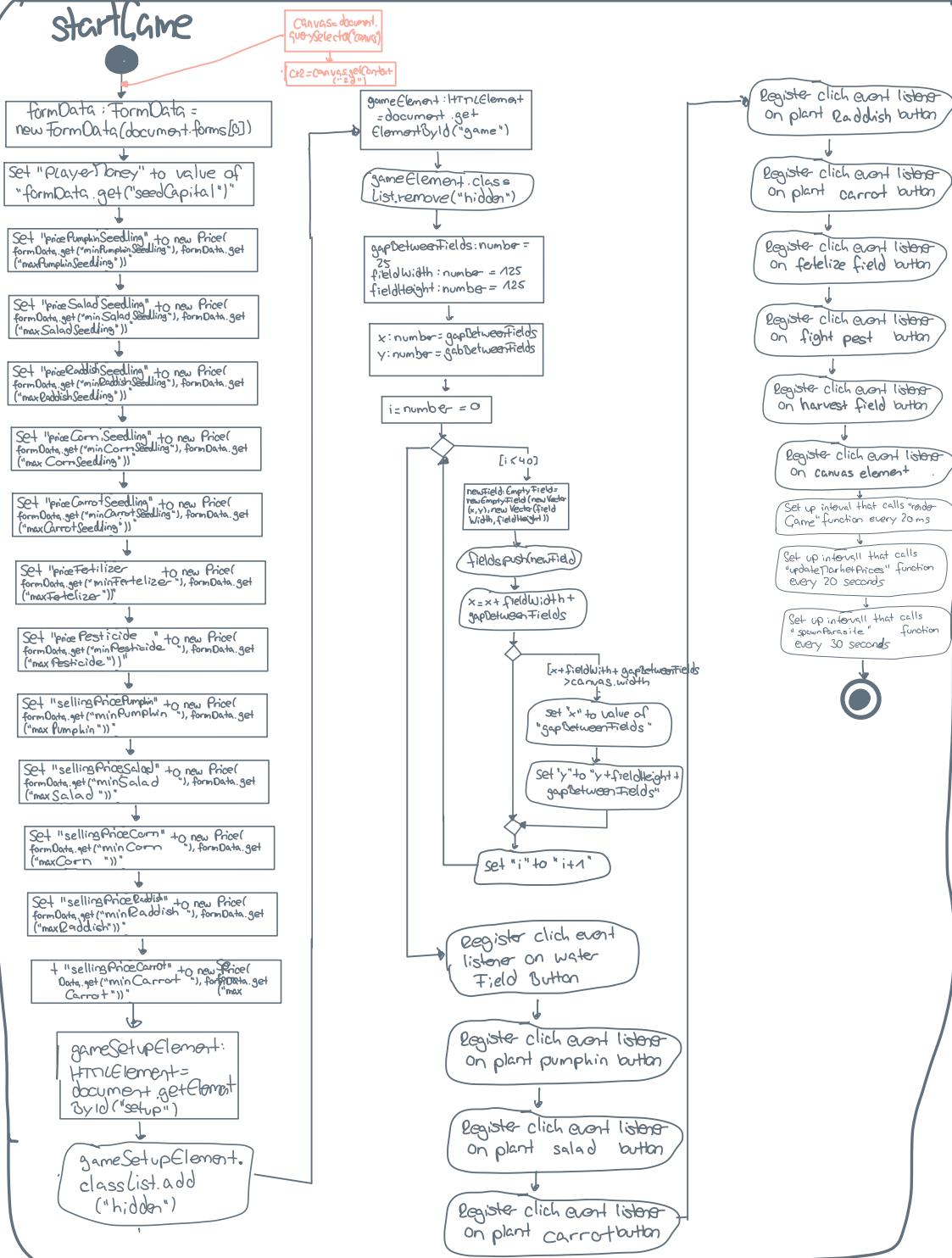
every 300 ms



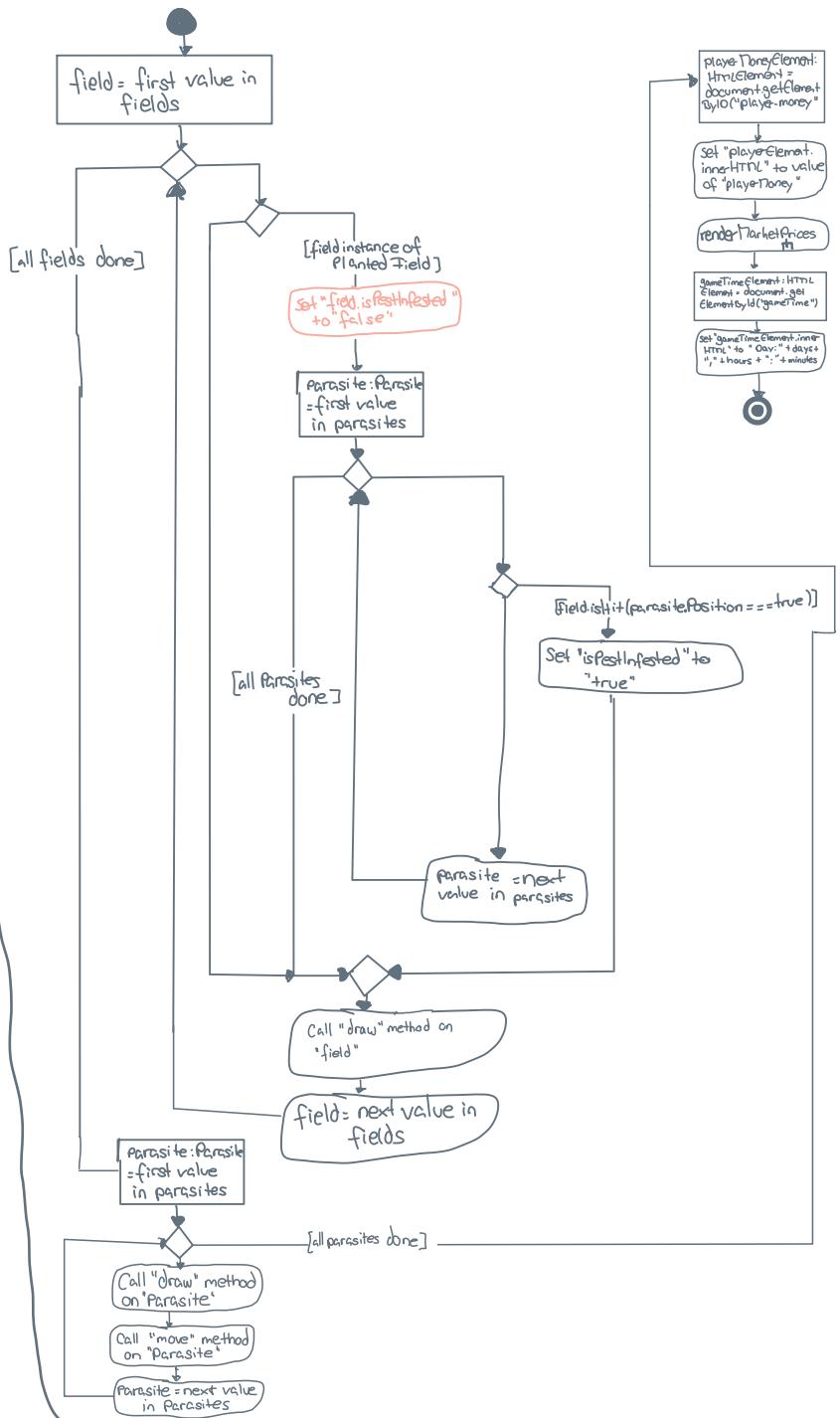
