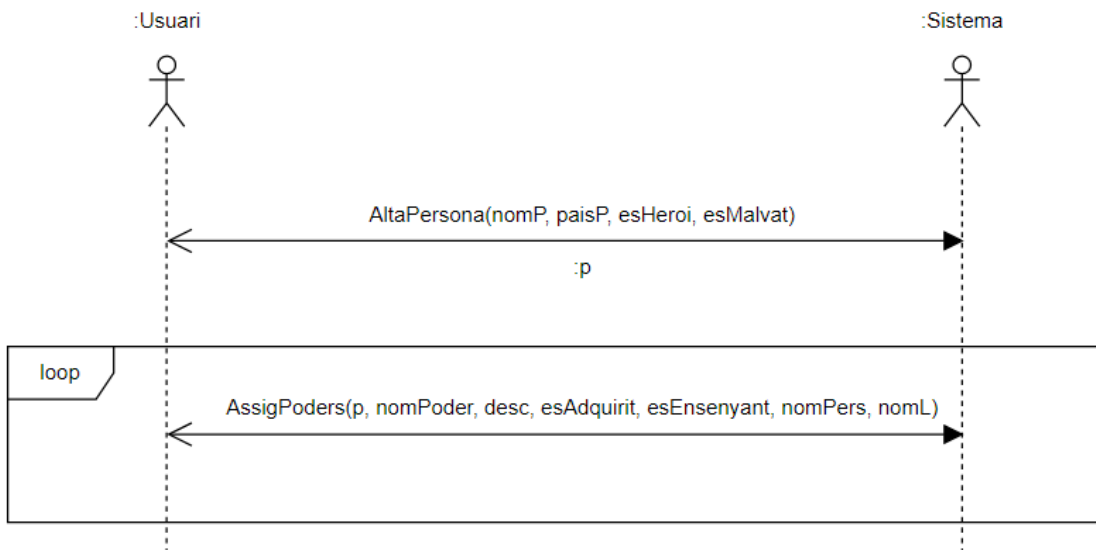


## PROBLEMA 2 CONTROL 2:

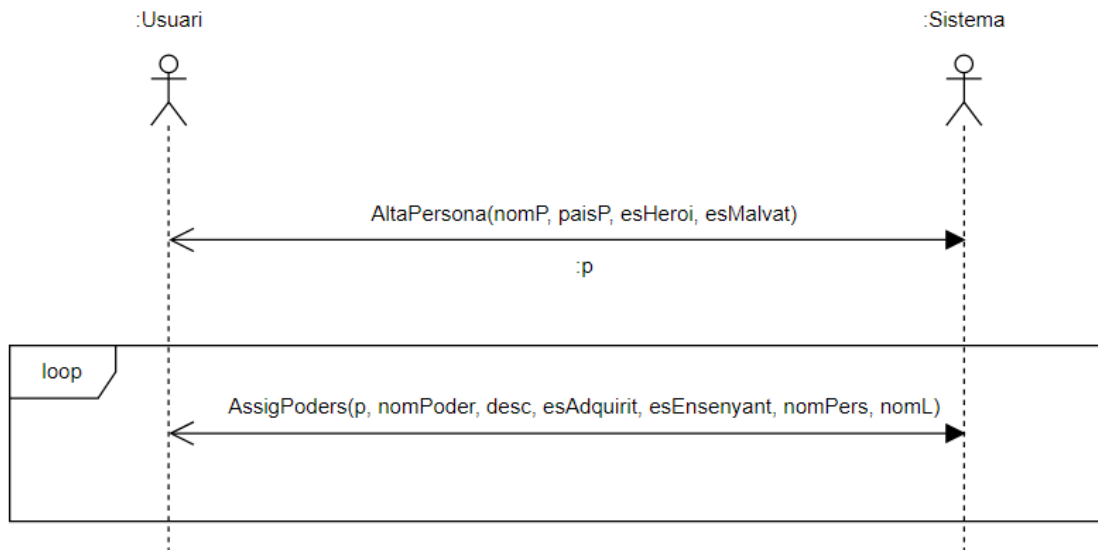
### ->Alta de Persona amb Poders:



context: Sistema::AltaPersona (nomP : String, paisP : String, esHeroi : Boolean,  
esMalvat : Boolean):Persona

pre: Malvat.allInstances()->select(m | m.poderDePersona->select(pdp |  
pdp.ocllsTypeOf(Innat))->size() = 0)->size() > 9

post:Persona.allInstances()->exists(p | p.ocllsNew() and p.nom = nomP and p.pais = paisP  
and  
if (esHeroi)  
then p.ocllsTypeOf(Heroi)  
endif and  
if (esMalvat)  
then p.ocllsTypeOf(Malvat)  
endif  
and result = p)

