Assignment 5
Java - Inheritance

Submission Instructions:

- Submit the following: <YourASURiteID>-Assignment5.zip. This compressed folder should contain the following files:
  1. Account.java
  2. Checking.java
  3. Savings.java
  4. TestAccount.java (contains the Test program)
  5. A readme.txt containing any instructions you want to provide to your instructor
- Make sure your java files compile without any compiler errors. You will not receive any credit for programs with compiler errors.
- If you are unable to complete your program, submit the parts that work with no compiler errors for partial credit.

Objectives:

The objectives of this programming assignment are to understand the following concepts:

- Creating subclasses
- Inheriting data and methods
- Overloading methods
- Overriding methods
- Invoking constructor of the superclass
- Use of the keyword super

Exercise:

1. Use the *Account* class that you created in your previous assignment to model a Bank account. Create two subclasses for *Checking* and *Savings* account that extend your *Account* class from previous assignment. Implement the following in these 2 subclasses:
   - A *Checking* account has an overdraft limit (of $5,000), but a *Savings* account cannot be overdrawn. Override the withdraw method in these subclasses to take care of the overdraft restrictions.
   - All data and methods are inherited from Account class.
   - Create constructors for both *Checking* and *Savings* account. These constructors should invoke the constructors of their superclass

2. Change the deposit method in *Account* class. Create two overloaded deposit methods in Account class such that one of them takes an integer value as the input parameter and the second one takes a double value as the input parameter.

3. Write a test program (class named TestAccount) that does the following:
   a) Creates 2 objects - a Saving Account and a Checking Account. Get user inputs for account information that is needed to create these 2 objects.

b) Get user input for an amount to be withdrawn from the Checking Account (for example, $2,500) and an amount to be deposited to the Checking Account (for example, $3,000). Make sure the overdraft restrictions work.
c) Similarly, withdraw and deposit from and into the Saving Account also.
d) Finally, print the account information for both the Checking and Saving accounts (i.e., print the current balance (after withdrawal and deposit), the monthly interest, and the date when these two accounts were created).

Recap of Account class:

Account class has the following data and behavior

- An integer data field – accountId, i.e., the account id (default value is 0).
- A double data field – balance that stores the current balance for the account (default value is 0).
- A double data field - annualInterestRate (default value is 0).
- A Date data field - dateCreated that stores the date when the account was created.
- A no-arg constructor that creates a default account.
- A 3-arg constructor that creates an account using a specified account ID, balance, and
- annual interest rate.
- The accessor(get) and mutator(set) methods for accountId, balance, annualInterestRate.
- The accessor(get) method for dateCreated.
- A method named getMonthlyInterest() that returns the monthly interest.
- A method named withdraw that withdraws a specified amount from the account.
- A method named deposit that deposits a specified amount to the account.