every second



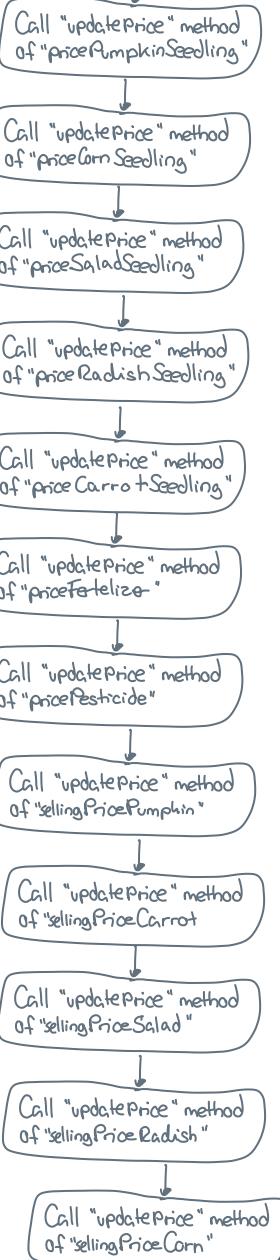
# startGame



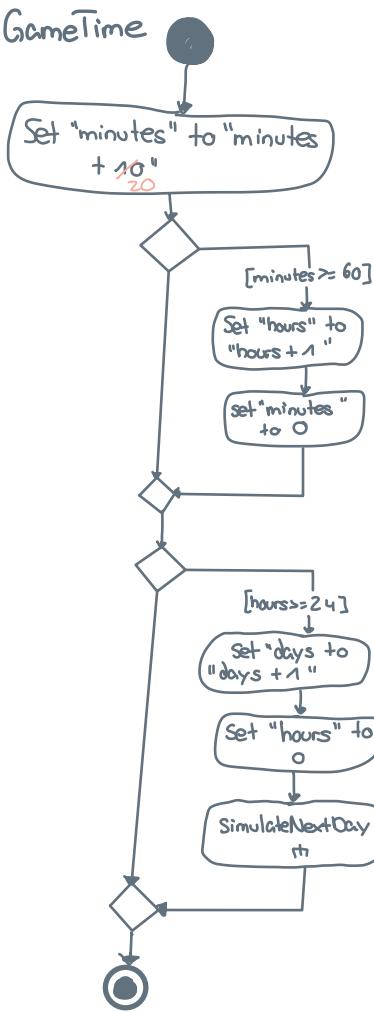
