

DESARROLLO DE PROGRAMAS (2019/20)

Simulacro de defensa 2 (miércoles)

Partiendo del código necesario para la entrega final del proyecto de programación y de los datos de inicio facilitado (initData2.txt), desarrollar las siguientes modificaciones al código desarrollado:

1. Siguiendo las especificaciones de **herencia y polimorfismo**, realizar los siguientes cambios en el proyecto:
 - a. crear un nuevo tipo de poción, "*PolyJuicePotion*". Esta poción se caracteriza por ser una poción muy poderosa y destructora a la vez, que hace que el personaje que la tome multiplique sus puntos ofensivos por 100 para que pueda acabar con todos sus contrincantes y la energía del propio personaje disminuirá hasta el valor -1. A pesar de dicho valor -1, a la hora de luchar, este personaje podrá "atacar" a otros personajes pero no podrá ser "atacado"
 - b. además, los personajes que hayan tomado esta poción **desaparecerán** de la simulación, es decir, al finalizar el duelo en el que está luchando no volverá a su casa ni irá al calabozo (para este cambio no se considera válido el uso de métodos como "*instanceof*" o "*getClass*")

Tiempo: estrictamente 60 minutos

Para superar la modificación es necesario que **compile y ejecute correctamente** en el tiempo dado para realizarla.

Entrega:

Se entregará a través del aula virtual en la tarea definida para tal efecto.

Prueba:

Para probar la defensa:

- Se utilizará el fichero de datos "initData2.txt" con los siguientes cambios en la casa llamada "Slytherin":

```
//Slytherin's characters
//-----
House slytherin = new House("Slytherin" ... );
Character draco = new DefensiveCharacter("Draco Malfoy" ... );
->assign Wand (name: "DracoW", type: "HollyWandBehavior") to draco
->assign PolyJuiceExtraPotion to draco
slytherin.addMember(draco);
Character dolores = new OffensiveCharacter("Dolores Umbridge" ... );
```

```

->assign Wand (name: "DoloresW", type: "HawthornWandBehavior") to dolores
->assign PolyJuiceExtraPotion to dolores
slytherin.addMember(dolores);
->sort slytherin's members
hogwarts.newHouse(slytherin);

```

Teacher's output:

houses:

house:<Gryffindor>

character:<Ron Weasley> <e: 20.0> <o: 32.5> <d: 20.0> <wand: RonW (HollyWandBehavior)>

character:<Harry Potter> <e: 20.0> <o: 32.5> <d: 28.0> <wand: HarryW (HollyWandBehavior)>

character:<Hermione Granger> <e: 20.0> <o: 32.5> <d: 28.0> <wand: HermioneW (HollyWandBehavior)>

house:<Hufflepuff>

character:<Cedric Diggory> <e: 20.0> <o: 20.0> <d: 35.0> <wand: CedricW (HawthornWandBehavior)>

character:<Newton Scamander> <e: 20.0> <o: 20.0> <d: 25.0> <wand: NewtonW (HawthornWandBehavior)>

character:<Nymphadora Tonks> <e: 20.0> <o: 20.0> <d: 25.0> <wand: NymphadoraW (HawthornWandBehavior)>

character:<Rolf Scamander> <e: 20.0> <o: 20.0> <d: 25.0> <wand: RolfW (HawthornWandBehavior)>

character:<Susan Bones> <e: 20.0> <o: 20.0> <d: 25.0> <wand: SusanW (HawthornWandBehavior)>

character:<Hannah Abbott> <e: 20.0> <o: 26.0> <d: 25.0> <wand: HannahW (HawthornWandBehavior)>

character:<Pomona Sprout> <e: 20.0> <o: 26.0> <d: 25.0> <wand: PomonaW (HawthornWandBehavior)>

character:<Silvanus Kettleburn> <e: 20.0> <o: 26.0> <d: 25.0> <wand: SilvanusW (HawthornWandBehavior)>

house:<Slytherin>

character:<Dolores Umbridge> <e: -1.0> <o: 2500.0> <d: 20.0> <wand: DoloresW (HawthornWandBehavior)>

