CS 342 Report for (Lab 05)

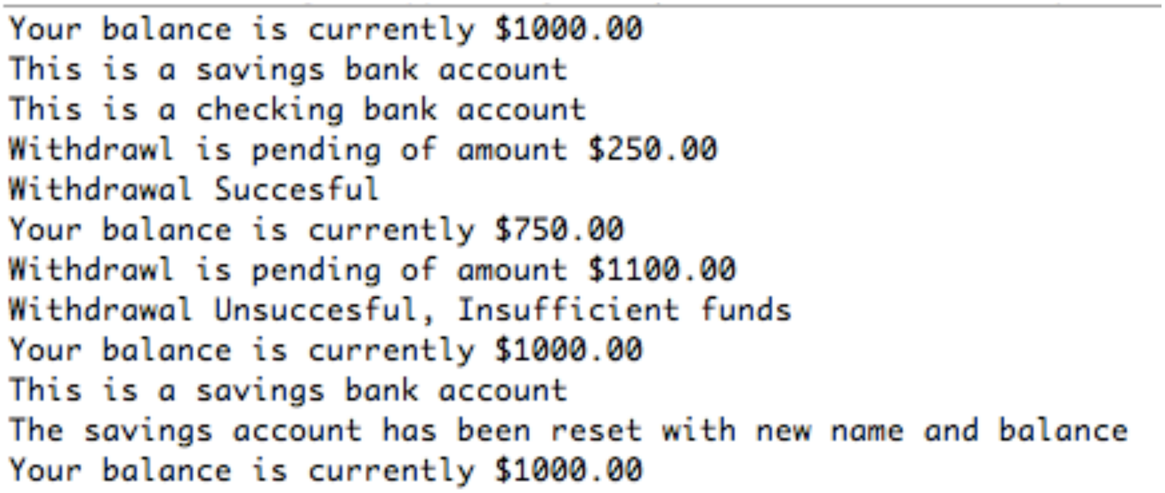
Lab05.class

```
//Programmer: Fayaz Khan
//Assignment: Lab 5
//Date:       September 24, 2015
//Description:Program uses test drivers to test methods in BankAccount class with different
//            bank account types

public class Lab05
{
    public static void main(String[] args)
    {
        final static int INITIALBALANCE = 1000;          //Initial deposit for both bank account
        final static String STYPE = "savings";           //Bank account type "savings"
        final static String CTYPE = "checking";          //Bank account type "checking"
        finla static String FIRSTHOLDER = "Sidra";       //account owner number one
        final static String SECONDHOLDER = "Bushra";     //account owner number two
        final static double WITHDRAW$250 = 250;          //first withdraw intended to be successful
        final static double WITHDRAW$1100 = 1100;        //second withdraw intended to be unsuccessful

        //Two different bank accounts, sAccount == savings and cAccount == checking
        BankAccount sAccount = new BankAccount(INITIALBALANCE,FIRSTHOLDER,STYPE);
        BankAccount cAccount = new BankAccount(INITIALBALANCE,SECONDHOLDER,CTYPE);

        //Prints the starting balance
        System.out.printf("Your balance is currently $%.2f\n",sAccount.GetBalance());

        //checks the type of account whether it is savings or checking
        System.out.println("This is a " + sAccount.accountType() + " bank account");

        //checks the type of account  whether it is savings or checking
        System.out.println("This is a " + cAccount.accountType() + " bank account");

        //Attempting to withdraw from bank account
        System.out.printf(String.format("Withdrawl is pending of amount $%.2f\n",WITHDRAW$250));

        if(sAccount.Withdraw(WITHDRAW$250))              //Checks if funds are sufficient
            System.out.println("Withdrawal Succesful");
        else
            System.out.println("Withdrawal Unsuccesful, Insufficient funds");

        //Displays the current balance of account
        sAccount.DisplayBalance();

        //Second test Attempting to withdraw from bank account
        System.out.printf(String.format("Withdrawl is pending of amount $%.2f\n",WITHDRAW$1100));

        if(cAccount.Withdraw(WITHDRAW$1100))             //Checks if funds are sufficient
            System.out.println("Withdrawal Succesful");
        else
            System.out.println("Withdrawal Unsuccesful, Insufficient funds");

        //Displays the current balance of account
        cAccount.DisplayBalance();

        //Displays whether it is a savings or checking account
        System.out.println("This is a " + sAccount.accountType() + " bank account");

        //Reseting account with a new name and new balance
        sAccount.ResetAccount(SECONDHOLDER,INITIALBALANCE);

        System.out.println("The savings account is resetting with new name and balance");
        System.out.printf("Your balance is currently $%.2f\n",sAccount.GetBalance());
    }

}
```