# renderGame



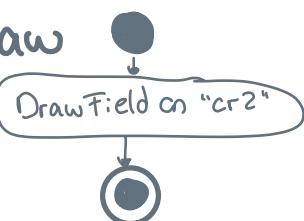
# updateMarketPrices



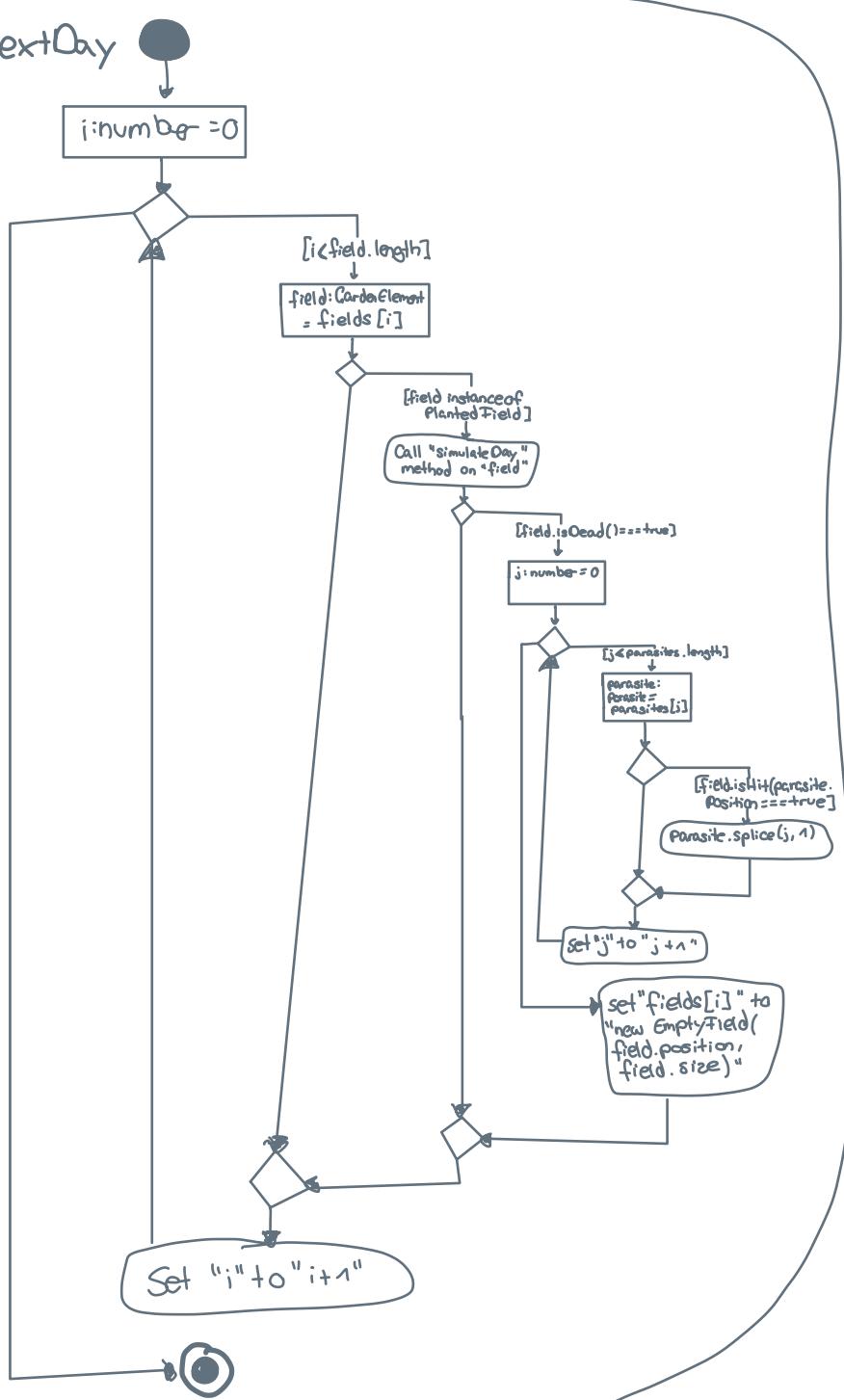
## update GameTime



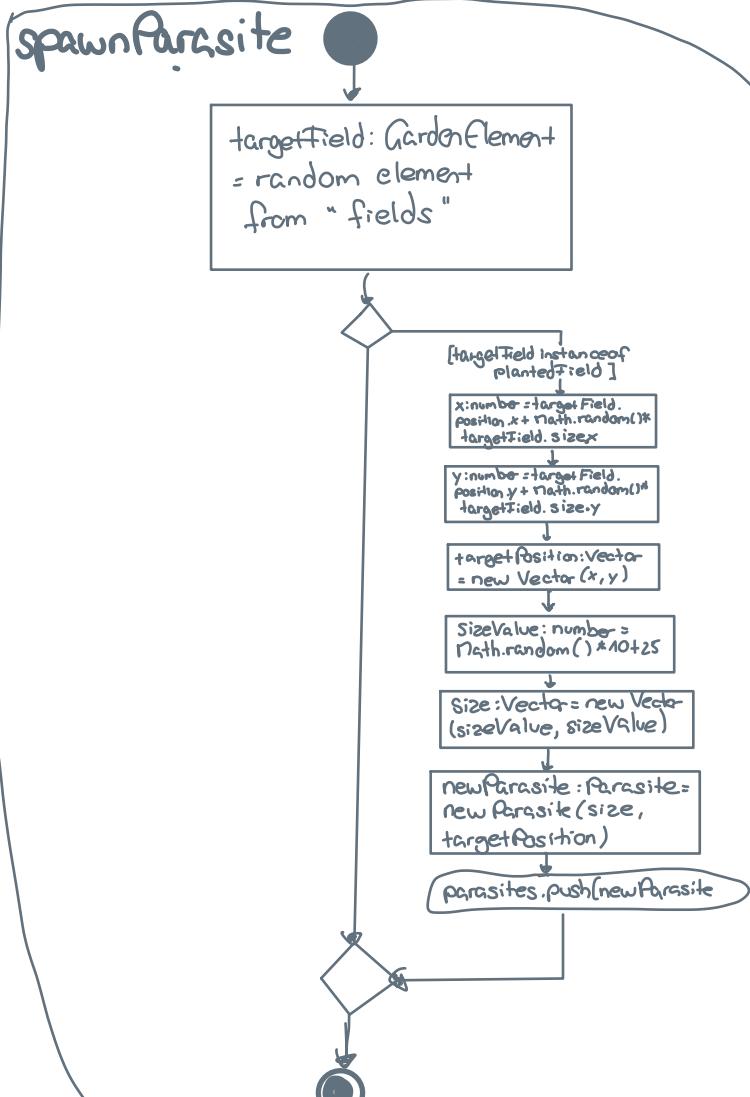
