

# CMPE 202 Individual Project Part 1

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## Primary Problem

To plan and design a powerful, scalable system which will return the appropriate credit card instance based on the data provided in different files. The system must categorize the data provided and check if the data belongs to any specific credit card and if it does, system should return the instance of that credit card to perform further operations on them.

## Secondary Problem

The secondary problem that needs to be considered here is the system must be open for extension and closed for modification. That is the system should be able to accommodate new credit card types without having to change the existing code.

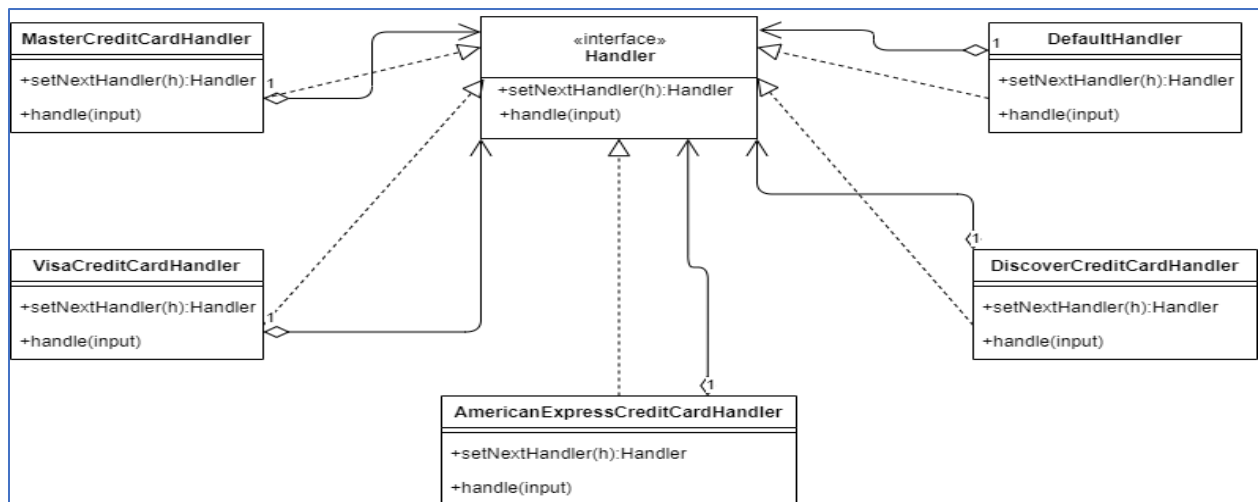
## Design Patterns and Consequence of Using these patterns

To design the mentioned system following two design patterns can be used.

1. The chain of responsibility
2. Abstract Factory Pattern

### Chain of Responsibility Pattern

1. The code designed with chain of responsibility pattern will determine if the given record is valid credit card type record and if it is valid credit card record, it will determine the type of credit card.
2. If the new category is added in credit card types, this pattern will accommodate the new type without changing the existing code.
3. This type increases request processing of new type very easily.



## Abstract Factory Pattern

1. The code designed with factory pattern will return the instance of credit card which is identified by code designed with Chain of Responsibility pattern.
2. Abstraction is the main advantage of using this pattern. That is the code written to return the instance of asked type is isolated from client.

