

COMP1161 Tutorial Sheet 4

ABC Bank is a small bank that manages fixed deposit accounts. The directors of ABC bank have asked you to create a small program that will allow them to manage client information and each client's account. A client should have a unique clientID , name, address, telephone number and a single account. Account information includes account type (either savings or checking), balance and annual interest rate.

1. Write the code to implement the Account class including:
 - a. A constructor that accepts (as parameters) account type ("Saving", or "Checking") a balance (type double), and an annual interest rate (also of type double), in that order.
 - b. A method named `getBalance` that accepts no parameter and returns the balance on the account.
 - c. A `toString` method that returns a string with the account type and balance. For example: "Checking: \$3,000.45"
 - d. Write a method called `applyInterest` with a parameter for number of days. The method should calculate the amount of interest to be applied based on the number of days and add the calculated interest amount to the balance.
2. Write the code to implement the Client class. The Client class should provide the following:
 - a. A constructor that accepts a client id (a string), client last name, first name, address, and telephone number (all strings), in that order.
 - b. A method named `changeAddress` that accepts an address as its argument and sets the client's address to the parameter value.
 - c. A method named `addAccount` that accepts an Account object as its parameter and adds the account to the client.
 - d. A method named `monthlyUpdate` that applies 30 day interest to the client's account and returns the new balance.
 - e. A `toString()` method for the Client class to output the client details appropriately formatted including account type and balance.
3. Write code fragments to accomplish the following:
 - a. Create an account using data input from the keyboard.
 - b. Create a client with the account created above and other data input from the keyboard.
 - c. Apply the client's information.
 - d. Apply monthly update.
 - e. Display the client's data.
4. Discuss whether or not the program you have designed can be used where a client can have more than one account. If not then suggest an alternative design that might be used to achieve this requirement.