## draw



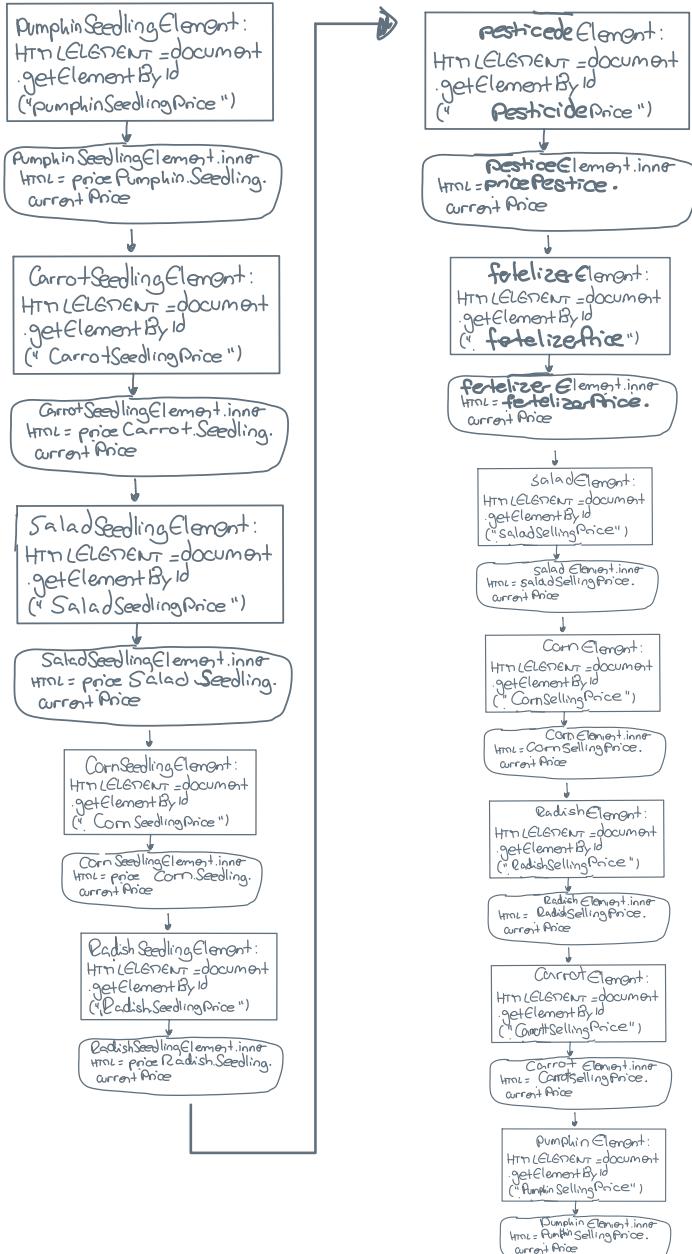
# SimulateNextDay

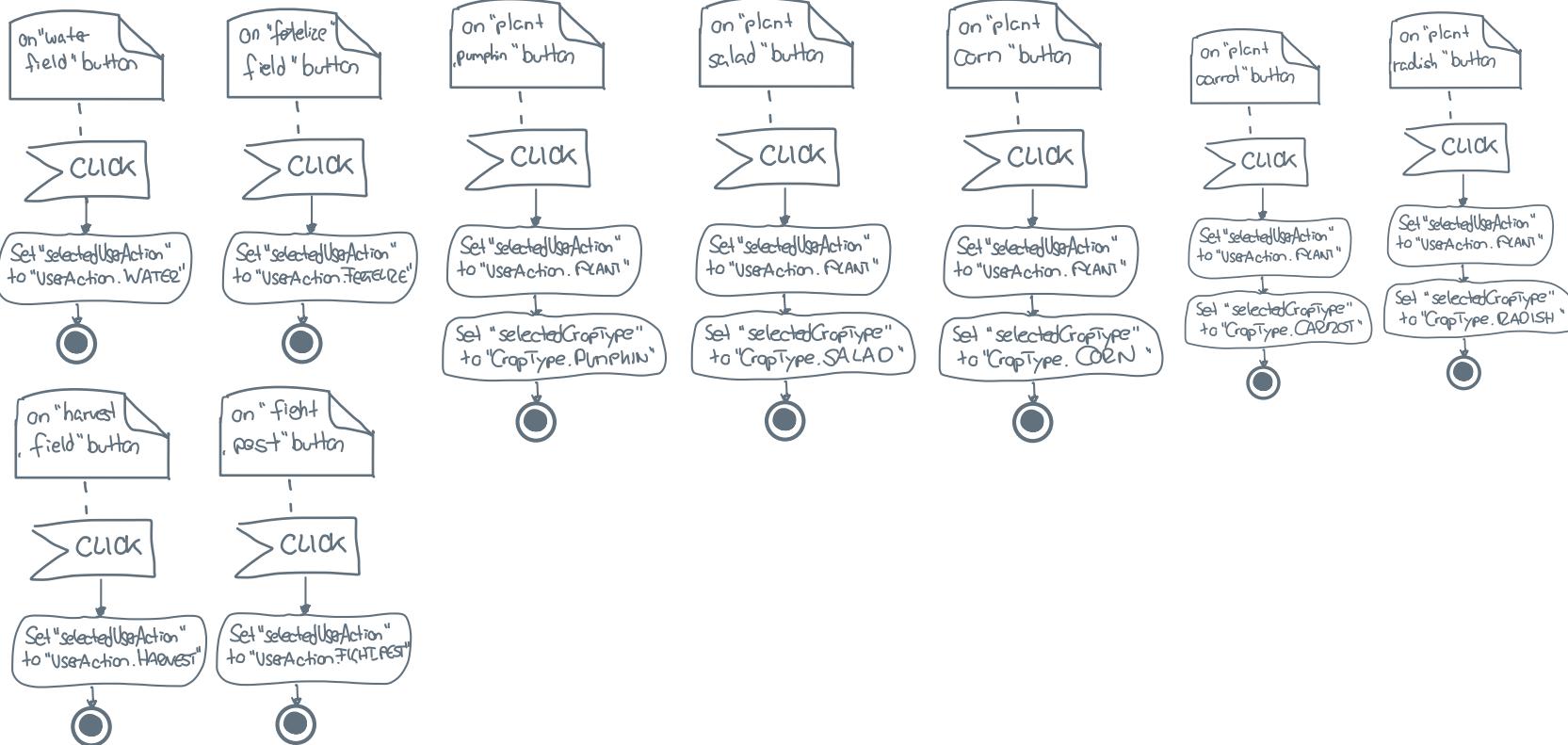


