

gestionCombat

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Contents

1 GestionCombat

1.1 service : GestionCombat

1.2 use : Terrain, Personnage, Position

1.3 types : String, int, boolean, List<Personnage>, Map<String,Personnage>, Map<String,COMMANDE>, enum COMMANDE {RIEN, GAUCHE, DROITE, HAUT, BAS, SAUTER, FRAPPE, JETER, RAMASSER}

1.4 observators :

1.4.1

- terrain : [GestionCombat] \rightarrow Terrain
- mPerso : [GestionCombat] \rightarrow Map<String,Personnage>
- estFrappe : [GestionCombat] \times String \rightarrow boolean
 - pre estFrappe(C,id) require id \in mPerso.keySet()

- $\text{estGele} : [\text{GestionCombat}] \times \text{String} \rightarrow \text{boolean}$
 - $\text{pre estGele}(C, \text{id}) \text{ require } \text{id} \in \text{mPerso.keySet}()$
- $\text{cptGele} : [\text{GestionCombat}] \times \text{String} \rightarrow \text{int}$
 - $\text{pre cptGele}(C, \text{id}) \text{ require } \text{id} \in \text{mPerso.keySet}() \wedge \text{estGele}(C, \text{id})$
- $\text{position} : [\text{GestionCombat}] \times \text{String} \rightarrow \text{Position}$
 - $\text{pre position}(C, \text{id}) \text{ require } \text{id} \in \text{mPerso.keySet}()$
- $\text{collisionGauche} : [\text{GestionCombat}] \times \text{String} \times \text{String} \rightarrow \text{boolean}$
 - $\text{pre collisionGauche}(C, \text{id1}, \text{id2}) \text{ require } \text{id1} \in \text{mPerso.keySet}() \wedge \text{id2} \in \text{mPerso.keySet}()$
- $\text{collision} : [\text{GestionCombat}] \times \text{String} \rightarrow \text{List}<\text{Personnage}>$
 - $\text{pre collision}(C, \text{id}) \text{ require } \text{id} \in \text{mPerso.keySet}()$

1.5 Constructors :

1.5.1

- $\text{init} : \text{int} \times \text{int} \times \text{int} \rightarrow [\text{GestionCombat}]$

1.6 Operators :

1.6.1

- $\text{gerer} : [\text{GestionCombat}] \times \text{Map} < \text{String}, \text{COMMANDE} > \rightarrow [\text{GestionCombat}]$

1.7 Observations :

1.7.1 [invariants]

- $\text{collision}(\text{C}, \text{id}) = \min$
 - $\text{tmp} = \emptyset, \forall \text{nomP} \in \text{mPerso.keySet}(),$
 - $\text{tmp} \cup \text{nomP}$ si $\text{collisionGauche}(\text{C}, \text{id}, \text{nomP}) \parallel \text{collisionGauche}(\text{C}, \text{nomP}, \text{id})$
- $\text{collisionGauche}(\text{C}, \text{id1}, \text{id2}) = \min$
 - $\text{pos1} = \text{position}(\text{C}, \text{id1}), \text{pos2} = \text{position}(\text{C}, \text{id2}),$
 - $\text{Position}::\text{collision}(\text{pos1}, \text{pos2})$

1.7.2 [init]

- $\text{terrain}(\text{init}(\text{l}, \text{h}, \text{p})) = \text{Terrain}::\text{init}(\text{l}, \text{h}, \text{p})$
- $\text{mPerso}(\text{init}(\text{l}, \text{h}, \text{p})) =$
 - $\text{mPerso.put}(\text{"Alex"}, \text{Personnage}::\text{init}(\text{"Alex"}, 20, 51, 10, 100, 1664))$
 - $\text{mPerso.put}(\text{"Ryan"}, \text{Personnage}::\text{init}(\text{"Ryan"}, 25, 60, 12, 200, 1664))$
 - $\text{mPerso.put}(\text{"Slick"}, \text{Gangster}::\text{init}(\text{"Slick"}, 35, 80, 20, 250, 2000))$

- + 3 gangster lambda :
 - * name = RandomName()
 - * mPerso.put(name, Gangster::init(name,18,45,9,50,500))
- estFrappe(init(l,h,p),id)=false
- estGele(init(l,h,p),id)=false
- position
 - position(init(l,h,p),"Alex") = Position::init(0, Terrain::profondeur(init(l,h,p)) / 2 + 1, 0, false)
 - position(init(l,h,p),"Ryan") = Position::init(0, Terrain::profondeur(init(l,h,p)) / 2 - 1, 0, false)
 - position(init(l,h,p),"Slick") = Position::init(Terrain::largeur(init(l,h,p)) - 1, Terrain::profondeur(init(l,h,p)) / 2, 0, true)
 - position(init(l,h,p), id) = Random sur Bloc Vide

1.7.3 [gerer]

- **TODO** id n'appartient pas a keySet, creation d'un gangster
- $\forall id \in mPerso.keySet(), mPerso(gerer(C, cmd)).get(id) =$
 - si $\neg estFrappe(gerer(C, cmd), id)$ alors $mPerso(C).get(id)$
 - sinon $Personnage::retrait(mPerso(C).get(id), cpt)$

