**Problem Solving and Programming**

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**Assignment #5 Exercises**

1. **Design a class to represent a credit card. Think about the attributes of a credit card; that is, what data is on the card? What behaviors might be reasonable for a credit card? Use the answers to the questions to write a UML class diagram for a credit card class. Then give three examples of instances of this class.**

The attributes of the credit card are card number, name, and card expiration date.

Some behaviors for the credit card are to get purchase, and get credit.

UML class diagram

Credit Card

* cardNumber: int
* Name: String
* cardExpirDate: String
* +getCredit(int cash): void
* +getPurchase(): void

Examples

Customer 1

* cardNumber: 453122
* Name: Larry Collins
* cardExpirDate: 3/21/2021

Customer 2

* cardNumber: 553122
* Name: Bill Collins
* cardExpirDate: 3/21/2022

Customer 3

* cardNumber: 443122
* Name: Tim Collins
* cardExpirDate: 3/21/2023

1. **Repeat exercise 1 for a credit card account instead of a credit card. An account represents the charges and payments made using a credit card.**

The attributes of the credit card are card number, name, and card limit.

Some behaviors for the credit card are to get charges, and payments.

UML class diagram

Credit Card Account

* cardNumber: int
* Name: String
* cardLimit: int
* +charges(): void
* +payments(int cash): void

Examples

Customer 1

* cardNumber: 453122
* Name: Larry Collins
* cardLimit: 10000

Customer 2

* cardNumber: 553122
* Name: Bill Collins
* cardLimit: 2000

Customer 3

* cardNumber: 443122
* Name: Tim Collins
* cardLimit: 40000

1. **Repeat Exercise 1 for a collection of coins instead of a credit card.**

There are three attributes that are needed which are coin value, country, and coin name.

Some behaviors that are needed are get value of coin, and converting coin.

UML class diagram

CollectionOfCoins

* coinvalue: int
* Country: String
* coinname: String
* +getValue(): void
* +convert(): void

Examples

Coin 1

* coinValue: 3
* Country: India
* coinName: Rupee

Coin 2

* coinValue: 2
* Country: Europe
* coinName: Euro

Coin 3

* coinValue: 20
* Country: India
* coinName: Rupee