Bank Accounts Management System

This system provides the basic services to manage bank accounts at a bank called OOBank. OOBank has many branches, each of which has an address and branch number. A client opens accounts at a branch. Each account is uniquely identified by an account number; it has a balance and a credit or overdraft limit. There are many types of accounts, including: A mortgage account (which has a property as collateral), a chequing account, and a credit card account (which has an expiry date and can have secondary cards attached to it). It is possible to have a joint account (e.g. for a husband and wife). Each type of account has a particular interest rate, a monthly fee and a specific set of privileges (e.g. ability to write cheques, insurance for purchases etc.). OOBank is divided into divisions and subdivisions (such as Planning, Investments and Consumer), the branches are considered subdivisions of the Consumer Division. Each division has a manager and a set of other employees. Each customer is assigned a particular employee as his or her ‘personal banker’.
This system provides the basic services to manage bank accounts at a bank called OOBank. OOBank has many branches, each of which has an address and branch number. A client opens accounts at a branch. Each account is uniquely identified by an account number; it has a balance and a credit or overdraft limit. There are many types of accounts, including: A mortgage account (which has a property as collateral), a chequing account, and a credit card account (which has an expiry date and can have secondary cards attached to it). It is possible to have a joint account (e.g. for a husband and wife). Each type of account has a particular interest rate, a monthly fee and a specific set of privileges (e.g. ability to write cheques, insurance for purchases etc. OOBank is divided into divisions and subdivisions (such as Planning, Investments and Consumer), the branches are considered subdivisions of the Consumer Division. Each division has a manager and a set of other employees. Each customer is assigned a particular employee as his or her ‘personal banker’.
This system provides the basic services to manage bank accounts at a bank called OOBank. OOBank has many branches, each of which has an address and branch number. A client opens accounts at a branch. Each account is uniquely identified by an account number; it has a balance and a credit or overdraft limit. There are many types of accounts, including: A mortgage account (which has a property as collateral), a chequing account, and a credit card account (which has an expiry date and can have secondary cards attached to it). It is possible to have a joint account (e.g. for a husband and wife). Each type of account has a particular interest rate, a monthly fee and a specific set of privileges (e.g. ability to write cheques, insurance for purchases etc. OOBank is divided into divisions and subdivisions (such as Planning, Investments and Consumer), the branches are considered subdivisions of the Consumer Division. Each division has a manager and a set of other employees. Each customer is assigned a particular employee as his or her ‘personal banker’.
Draft Class Diagram with classes Client and Account, and their association

Client

1..2
accountIdHolder

Account

*
Draft Class Diagram with Account attributes and subclasses

Account
- accountNumber
- openedDate
- closedDate
- interestRate
- monthlyFee
- balance
- creditOrOverdraftLimit

Client
- * 1..2
  - accountHolder

ChequingAccount

MortgageAccount

CreditCardAccount
Draft Class Diagram with **CreditCard** and attributes of **Account** subclasses

- **Client**
  - accountHolder

- **Account**
  - accountNumber
  - openedDate
  - closedDate
  - interestRate
  - monthlyFee
  - balance
  - creditOrOverdraftLimit

- **ChequingAccount**
  - collateralProperty

- **MortgageAccount**
  - collateralProperty

- **CreditCardAccount**
  - expiryDate
  - brand
Problem statement - checking off what we have done (Classes, associations, attributes, generalizations)

This system provides the basic services to manage bank accounts at a bank called OOBank. OOBank has many branches, each of which has an address and branch number. A client opens accounts at a branch. Each account is uniquely identified by an account number; it has a balance and a credit or overdraft limit. There are many types of accounts, including: A mortgage account (which has a property as collateral), a chequing account, and a credit card account (which has an expiry date and can have secondary cards attached to it). It is possible to have a joint account (e.g. for a husband and wife). Each type of account has a particular interest rate, a monthly fee and a specific set of privileges (e.g. ability to write cheques, insurance for purchases etc. OOBank is divided into divisions and subdivisions (such as Planning, Investments and Consumer), the branches are considered subdivisions of the Consumer Division. Each division has a manager and a set of other employees. Each customer is assigned a particular employee as his or her ‘personal banker’.
Looking at what we know about Employees

(Classes, associations, attributes, generalizations)

This system provides the basic services to manage bank accounts at a bank called OOBank. OOBank has many branches, each of which has an address and branch number. A client opens accounts at a branch. Each account is uniquely identified by an account number; it has a balance and a credit or overdraft limit. There are many types of accounts, including: A mortgage account (which has a property as collateral), a chequing account, and a credit card account (which has an expiry date and can have secondary cards attached to it). It is possible to have a joint account (e.g. for a husband and wife). Each type of account has a particular interest rate, a monthly fee and a specific set of privileges (e.g. ability to write cheques, insurance for purchases etc. OOBank is divided into divisions and subdivisions (such as Planning, Investments and Consumer), the branches are considered subdivisions of the Consumer Division. Each division has a manager and a set of other employees. Each customer is assigned a particular employee as his or her ‘personal banker’.
Draft Class Diagram with Branch and Employee