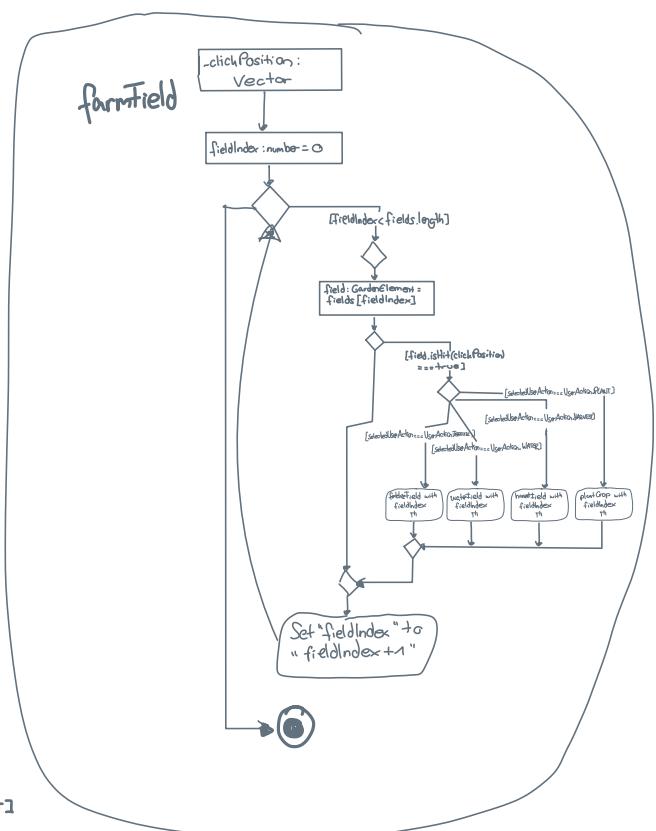
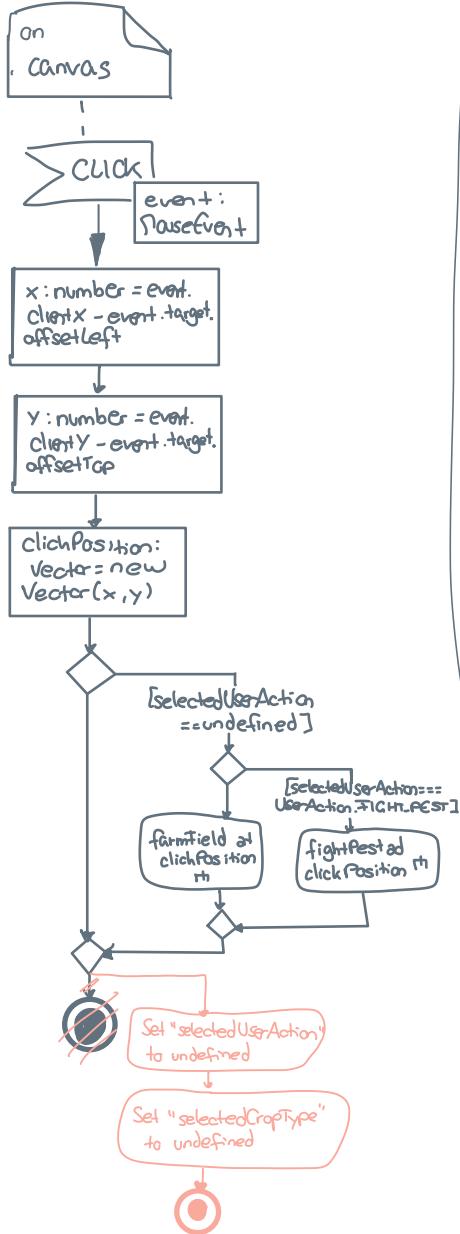