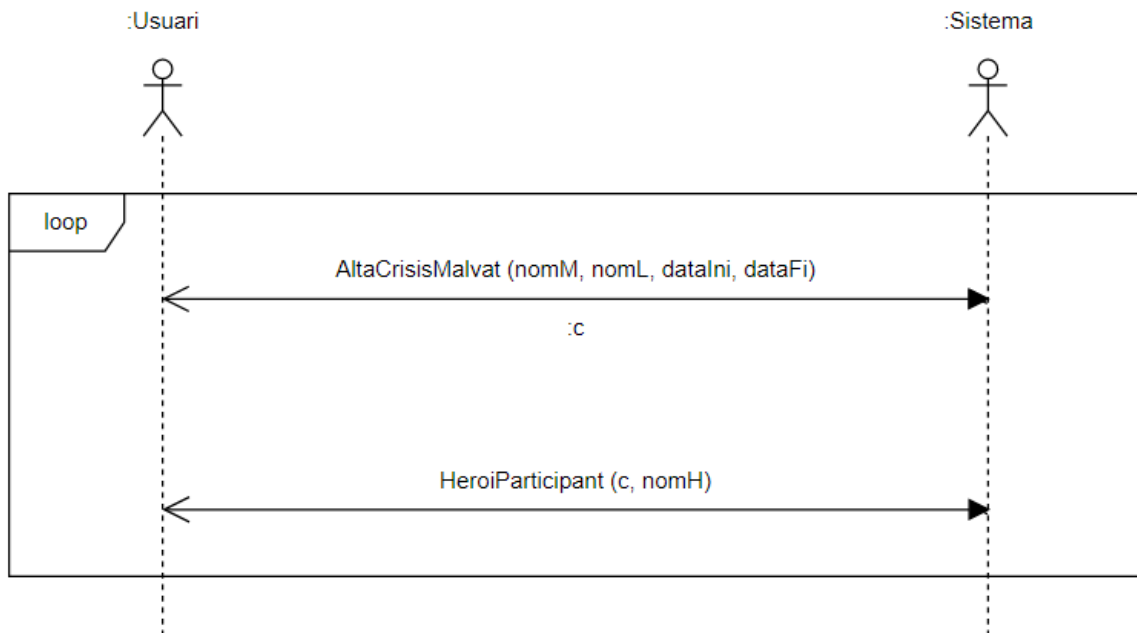


context: Sistema::AssigPoders (p : Persona, nomPoder : String, desc : String,  
esAdquirir : Boolean, esEnsenyant : Boolean, nomPers : String, nomL : String)

pre: if (esAdquirir)  
    then Lloc.allInstances()->exists(l | l.nom = nomL) and  
    if (esEnsenyant)  
        then Persona.allInstances()->exists(p | p.nom = nomPers)  
    endif  
endif  
endif

post: if (not (Poder.allInstances()@pre->exists(po | po.nom = nomPoder)))  
    then Poder.allInstances()->exists(po | po.ocllsNew() and po.nom = nomPoder and  
    po.descripció = desc)  
    endif  
    and p.poder.nom->includes(nomPoder) and  
    PoderDePersona.allInstances()->exists(pdp | pdp.ocllsNew() and  
    if (esAdquirir)  
        then pdp.ocllsTypeOf(Adquirir) and pdp.lloc.nom = nomL and  
        if(esEnsenyant)  
            then pdp.ensenyant.nom = nomPers  
        endif  
    else pdp.ocllsTypeOf(Innat)  
    endif)

**->Alta de Crisis d'un Malvat:**



context: Sistema::AltaCrisisMalvat (nomM : String, nomL : String, dataIni : Date,  
dataFi : Date):Crisi

pre: Malvat.allInstances()->exists(m | m.nom = nomM) and  
Lloc.allInstances()->exists(l | l.nom = nomL)

post: Crisi.allInstances()->exists(c | c.ocllsNew() and c.malvat.nom = nomM and  
c.lloc.nom = nomL and c.inici.data = dataIni and c.data\_fi = dataFi and result = c)

context: Sistema::HeroiParticipant (c : Crisi, nomH : String)

pre: Heroi.allInstances()->exists(h | h.nom = nomH)

post: c.heroi.nom->includes(nomH)

**->Llocs Perillosos:**



context: Sistema::ConsultaLlocsPerillosos (dataIni : Date, dataFi : Date)  
 :Set(TupleType(nomL : String, nomM : Set(String)))

pre: Persona.allInstances()->exists(p | p.ocllsTypeOf(Malvat) and p.ocllsTypeOf(Heroi) and  
 p.poderDePersona.ocllsTypeOf(Adquirir) and  
 p.poderDePersona.oclAsType(Adquirir).lloc.nom = "Barcelona")

body: let llocP : Set(Lloc) =  
 Lloc.allInstances()->select(l | l.crisi->select(c | c.inici.data >= dataIni and  
 c.data\_fi <= dataFi and c.heroi.>size() < 3)->size() > 5)  
 in  
 result = llocP->collect(l | Tuple{nomL = l.nom,  
 nomM = l.adquirir.poderosa.ocllsTypeOf(Malvat).nom})