

# Singleton Description

You are tasked with developing a virtual **Bank** for local **Customers** in a new town to use that facilitates withdraws and deposits. Your implementation should follow the Singleton design pattern.

The **Bank** class should have the following:

- A double instance variable called funds to store the Bank's funds
- A static Bank variable
- A static function called sharedInstance to return the Bank instance
- A function called addFunds that takes in a double and adds that to the Bank's funds and returns a String message
  - o Return "Deposited \$" + amount + " to Bank"
- A function called removeFunds that takes in a double and returns a String message
  - o If the funds were successfully withdrawn from the Bank, "Withdrew \$" + amount + " from Bank" should be returned
  - o If the Customer attempted to withdraw \$5000 or more, then the message "Attempted to withdraw more than \$5000 from Bank" should be returned
  - o If there are not enough funds in the Bank, "Insufficient Bank funds to withdraw" should be returned
- A function called getFunds that returns the funds

The **Customer** class should have the following:

- A double instance variable called money
- An ArrayList<String> instance variable called transactions
- A Bank instance variable called sharedBank that uses the Bank.sharedInstance() function
- A default constructor that initializes Customer money to 0.0 and transactions to an empty ArrayList<String>
- A constructor that takes in a double and initializes Customer money to the inputted money and transactions to an empty ArrayList<String>
- A function called withdraw that takes in a double and returns nothing that attempts to withdraw the money from the sharedBank, adding the transaction to the list of transactions, and incrementing the Customer money
- A function called deposit that takes in a double and returns nothing that attempts to withdraw the money from the sharedBank, adding the transaction to the list of transactions, and incrementing the Customer money

The **BankObserver** class should have the following:

- A public static void main function
  - o Create a shared Bank
  - o Create two Customers
  - o Withdraw and deposit money from the Bank