# spawnParasite

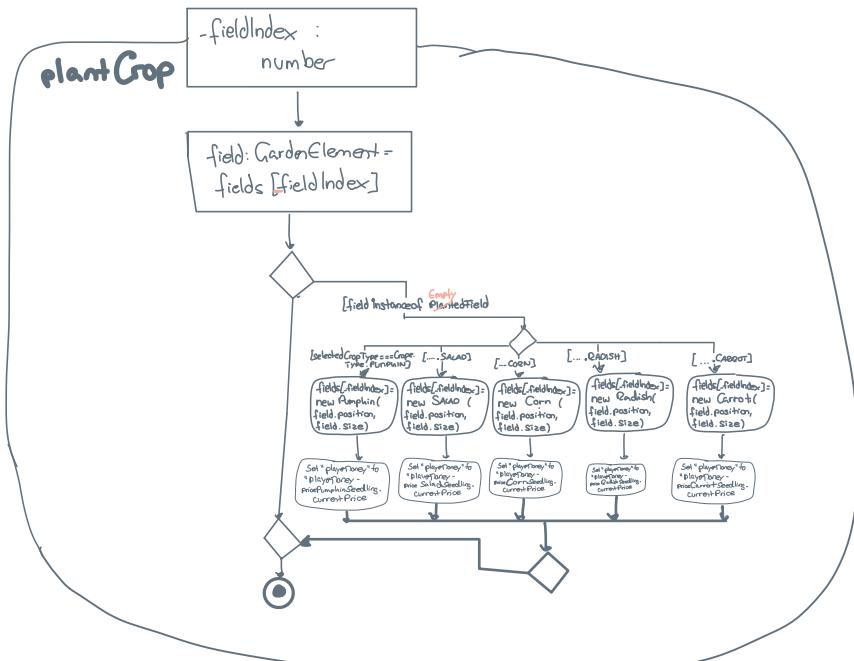
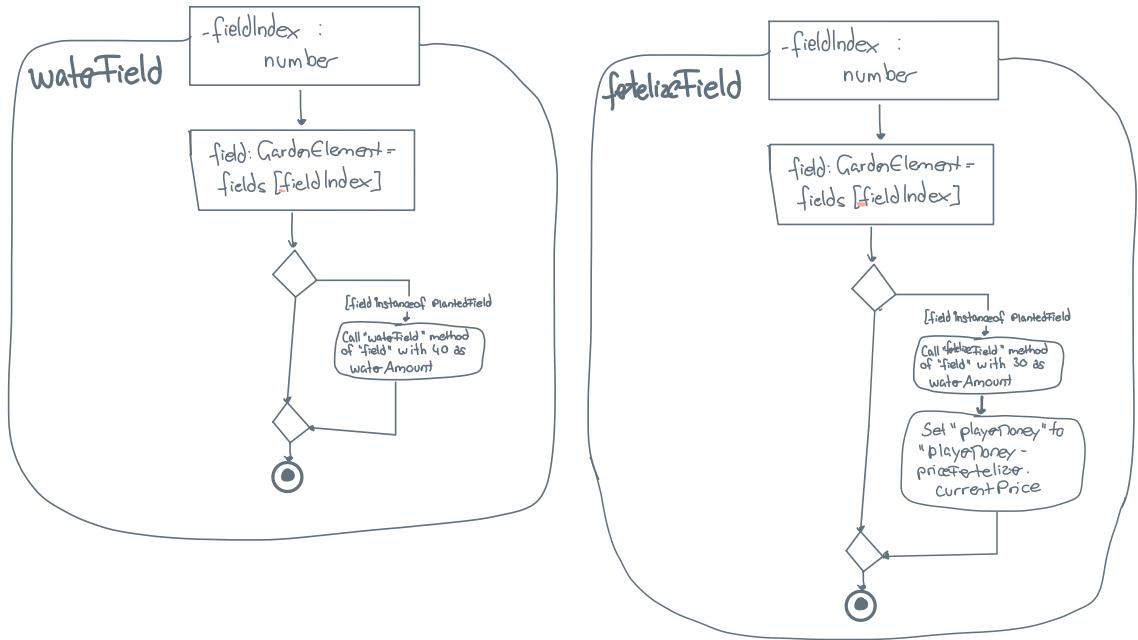