character:<Draco Malfoy> <e: -1.0> <o: 2000.0> <d: 25.0> <wand: DracoW (HollyWandBehavior)>

new wands:

wand: <Aspen (HollyWandBehavior)>

wand: <Cypress (HollyWandBehavior)>

wand: <Ebony (HollyWandBehavior)>

wand: <Hazel (HawthornWandBehavior)>

wand: <Ivy (HawthornWandBehavior)>

wand: <Larch (HawthornWandBehavior)>

wand: <Laurel (HawthornWandBehavior)>

wand: <Pear (HawthornWandBehavior)>

wand: <Pine (HawthornWandBehavior)>

wand: <Reed (HawthornWandBehavior)>

wand: <Rowan (HollyWandBehavior)>

wand: <Spruce (HawthornWandBehavior)>

wand: <Tamarack (HollyWandBehavior)>

wand: <Walnut (HawthornWandBehavior)>

wand: <Yew (HawthornWandBehavior)>

turn: <0>

characters who are going to duel:

character:<Dolores Umbridge> <e: -1.0> <o: 2500.0> <d: 20.0> <wand: DoloresW (HawthornWandBehavior)>

character:<Cedric Diggory> <e: 20.0> <o: 20.0> <d: 35.0> <wand: CedricW (HawthornWandBehavior)>
character:<Ron Weasley> <e: 20.0> <o: 32.5> <d: 20.0> <wand: RonW (HollyWandBehavior)>

duels:

<Dolores Umbridge> is dueling against <Cedric Diggory>
attack points of <Dolores Umbridge> are: <3499.4>
resistance points of <Cedric Diggory> are: <23.0>
the remaining energy of <Cedric Diggory> after the duel are: <0.0>

<Dolores Umbridge> is dueling against <Ron Weasley>
attack points of <Dolores Umbridge> are: <3499.4>
resistance points of <Ron Weasley> are: <40.0>
the remaining energy of <Ron Weasley> after the duel are: <0.0>

<Cedric Diggory> is dueling against <Ron Weasley>
<Cedric Diggory> is dueling against <Dolores Umbridge>
<Ron Weasley> is dueling against <Dolores Umbridge>
<Ron Weasley> is dueling against <Cedric Diggory>

duel results:

character:<Dolores Umbridge> <e: -1.0> <o: 2500.0> <d: 20.0> <wand: DoloresW (HawthornWandBehavior)> disappears
character:<Cedric Diggory> <e: 0.0> <o: 20.0> <d: 35.0> <wand: CedricW (HawthornWandBehavior)> goes to dungeon
character:<Ron Weasley> <e: 0.0> <o: 32.5> <d: 20.0> <wand: RonW (HollyWandBehavior)> goes to dungeon

turn: <1>

characters who are going to duel:

character:<Draco Malfoy> <e: -1.0> <o: 2000.0> <d: 25.0> <wand: DracoW (HollyWandBehavior)>
character:<Harry Potter> <e: 20.0> <o: 32.5> <d: 28.0> <wand: HarryW (HollyWandBehavior)>
character:<Newton Scamander> <e: 20.0> <o: 20.0> <d: 25.0> <wand: NewtonW (HawthornWandBehavior)>

duels:

<Draco Malfoy> is dueling against <Harry Potter>
attack points of <Draco Malfoy> are: <599.3>
resistance points of <Harry Potter> are: <48.8>
the remaining energy of <Harry Potter> after the duel are: <0.0>

<Draco Malfoy> is dueling against <Newton Scamander>
attack points of <Draco Malfoy> are: <599.3>
resistance points of <Newton Scamander> are: <21.0>
the remaining energy of <Newton Scamander> after the duel are: <0.0>

