Class Account

--- Name Ann Onymous
--- Does provide a simple savings bank account
--- Thin version for SIGCSE (uses short names)
--- Shows PbC, Programming by Contract in JJ
--- Data attributes
  Box bal ofType real is private
  Box idno ofClass Str is public

Constructor Account (b, i) is public
  Slot b ofType real -- balance
  Slot i ofClass Str -- identification
--- Does initialize or open the account
  Check (bal >= 0.00) bounce "Neg balance!"
  Set bal = b
  Set idno = i
EndConstructor Account

Routine compound (prct, durn) is public
  Slot prct ofType real -- percent rate
  Slot durn ofType int -- duration
  Box rate ofType real -- interest rate
--- Does compound balance at a rate for a time
  Set rate = prct / 100.0
  Repeat
    ExitOn (durn == 0)
    Set bal = bal + bal * rate
    Dec durn by 1
  EndRepeat
EndRoutine compound

Routine getFrom (acct, amt) is public
  Slot acct ofType Account
  Slot amt ofType real
--- Does transfer from one account to this
  Check (acct.bal >= amt) bounce "Insuff!"
  Call acct.debit with (amt)
  Call credit with (amt)
EndRoutine getFrom

Function canCover (amt) ofType bool is public
  Slot amt ofType real
  Box result ofType bool
--- Does check if balance covers amount
  Set result = (bal >= amt)
EndFunction canCover

Routine test (none) is private
--- Does test Account class
  Start
    New his ofClass Account with (20.0, "ab3")
    New her ofClass Account with (0.0, "7yz")
    Call his.debit with (100.00)
    Call his.compound with (10.0, 7)
    Call his.show
    Call her.setBal with (200.00)
    If her.canCover (100.00) then
      Call her.getFrom with (his, 100.00)
    Else
      Outputln "No transfer possible"
    EndIf
    Output "Her balance is "
    Outputln her.balance()
  EndRoutine test
EndClass Account