

### ***Coding exercise:***

Write a Flask Web API with only 1 method called "ProcessPayment" that receives a request like this

- CreditCardNumber (mandatory, string, it should be a valid credit card number)
- CardHolder: (mandatory, string)
- ExpirationDate (mandatory, DateTime, it cannot be in the past)
- SecurityCode (optional, string, 3 digits)
- Amount (mandatory decimal, positive amount)

The response of this method should be 1 of the followings based on

- Payment is processed: 200 OK
- The request is invalid: 400 bad request
- Any error: 500 internal server error

The payment could be processed using different payment providers (external services) called:

- PremiumPaymentGateway
- ExpensivePaymentGateway
- CheapPaymentGateway.

The payment gateway that should be used to process each payment follows the next set of business rules:

- a) If the amount to be paid is less than £20, use CheapPaymentGateway.
- b) If the amount to be paid is £21-500, use ExpensivePaymentGateway if available. Otherwise, retry only once with CheapPaymentGateway.
- c) If the amount is > £500, try only PremiumPaymentGateway and retry up to 3 times in case payment does not get processed.

### ***Recommendations:***

- The classes should be written in such way that they are easy to test.
- Write as many tests as you think is enough to be certain about your solution works - Use SOLID principles.
- Decouple the logic the prediction logic from the API as much as possible