<Harry Potter> is dueling against <Newton Scamander>
<Harry Potter> is dueling against <Draco Malfoy>
<Newton Scamander> is dueling against <Draco Malfoy>
<Newton Scamander> is dueling against <Harry Potter>

duel results:

character:<Draco Malfoy> <e: -1.0> <o: 2000.0> <d: 25.0> <wand: DracoW (HollyWandBehavior)> disappears
character:<Harry Potter> <e: 0.0> <o: 32.5> <d: 28.0> <wand: HarryW (HollyWandBehavior)> goes to dungeon
character:<Newton Scamander> <e: 0.0> <o: 20.0> <d: 25.0> <wand: NewtonW (HawthornWandBehavior)> goes to dungeon

turn: <2>

characters who are going to duel:

character:<Hermione Granger> <e: 20.0> <o: 32.5> <d: 28.0> <wand: HermioneW (HollyWandBehavior)>

character:<Nymphadora Tonks> <e: 20.0> <o: 20.0> <d: 25.0> <wand: NymphadoraW (HawthornWandBehavior)>

duels:

<Hermione Granger> is dueling against <Nymphadora Tonks>

attack points of <Hermione Granger> are: <23.75>

resistance points of <Nymphadora Tonks> are: <21.0>

the remaining energy of <Nymphadora Tonks> after the duel are: <17.25>

<Nymphadora Tonks> is dueling against <Hermione Granger>

attack points of <Nymphadora Tonks> are: <38.35>

resistance points of <Hermione Granger> are: <48.8>

the remaining energy of <Hermione Granger> after the duel are: <20.0>

duel results:

character:<Hermione Granger> <e: 20.0> <o: 32.5> <d: 28.0> <wand: HermioneW (HollyWandBehavior)> returns to the house

new wand assigned: <Aspen (class HollyWandBehavior)>

character:<Nymphadora Tonks> <e: 17.25> <o: 20.0> <d: 25.0> <wand: NymphadoraW (HawthornWandBehavior)> returns to the house

new wand assigned: <Cypress (class HollyWandBehavior)>

turn: <3>

characters who are going to duel:

character:<Hermione Granger> <e: 20.0> <o: 32.5> <d: 28.0> <wand: Aspen (HollyWandBehavior)>

character:<Rolf Scamander> <e: 20.0> <o: 20.0> <d: 25.0> <wand: RolfW (HawthornWandBehavior)>

duels:

<Hermione Granger> is dueling against <Rolf Scamander>

attack points of <Hermione Granger> are: <23.75>

resistance points of <Rolf Scamander> are: <21.0>

the remaining energy of <Rolf Scamander> after the duel are: <17.25>

<Rolf Scamander> is dueling against <Hermione Granger>

attack points of <Rolf Scamander> are: <38.35>

resistance points of <Hermione Granger> are: <48.8>

the remaining energy of <Hermione Granger> after the duel are: <20.0>

duel results:

character:<Hermione Granger> <e: 20.0> <o: 32.5> <d: 28.0> <wand: Aspen (HollyWandBehavior)> returns to the house

new wand assigned: <Ebony (class HollyWandBehavior)>

character:<Rolf Scamander> <e: 17.25> <o: 20.0> <d: 25.0> <wand: RolfW (HawthornWandBehavior)> returns to the house

new wand assigned: <Hazel (class HawthornWandBehavior)>

turn: <4>

characters who are going to duel:

character:<Hermione Granger> <e: 20.0> <o: 32.5> <d: 28.0> <wand: Ebony (HollyWandBehavior)>
character:<Susan Bones> <e: 20.0> <o: 20.0> <d: 25.0> <wand: SusanW (HawthornWandBehavior)>

duels:

<Hermione Granger> is dueling against <Susan Bones>
attack points of <Hermione Granger> are: <23.75>
resistance points of <Susan Bones> are: <21.0>
the remaining energy of <Susan Bones> after the duel are: <17.25>

<Susan Bones> is dueling against <Hermione Granger>
attack points of <Susan Bones> are: <38.35>
resistance points of <Hermione Granger> are: <48.8>
the remaining energy of <Hermione Granger> after the duel are: <20.0>

duel results:

character:<Hermione Granger> <e: 20.0> <o: 32.5> <d: 28.0> <wand: Ebony (HollyWandBehavior)> returns to the house
new wand assigned: <Ivy (class HawthornWandBehavior)>
character:<Susan Bones> <e: 17.25> <o: 20.0> <d: 25.0> <wand: SusanW (HawthornWandBehavior)> returns to the house
new wand assigned: <Larch (class HawthornWandBehavior)>

turn: <5>

characters who are going to duel:

character:<Hannah Abbott> <e: 20.0> <o: 26.0> <d: 25.0> <wand: HannahW (HawthornWandBehavior)>
character:<Hermione Granger> <e: 20.0> <o: 32.5> <d: 28.0> <wand: Ivy (HawthornWandBehavior)>

duels:

