Your task is to create a POC application to process an order placed by a user.

At the moment, the system can only process one product within an order, but this might change in the future.

The first step of the checkout process is to check the availability of the product from a persistent store. This being a prototype, the team is yet to decide on what data base to use. This needs to be factored into the implementation of the checkout logic.

If there is enough stock in the inventory, we need to do the following

1. We need to use a third-party payment gateway to charge the user. We have still not decided what payment gateway to use but through research we know all payment gateways of interest provide the following service interface

bool Charge(string creditCardNumber, decimal amount)

1. Before passing the card number to the payment gateway, we need to validate if the number is in correct format. Different card network types have their own specific algorithms to validate the card numbers. We will only support Visa and Master cards in the first phase. But we have plans to support Amex and Discover in the future.

Once the user is charged successfully, we need to inform the shipping department of the new purchase. As of now, our plan is to inform them through emails, but we might replace or add SMS notifications in the future as well.

As you can see, there is a great deal of uncertainty right now, since the application is still in its infancy. Therefore, what we are expecting is a prototype, that will evolve into actual application deployed in production.