- * avec $\text{cpt}=0, \forall p \in \text{collision}(\text{C}, \text{id}), \text{cmd.get}(\text{Personnage}::\text{nom}(p))$
 $= \text{FRAPPE}, \text{cpt} + \text{Personnage}::\text{force}(p)$
- $\forall \text{id} \in \text{mPerso.keySet}(), \text{estFrappe}(\text{gerer}(\text{C}, \text{cmd}), \text{id}) =$
 - $\text{collision}(\text{C}, \text{id}) \neq \emptyset \wedge (\exists p \in \text{collision}(\text{C}, \text{id}) \text{ tq } \text{cmd.get}(\text{Personnage}::\text{nom}(p))$
 $= \text{FRAPPE})$
- $\forall \text{id} \in \text{mPerso.keySet}(), \text{estGele}(\text{gerer}(\text{C}, \text{cmd}), \text{id}) = (\text{cmd.get}(\text{id}) =$
 $\text{FRAPPE}) \vee \text{estFrappe}(\text{gerer}(\text{C}, \text{cmd}), \text{id}) \vee \text{Chose}::\text{estPorte}(\text{mPerso}(\text{gerer}(\text{C},$
 $\text{cmd})).\text{get}(\text{id})) \vee (\text{estGele}(\text{C}, \text{id}) \wedge \text{cptGele}(\text{C}, \text{id}) > 1)$
- $\forall \text{id} \in \text{mPerso.keySet}(), \text{cptGele}(\text{gerer}(\text{C}, \text{cmd}), \text{id}) =$
 - si $(\text{cmd.get}(\text{id}) = \text{FRAPPE})$ alors 1
 - sinon si $\text{estFrappe}(\text{gerer}(\text{C}, \text{cmd}), \text{id})$ alors 3
 - sinon $\text{cpt}(\text{C}, \text{id})-1$
- $\text{mPerso.keySet}(), \text{position}(\text{gerer}(\text{C}, \text{cmd}), \text{id}) =$
 - si $\text{estFrappe}(\text{gerer}(\text{C}, \text{cmd}), \text{id}),$
 - * si $(\exists p \in \text{collisionGauche}(\text{C}, \text{id}, p) \text{ tq } \text{cmd.get}(\text{Personnage}::\text{nom}(p))$
 $= \text{FRAPPE})$ alors
 - $\text{Position}::\text{setX}(\text{position}(\text{C}, \text{id}), \min(\text{Position}::\text{x}(\text{position}(\text{C},$
 $\text{id})) + 3, \text{Terrain}::\text{largeur}(\text{terrain}(\text{C}))))$
 - * si $(\exists p \in \text{collisionGauche}(\text{C}, p, \text{id}) \text{ tq } \text{cmd.get}(\text{Personnage}::\text{nom}(p))$
 $= \text{FRAPPE})$ alors

- Position::setX(position(C, id), max(Position::x(position(C, id)) - 3, 0))
- si Chose::estPorte(mPerso(C).get(id)) alors
 - * $\exists p \in \text{mPerso}(C).\text{keySet}() \text{ tq } \text{Personnage}::\text{laChoseEquipee}(p) \\ == \text{mPerso}(C).\text{get}(\text{id}) \wedge \text{cmd}.\text{get}(\text{Personnage}::\text{nom}(p)) \neq \text{JETER}$
 - Position::set(position(C, id), position(C, p))
 - * $\exists p \in \text{mPerso}(C).\text{keySet}() \text{ tq } \text{Personnage}::\text{laChoseEquipee}(p) \\ = \text{mPerso}(C).\text{get}(\text{id}) \wedge \text{cmd}.\text{get}(\text{Personnage}::\text{nom}(p)) = \text{JETER}$
 - si Position::dirG(position(gerer(C, cmd), p)) alors Position::set(position(C, id), Position::x(max(position(C, p) - 5, 0)), Position::y(position(C, p)), 0)
 - sinon Position::set(position(C, id), Position::x(min(position(C, p) + 5, Terrain::largeur(terrain(C)))), Position::y(position(C, p)), 0)
 - Position::setX(position(C, id), min(Position::x(position(C, id)) + 1, Terrain::largeur(terrain(C))))
 - Posirion::setDir(position(C, id), false);
 - Position::setX(position(C, id), max(Position::x(position(C, id)) - 1, 0))
 - Posirion::setDir(position(C, id), true);
 - Position::setY(position(C, id), min(Position::y(position(C, id)) + 1, Terrain::profondeur(terrain(C))))
 - Position::setY(position(C, id), max(Position::y(position(C, id)) - 1, 0))

- Position::setZ(position(C, id), 1)
- Position::setZ(position(C, id), 0)
- si cmd.get(id) == DROITE
- si cmd.get(id) == GAUCHE
- si cmd.get(id) == HAUT
- si cmd.get(id) == BAS
- si cmd.get(id) == SAUTER
- sinon