Report Entity Interface Contract

Invariants: ReportID, AccountID, BookID, StartDate, DueDate, EndDate, Late, Lost

Precondition: Report Created, Active = 1, PickedUp = 0

User picks up book -> pickedUp = 1

User Returns book -> Active = 0

PostCondition – Active = 0

Precondition: Report Created, Active = 1, PickedUp = 0

User cancels report -> Active = 0, PickedUp = 0

PostCondition – Active = 0

Account Entity Interface Contract

Invariants: AccountID, CustomerID, CreationDate, Password

Precondition: Account created, Status = 0, Fines = 0

Fines added -> Fines = $X, Status = 1

Fines paid -> Fines = 0, Status = 0

PostCondition – Status = 0, Fines = 0

Precondition: Status = 0, Fines = 0

Account Removed -> Status = 2, Fines = 0

PostCondition – Status = 2, Fines = 0

Wait Report Entity Interface Contract

Invariants: BookID, AccountID

Precondition: StartDate = Null, EndDate = Null, Active = Null

Created -> StartDate = Now.Date(sD), Active = 1

Book Picked Up -> Active = 0, StartDate = sD, EndDate = Now.Date(eD)

Postcondition – Active = 0, StartDate = sD, EndDate = eD

Precondition: Wait Report Created, StartDate = Null, EndDate = Null, Active = Null

Created -> StartDate = Now.Date(sD), Active = 1

Cancelled -> Active = -1, StartDate = sD, EndDate = Now.Date(eD)

Postcondition – Active = -1, StartDate = sD, EndDate = eD

Book Entity Interface Contract

Invariants: ISBN, Title, NumPages, BookTypeID, GenreID, AuthorID, BookDescriptionID

Precondition: Book created, quantity > 0

Book checked out -> Quantity – 1 > 0

Book returned -> Quantity + 1 = (qX)

Postcondition -> quantity = qX

Precondition: Book created, quantity > 0

Book checked out -> Quantity – 1 > 0 = qX

Book is lost -> Quantity = qX

Postcondition -> quantity = qX