

FIGURE 12.7 Class description of Account in Smalltalk

```

Object subclass: #Account
instanceVariableNames:
    'balance monthlyReport name acctID'
classVariableNames:
    'TotalBalance NumberOfAccts '

!Account class methods!

initialize
    TotalBalance ← Amount new.
    TotalBalance dollars: 0 cents: 0.
    NumberOfAccts ← 0

reportTotBal
    |totReport|
    totReport ← WriteStream with: String.
    'Total Balance =' printOn: totReport.
    TotalBalance printOn: totReport.
    totReport cr.
    'Number of Accounts = ' printOn: totReport.
    NumberOfAccts printOn: totReport.
    ↑ totReport contents

!Account methods!

balance
    ↑balance

deposit: itemID of: anAmount on: date
    TotalBalance ← TotalBalance + anAmount.
    balance ← balance + anAmount.
    monthlyReport nextPutAll: 'DEP';
        tab;
        nextPutAll: itemID;
        tab.

```

FIGURE 12.7 (continued)

```

anAmount printOn: monthlyReport.
monthlyReport tab;
    nextPutAll: date;
    tab.
balance printOn: monthlyReport.
monthlyReport cr.

monthend
    |temp|
    temp ← monthlyReport contents.
    monthlyReport ← WriteStream with: String.
    ↑ temp

open: id for: custName
    NumberOfAccts ← NumberOfAccts + 1.
    balance ← Amount new.
    balance dollars: 0 cents: 0.
    monthlyReport ← WriteStream with: String new.
    name ← custName.
    acctID ← id.
    monthlyReport nextPutAll: acctID; cr.

withdraw: itemID of: anAmount on: date
(anAmount > balance)
    iffFalse: [balance ← balance - anAmount.
        TotalBalance ← TotalBalance - anAmount.
        monthlyReport nextPutAll: 'WTH'
            tab;
            nextPutAll: itemID;
            tab.
        anAmount printOn: monthlyReport.
        monthlyReport tab;
            nextPutAll: date;
            tab.
        balance printOn: monthlyReport.
        monthlyReport cr.]
    ifTrue: [↑'Account overdrawn - withdrawal rejected']

```

Reinitialize

instance writeStream class

FIGURE 12.9 Class description of Savings in Smalltalk

```
Account subclass: #Savings

instanceVariableNames: ''
classVariableNames: 'InterestRate'

!Savings class methods!

SetInterestRate: aFloat
    InterestRate ← aFloat

!Savings instance methods!

calculateInterest
    |totalCentsInt interest|
    totalCentsInt ← ((InterestRate / 1200) *
                    (balance totalCents)) truncated.
    interest ← Amount new.
    interest dollars: (totalCentsInt // 100)
                  cents: (totalCentsInt rem: 100).
    ↑ interest

monthend: date
    |interestAmt|
    interestAmt ← self calculateInterest.
    self deposit: 'INT' of: interestAmt on: date.
    ↑self monthend.
```

FIGURE 12.8 Class description of Checking in Smalltalk

```
Account subclass: #Checking

instanceVariableNames: ''
classVariableNames: 'MonthlyServiceCharge'

!Checking class methods!

setServiceCharge: anAmount
    MonthlyServiceCharge ← anAmount.
    ↑MonthlyServiceCharge

!Checking instance methods!

check: itemID of: anAmount on: date
    self withdraw: itemID of: anAmount on: date

monthend: date
    self withdraw: 'SVC' of: MonthlyServiceCharge on: date.
    ↑self monthend.
```