Assignment (Swift Training Programme)

Objective

Create a set of classes in Swift to represent a simple banking system. This assignment will help you demonstrate your understanding of inheritance, method overloading, method overriding, computed properties, initializers, and deinitializers.

Assignment Details

Classes to Create:

1. **BankAccount**
2. **SavingsAccount** (inherits from BankAccount)
3. **CurrentAccount** (inherits from BankAccount)

Requirements:

1. **BankAccount Class**:
   - Properties:
     - `accountNumber: String`
     - `balance: Double` (computed property)
   - Initializers:
     - Designated initializer that takes `accountNumber` and `initialBalance`.
   - Methods:
     - `deposit(amount: Double)`
     - `withdraw(amount: Double)` (virtual method to be overridden in subclasses)
   - Deinitializer:
     - Print a message indicating the account is being closed.
2. **SavingsAccount Class**:
   - Inherits from `BankAccount`
   - Additional Properties:
     - `interestRate: Double`
   - Initializers:
     - Designated initializer that takes `accountNumber`, `initialBalance`, and `interestRate`.
   - Methods:
     - `applyInterest()`
     - Override `withdraw(amount: Double)` to impose a condition: withdraw only if balance remains above a minimum limit ($100).

    - Computed Properties:
        - `balance` to include interest.

3. **CurrentAccount Class**:
    - Inherits from `BankAccount`
    - Additional Properties:
        - `overdraftLimit: Double`
    - Initializers:
        - Designated initializer that takes `accountNumber`, `initialBalance`, and `overdraftLimit`.
    - Methods:
        - Override `withdraw(amount: Double)` to allow overdraft up to the `overdraftLimit`.
    - Computed Properties:
        - `balance` to reflect the effective available balance considering the overdraft.

Instructions:

- Implement all required classes and methods.
- Demonstrate method overloading by creating a method `statement` in `BankAccount` that shows account details with different formats.
- Provide an example of how these classes would be used in a main program.