Software Architect Technical Assignment

Description

Implement a service to provide a credit card number validation and return a result which contains validation result and card type.

Use best practices and design patterns to build testable and maintainable software.

Domain

Card

1. Card Number (Numeric 15 or 16 digits)
2. Expiry date (MMYYYY)

Validate Result

1. Result (Valid, Invalid, Does not exist)
2. Card Type (Visa, Master, Amex, JCB or Unknown)

Validation Rule

1. Visa is a card number starting with 4.
2. MasterCard is a card number starting with 5.
3. Amex is a card number starting with 34, 37.
4. JCB is a card number starting with 3528–3589.
5. The card starting with any other numbers is “Unknown”.
6. Only Amex card number has 15 digits, the rest of card types have 16 digits.
7. A valid Visa card is the card number where expiry year is a leap year.
8. A valid MasterCard card is the card number where expiry year is a prime number.
9. Every JCB card is valid.
10. If a card number does not exist in the database, it should return “Does not exist".
11. The rest case is “Invalid” card.

Server side

- RESTful Web API

Database

- MS SQL Server, please create 1 table to store card numbers and 1 store procedure to validate the card.
- Entity Framework to retrieve data by executing a Store Procedure above.

Test project

- Swagger
- Unit tests to cover these cases:
    - Valid Visa
    - Valid MasterCard
    - Valid Amex
    - Valid JCB
    - Invalid Visa
    - Invalid MasterCard
    - Invalid Amex
    - Invalid JCB

Time frame

24 hours.

Source Code

Push your code to Github/Bitbucket including SQL Script.

We would like to understand candidate's familiarity with source control system. Do not push your source code in a single commit, but try to break it into multiple commits. Please commit clean project ignoring binaries and unnecessary resources.

Tools and libraries

Candidate is free to use any additional third-party libraries and frameworks.

Bonus points for

- Logging
- Anything else you think worth adding