# renderMarketPrices

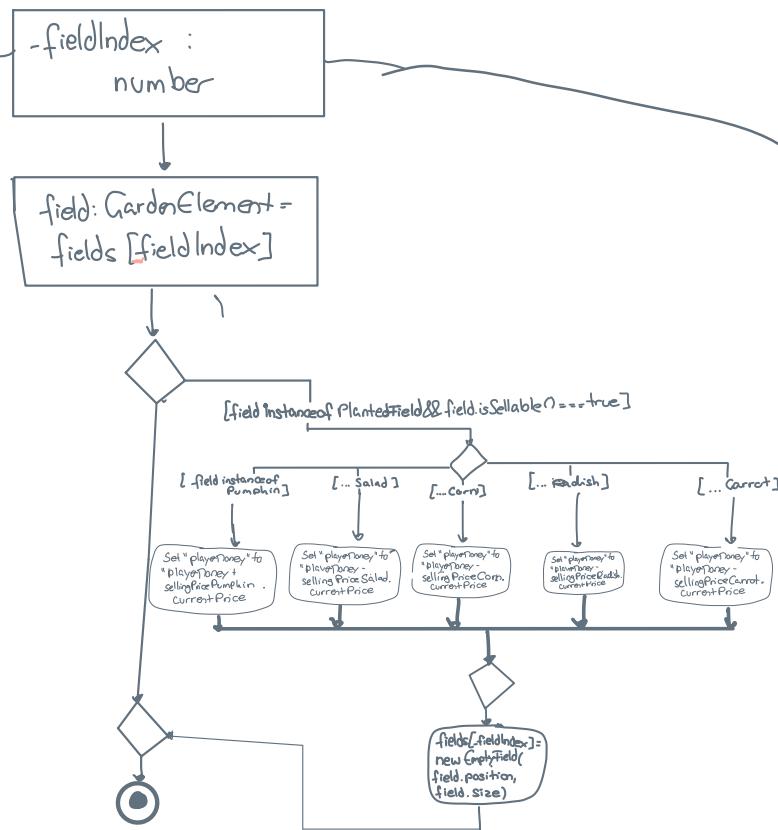








harvestField



*fightPest*

