

Project 3: Credit Card Validation Project using Inheritance and Polymorphism

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Project Objective:

The objective of this project is to develop an application program building on the knowledge built on the Luhn Algorithm digit validation technique and combining it with the use of classes and objects in Object-Oriented Programming. This project requires programming knowledge in classes and objects, inheritance and polymorphism, text files, and string manipulation.

Target audience: CS2 students

Project Description

This project is to build an application on classes and objects using inheritance and polymorphism and further build onto the earlier project using Luhn Check-digit Validation algorithm.

Your application will read in two sets of input data (2 input files). The first set of data includes credit card numbers, the name of the account holder, the card type (gold, platinum, corporate) and the current balance on each card. These data will be used to populate an array of credit card objects.

The second set of data include a series of transactions. Each transaction's data include the credit card number, the date, a transaction number, the vendor, and a purchase amount. Depending on the validity of the credit card number, the current card credit balance and the credit limit, your application will decide if a transaction is to be allowed or denied. Your application will also compute the total purchase made on the card, and the rebate amount.

The output of your application will be

1. A list of transactions that are denied together with the reason for denial
2. For each valid credit card account, create a monthly bill that would include the summary of purchases, the total bill on the credit card, if there is an overdrawn status on the card, and the rebate value.

There are 3 type of credit cards extending from the basic credit card class.

Gold Card

- Credit line is \$3,000
- Once limit is reached, the card will be blocked

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- Each month, a rebate of 1% of the total monthly purchase is awarded to the account

Platinum Card

- Credit line is \$5,000
- An overdraft of \$1,000 is allowed. A warning message is issued through the account summary
- Each month, a rebate of 2% of the total monthly purchase is awarded to the account

Corporate Card

- Credit line of \$10,000
- An overdraft of \$5,000 is allowed. A warning message is issued through the account summary
- Each month, a rebate of 5% of the total monthly purchase is awarded to the account

