CMSC 255   Introduction to Programming

Inheritance Lab

1. Consider using the following `Card` class that represents a general type of membership card.

```java
public class Card{
    private String name;

    public Card(){
        name = "";
    }

    public Card(String n) {
        name = n;
    }

    public String getName(){
        return name;
    }

    public boolean isExpired(){
        return false;
    }

    public String toString(){
        return "Card holder: " + name;
    }
}
```
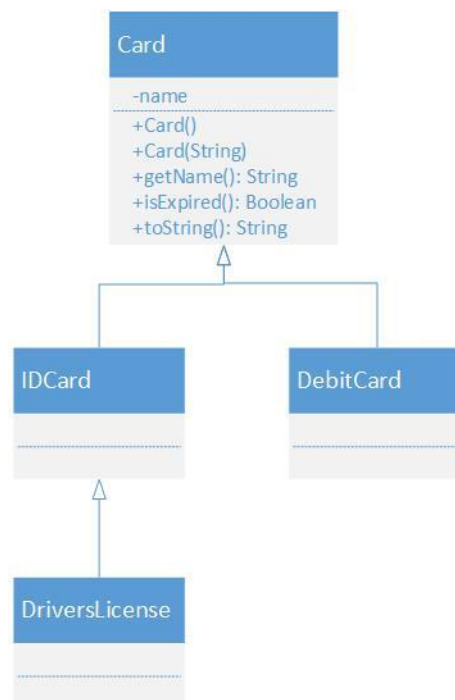
Use the Card class as a superclass to implement this hierarchy of related classes:

Write declarations for each of the subclasses. Note that IDCard and DebitCard are subclasses of Card, and DriversLicense is a subclass of IDCard.

Class	Data
IDCard	ID number
DebitCard	Card number, PIN
DriversLicense	Expiration year

For each subclass, supply private instance variables as listed in the table shown above. Implement constructors for each of the three subclasses. Each constructor should call the superclass constructor to set the name. Here is one example:

```
 public IDCard(String n, String id){
    super(n);
    idNumber = id;
 }
```

Replace the implementation of the `toString` method for the three subclasses. The methods should produce a formatted description of the card details. The subclass methods should call the superclass `toString` method to get the formatted name of the cardholder.

In the class `IDCard`, build a method called `getName()`. How can you implement this method to access the name in the super class?

Demo for your TA or upload the files from this assignment - **IDCard.java**, **DebitCard.java**, and **DriversLicense.java** .