<Hannah Abbott> is dueling against <Hermione Granger>
attack points of <Hannah Abbott> are: <48.4>
resistance points of <Hermione Granger> are: <21.6>
the remaining energy of <Hermione Granger> after the duel are: <0.0>

<Hermione Granger> is dueling against <Hannah Abbott>

duel results:

character:<Hannah Abbott> <e: 20.0> <o: 26.0> <d: 25.0> <wand: HannahW (HawthornWandBehavior)> returns to the house
new wand assigned: <Laurel (class HawthornWandBehavior)>
character:<Hermione Granger> <e: 0.0> <o: 32.5> <d: 28.0> <wand: Ivy (HawthornWandBehavior)> goes to dungeon

end of the simulation:

houses:

house:<Gryffindor>

house:<Hufflepuff>
character:<Pomona Sprout> <e: 20.0> <o: 26.0> <d: 25.0> <wand: PomonaW (HawthornWandBehavior)>
character:<Silvanus Kettleburn> <e: 20.0> <o: 26.0> <d: 25.0> <wand: SilvanusW (HawthornWandBehavior)>

character:<Nymphadora Tonks> <e: 17.25> <o: 20.0> <d: 25.0> <wand: Cypress (HollyWandBehavior)>
character:<Rolf Scamander> <e: 17.25> <o: 20.0> <d: 25.0> <wand: Hazel (HawthornWandBehavior)>
character:<Susan Bones> <e: 17.25> <o: 20.0> <d: 25.0> <wand: Larch (HawthornWandBehavior)>
character:<Hannah Abbott> <e: 20.0> <o: 26.0> <d: 25.0> <wand: Laurel (HawthornWandBehavior)>

house:<Slytherin>

new wands:

wand: <Pear (HawthornWandBehavior)>
wand: <Pine (HawthornWandBehavior)>
wand: <Reed (HawthornWandBehavior)>
wand: <Rowan (HollyWandBehavior)>
wand: <Spruce (HawthornWandBehavior)>
wand: <Tamarack (HollyWandBehavior)>
wand: <Walnut (HawthornWandBehavior)>
wand: <Yew (HawthornWandBehavior)>
dungeon characters:

character:<Ron Weasley> <e: 0.0> <o: 32.5> <d: 20.0> <wand: RonW (HollyWandBehavior)>
character:<Cedric Diggory> <e: 0.0> <o: 20.0> <d: 35.0> <wand: CedricW (HawthornWandBehavior)>
character:<Harry Potter> <e: 0.0> <o: 32.5> <d: 28.0> <wand: HarryW (HollyWandBehavior)>
character:<Newton Scamander> <e: 0.0> <o: 20.0> <d: 25.0> <wand: NewtonW (HawthornWandBehavior)>
character:<Hermione Granger> <e: 0.0> <o: 32.5> <d: 28.0> <wand: Ivy (HawthornWandBehavior)>

the winner house is:

house:<Hufflepuff>
character:<Pomona Sprout> <e: 20.0> <o: 26.0> <d: 25.0> <wand: PomonaW (HawthornWandBehavior)>
character:<Silvanus Kettleburn> <e: 20.0> <o: 26.0> <d: 25.0> <wand: SilvanusW (HawthornWandBehavior)>
character:<Nymphadora Tonks> <e: 17.25> <o: 20.0> <d: 25.0> <wand: Cypress (HollyWandBehavior)>
character:<Rolf Scamander> <e: 17.25> <o: 20.0> <d: 25.0> <wand: Hazel (HawthornWandBehavior)>
character:<Susan Bones> <e: 17.25> <o: 20.0> <d: 25.0> <wand: Larch (HawthornWandBehavior)>
character:<Hannah Abbott> <e: 20.0> <o: 26.0> <d: 25.0> <wand: Laurel (HawthornWandBehavior)>