- **Branch**
  - **Account**
    - accountNumber
    - openedDate
    - closedDate
    - interestRate
    - monthlyFee
    - balance
    - creditOrOverdraftLimit

- **Employee**
  - personalBanker

- **Client**
  - accountHolder
  - * 1..2

- **ChequingAccount**

- **MortgageAccount**
  - collateralProperty

- **CreditCardAccount**
  - expiryDate
  - brand
  - name
  - 1..*
Looking at what we know about Branches (Classes, associations, attributes, generalizations)

This system provides the basic services to manage bank accounts at a bank called OOBank. OOBank has many branches, each of which has an address and branch number. A client opens accounts at a branch. Each account is uniquely identified by an account number; it has a balance and a credit or overdraft limit. There are many types of accounts, including: A mortgage account (which has a property as collateral), a chequing account, and a credit card account (which has an expiry date and can have secondary cards attached to it). It is possible to have a joint account (e.g. for a husband and wife). Each type of account has a particular interest rate, a monthly fee and a specific set of privileges (e.g. ability to write cheques, insurance for purchases etc. OOBank is divided into divisions and subdivisions (such as Planning, Investments and Consumer), the branches are considered subdivisions of the Consumer Division. Each division has a manager and a set of other employees. Each customer is assigned a particular employee as his or her ‘personal banker’.
Draft Class Diagram with OrganizationalUnit

**OrganizationalUnit**
- manager * 0..1
- subdivision *

**Employee**
- personalBanker * 0..1

**Client**
- accountHolder 1..2

**Branch**
- Account * *

**Account**
- accountNumber
- openedDate
- closedDate
- interestRate
- monthlyFee
- balance
- creditOrOverdraftLimit

**ChequingAccount**
- collateralProperty

**MortgageAccount**
- collateralProperty

**CreditCardAccount**
- name
- expiryDate
- brand

- worksFor 0..1
This system provides the basic services to manage bank accounts at a bank called OOBank. OOBank has many branches, each of which has an address and branch number. A client opens accounts at a branch. Each account is uniquely identified by an account number; it has a balance and a credit or overdraft limit. There are many types of accounts, including: A mortgage account (which has a property as collateral), a chequing account, and a credit card account (which has an expiry date and can have secondary cards attached to it). It is possible to have a joint account (e.g. for a husband and wife). Each type of account has a particular interest rate, a monthly fee and a specific set of privileges (e.g. ability to write cheques, insurance for purchases etc. OOBank is divided into divisions and subdivisions (such as Planning, Investments and Consumer), the branches are considered subdivisions of the Consumer Division. Each division has a manager and a set of other employees. Each customer is assigned a particular employee as his or her ‘personal banker’.
Thinking about how to deal with privileges
(Classes, associations, attributes, generalizations)

This system provides the basic services to manage bank accounts at a bank called OOBank. OOBank has many branches, each of which has an address and branch number. A client opens accounts at a branch. Each account is uniquely identified by an account number; it has a balance and a credit or overdraft limit. There are many types of accounts, including: A mortgage account (which has a property as collateral), a chequing account, and a credit card account (which has an expiry date and can have secondary cards attached to it). It is possible to have a joint account (e.g. for a husband and wife). Each type of account has a particular interest rate, a monthly fee and a specific set of privileges (e.g. ability to write cheques, insurance for purchases etc. OOBank is divided into divisions and subdivisions (such as Planning, Investments and Consumer), the branches are considered subdivisions of the Consumer Division. Each division has a manager and a set of other employees. Each customer is assigned a particular employee as his or her ‘personal banker’.
Draft Class Diagram with AccountType

OrganizationalUnit

AccountType
- interestRate
- monthlyFee
- checksAllowed
- insuranceAvailable

Account
- accountNumber
- openedDate
- closedDate
- interestRate
- monthlyFee
- balance
- creditOrOverdraftLimit

Employee
- personalBanker

Client
- accountHolder

Branch

ChequingAccount

MortgageAccount
- collateralProperty

CreditCardAccount
- expiryDate
- brand

CreditCard
- name

Manager
- 0..1

Subdivision
- *
Bank Account System Class diagram with final touches

- **AccountType**
  - interestRate
  - monthlyFee
  - checksAllowed
  - insuranceAvailable
  - periodicFee
  - period

- **Account**
  - accountNumber
  - openedDate
  - closedDate
  - interestRate
  - monthlyFee
  - balance
  - creditOrOverdraftLimit

- **ChequingAccount**
  - collateralProperty

- **MortgageAccount**
  - collateralProperty

- **CreditCardAccount**
  - expiryDate
  - brand

- **OrganizationalUnit**
  - subdivision

- **Branch**
  - address
  - number

- **Account**
  - worksFor
    - **Person**
      - name

- **Employee**
  - personalBanker
    - **Person**
      - accountHolder

- **Client**
  - worksFor
    - **Person**
      - name

- **Manager**
  - 0..1

- **Manager**
  - 0..1

- **WorksFor**
  - 1..2