Java module 3

Exercises Day 3 (B)

1 - Encapsulation	Basic Bank Account Class

Instructions	Create a simple BankAccount class to handle deposit and withdrawal operations. The class should store the account's balance and account number. Ensure that the account balance cannot directly be altered from outside the class. On the other hand, the bank account number should be accessible from child classes.
	
	Add the following main method to test your BankAccount class:
	`public static void main(String[] args) {`
	`  BankAccount account = new BankAccount(200, "XDF4210");`
	`  account.deposit(150);`
	`  System.out.println(account); // Should show updated balance`
	`  account.withdraw(100);`
	`  System.out.println(account); // Should show updated balance after withdrawal`
	`}`

Expected output	Account XDF4210 Balance: $350.00 Account XDF4210 Balance: $250.00

2 -	Extending BankAccount with SavingsAccount

Instructions	Extend your previous BankAccount class to create a new class called SavingsAccount.
	The SavingsAccount class should have a new feature: interest accumulation. When creating a new SavingsAccount, we should provide the account's initial balance, the interest rate that will be applied to the account and the account number. The savings account number should be appended with a dash ("-") and the interest rate. The SavingsAccount class should also offer a method to apply the interest, this method will calculate the interest and will add it to the account's current balance.
	
	Add the following main method to test your SavingsAccount class:
	`public static void main(String[] args) {`
	`  SavingsAccount savingsAccount = new SavingsAccount(1000, 5, "HTE2190"); // 5% interest rate`
	`  System.out.println(savingsAccount); // Initial state`
	`  savingsAccount.applyInterest(); // Apply interest`
	`  System.out.println(savingsAccount); // After interest is applied`
	`  savingsAccount.withdraw(200);`
	`  System.out.println(savingsAccount); // After the withdraw`
	`}`

	Verify that you are able to access the bank account number property from the SavingsAccount class but not the account balance property.
Expected output	Savings Account HTE2190-5.0 Balance: $1000.00, Interest Rate: 5.00% Savings Account HTE2190-5.0 Balance: $1050.00, Interest Rate: 5.00% Savings Account HTE2190-5.0 Balance: $850.00, Interest Rate: 5.00%