BankAccount.class

```
//Description:Includes methods to construct objects and utlizing overloading methods.Includes a method
//            for display balance.Modifiers to modify the balance, reset the account and withdraw from
//            account.In this class also includes accesors to get balance and get the account type.

public class BankAccount
{
    private String name;                  // name of account holder
    private double balance;               // how much money is in account, $
    private boolean accountType;          // Savings == true, Checking == false

    public BankAccount()
    // POST: A default BankAccount object is created with name set to a blank and
    //       and balance set to $0.00
    {
       this(0.0);
    }

    public BankAccount(double balance)
    // PRE:  balance >= 0.00 and balance is in dollars
    // POST: A BankAccount object is created with name set to a blank and the class member
    //       balance set to balance accountType is set to false(Checking)
    {
       accountType = false;
       name = " ";

       if(balance >= 0)                   //validate proposed initial balance
          this.balance = balance;
       else
          this.balance = 0;
    }

    public BankAccount(double balance,String name,String accountType)
    // PRE: balance in dollars and balance >= 0.00
    //      accountType need to be initialized
    //      name needs to be initialized
    // POST:When a BankAccount object is created, name will set (this.name) and balance
    //      will set (this.balance). If accountType is "savings" then (this.acccountType)
    //      is set to true and accountType is "checking" (this.accountType) set to false
    {
       this.name = name;

       if(balance >= 0)                   //validate proposed initial balance
           this.balance = balance;
        else
           this.balance = 0;

       if(accountType.equals("savings"))  //checks if String accountType is savings
          this.accountType = true;


       if(accountType.equals("checking")) //checks if String accountType is checking
          this.accountType = false;

    }

    public String accountType()
    // This method checks the object (this.accountType) for either true or false.
    // If (this.accountType) is true then returns "savings", is false then returns "checking"
    {
        if(this.accountType == true)
          return "savings";
        else
          return "checking";
    }

    public void ResetAccount(String newName, double newBalance)
    // PRE:  newName has been assigned a value
    //       && newBalance >= 0.00 and newBalance is in dollars
    // POST: This account object is reset with name set to newName
    //       and balance set to newBalance
    {
       name = newName;                    // Match up private variables with parameters
       balance = newBalance;              // Could do error checking here with an if(balance >= 0)
     }
    public boolean Withdraw(double amount)
    // PRE:  amount >= 0.00 and amount is in dollars
    // POST: amount is deducted from the balance stored for this account
    {
       if(balance - amount >= 0)          //checks if balance is sufficient for withdraw
       {
          balance = balance - amount;     //updates balance after withdrawing
          return true;
       }
       else
           return false;
    }

    public double GetBalance()
    // POST: FCTVAL == current balance of this account in dollars
    {
        return balance;
    }

    public void DisplayBalance()
    // POST: The current balance of this account has been displayed to the screen
    {
        System.out.printf("Your balance is currently $%.2f\n", balance);
    }
}
```

Sample Run



```
Your balance is currently $1000.00
This is a savings bank account
This is a checking bank account
Withdrawl is pending of amount $250.00
Withdrawal Succesful
Your balance is currently $750.00
Withdrawl is pending of amount $1100.00
Withdrawal Unsuccesful, Insufficient funds
Your balance is currently $1000.00
This is a savings bank account
The savings account has been reset with new name and balance
Your balance is currently $1000.00
```