Part - 1
1. Describe the primary problem you are trying to solve

Through the above problem statement I have realised a primary issue. I.e. To figure out if the given card is valid or not and to check it against the various credit cards available -

Master Card
Visa
American Express
Discover

Another issue is if the card is valid then to determine the card issuer based on the credit card number.

Lastly, to find the relevant objects based on card types.

2. Secondary Problem

The secondary problem is that we need to identify a proper design class in order to accommodate additional credit card classes in the future for the various credit card types.For which we need to use Cretional pattern is to be used to create different file format objects.

Describe what design patterns did you use ?

Design patterns used - Chain of Responsibility, Strategy and Factory Method

1. After parsing the input file (which is in either in xml, json, csv) we need to first check as to which format does the credit card belong to among the 4 credit card types - Master Card, Visa, American Express or Discover for which the handler interface is defined and we have 4 concrete handlers(MasterCCHandler, VisaCCHandler, AmExCCHandler and DiscoverCCHandler)

2.