Algoritmos y Estructuras de Datos II

Primer Cuatrimestre de 2015

Departamento de Computación
Facultad de Ciencias Exactas y Naturales
Universidad de Buenos Aires

Trabajo Prï¿½ctico 1

Especificaciï¿½n

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Reservado para la cátedra

Instancia	Docente	Nota
Primera entrega		
Segunda entrega		

Índice

1. TAD AS

TAD AS

géneros as

igualdad observacional
$(\forall dc, dc' : \text{dcnet})\ (dc =_{\text{obs}} dc' \iff ())$

usa CAMPUS

exporta

observadores básicos

campus : as $\longrightarrow$ campus

seguridad : as $\longrightarrow$ conj(seguridad)

hayEst? : as a × pos p $\longrightarrow$ bool $\{posValida(campus(a), p)\}$

hayHippie? : as a × pos p $\longrightarrow$ bool $\{posValida(campus(a), p)\}$

posSeg : as a × seg s $\longrightarrow$ pos $\{s \in seguridad(a)\}$

#capturas : as a × seg s $\longrightarrow$ nat $\{s \in seguridad(a)\}$

#sanciones : as a × seg s $\longrightarrow$ nat $\{s \in seguridad(a)\}$

generadores

nueva : campus × conj(seguridad) $\longrightarrow$ as
{(∀ *segs*: e) posValida(c,pos(e)) ∧ (∀ *segs*: s,s1) id(s)!=id(s1) ⇒ pos(s)!=pos(s1)}

moverEst : as a × pos pe × pos pd $\longrightarrow$ as

nuevoEst : as a × pos p $\longrightarrow$ as
$\left\{ \begin{matrix} posValida(campus(a), pe) \\ posValidaPersona(as, pd) \end{matrix} \right. \wedge_{\text{L}} \ hayEst?(a, p) \ \wedge \ adyacente(campus(a), pe, pd) \ \wedge \left. \right\}$

nuevoHippie : as a × pos p $\longrightarrow$ as $\{posIngreso(campus(a), p) \wedge posValidaPersona(a, p)\}$

sacarEst : as a × pos p $\longrightarrow$ as $\{posValida(campus(a), p) \wedge_{\text{L}} hayEst?(a, p) \wedge posIngreso(a, p)\}$

otras operaciones

haySeg? : as a × pos p $\longrightarrow$ bool

adyacente : as a × pos pe × pos pd $\longrightarrow$ bool

posValidaPersona : as a × pos p $\longrightarrow$ bool

posIngreso : as a × pos p $\longrightarrow$ bool

axiomas ∀ *dc*: dcnet, ∀ *r*: red, ∀ p_1, p_2: paqueteID, ∀ c_1, c_2, c_3: compuID,
∀ *camino*: secu(tupla(compuID,interfaz),
∀ *cpaq*: conj(paqueteID)

red(nueva(r)) $\equiv$ r

Fin TAD

2. TAD CAMPUS

TAD CAMPUS

géneros campus

usa CAMPUS

exporta

observadores básicos

alto : campus $\longrightarrow$ nat

ancho : campus $\longrightarrow$ nat

obstaculos : campus $\longrightarrow$ conj(pos)

generadores

nuevo : nat *ancho* $\times$ nat *alto* $\times$ conj(pos) *obst* $\longrightarrow$ campus
$\{1 \leq ancho \land 1 \leq alto \land (\forall\ p\text{: pos})\ p \in obst \Rightarrow_{\text{L}} posValida(c, p)\}$

otras operaciones

adyacente : as a $\times$ pos pe $\times$ pos pd $\longrightarrow$ bool $\{posValida(c, pe) \land posValida(c, pd)\}$

posValida : as a $\times$ pos p $\longrightarrow$ bool

posIngreso : as a $\times$ pos p $\longrightarrow$ bool

axiomas $\forall$ *alto*: nat, $\forall$ *ancho*: nat, $\forall$ *obst*: conj (pos)
$\forall\ p_1$: pos $\forall\ p_2$: pos

alto(nuevo(*ancho*,*alto*,*obst*))	$\equiv$ *alto*
ancho(nuevo(*ancho*,*alto*,*obst*))	$\equiv$ *ancho*
obstaculos(nuevo(*ancho*,*alto*,*obst*))	$\equiv$ *obst*
posValida(nuevo(*ancho*,*alto*,*obst*),p_1)	$\equiv\ \pi_1(p_1) < ancho \land \pi_2(p_1) < alto$
adyacente(nuevo(*ancho*,*alto*,*obst*),p_1,p_2)	$\equiv\ (\pi_1(p_1) = \pi_1(p_2) - 1 \lor \pi_1(p_1) = \pi_1(p_2) + 1) \land$ $(\pi_2(p_1) = \pi_2(p_2) - 1 \lor \pi_2(p_1) = \pi_2(p_2) + 1)$
posValida(nuevo(*ancho*,*alto*,*obst*),p_1)	$\equiv\ \pi_2(p_1) = alto - 1 \lor \pi_2(p_1) = 0$

Fin TAD