Group 28:
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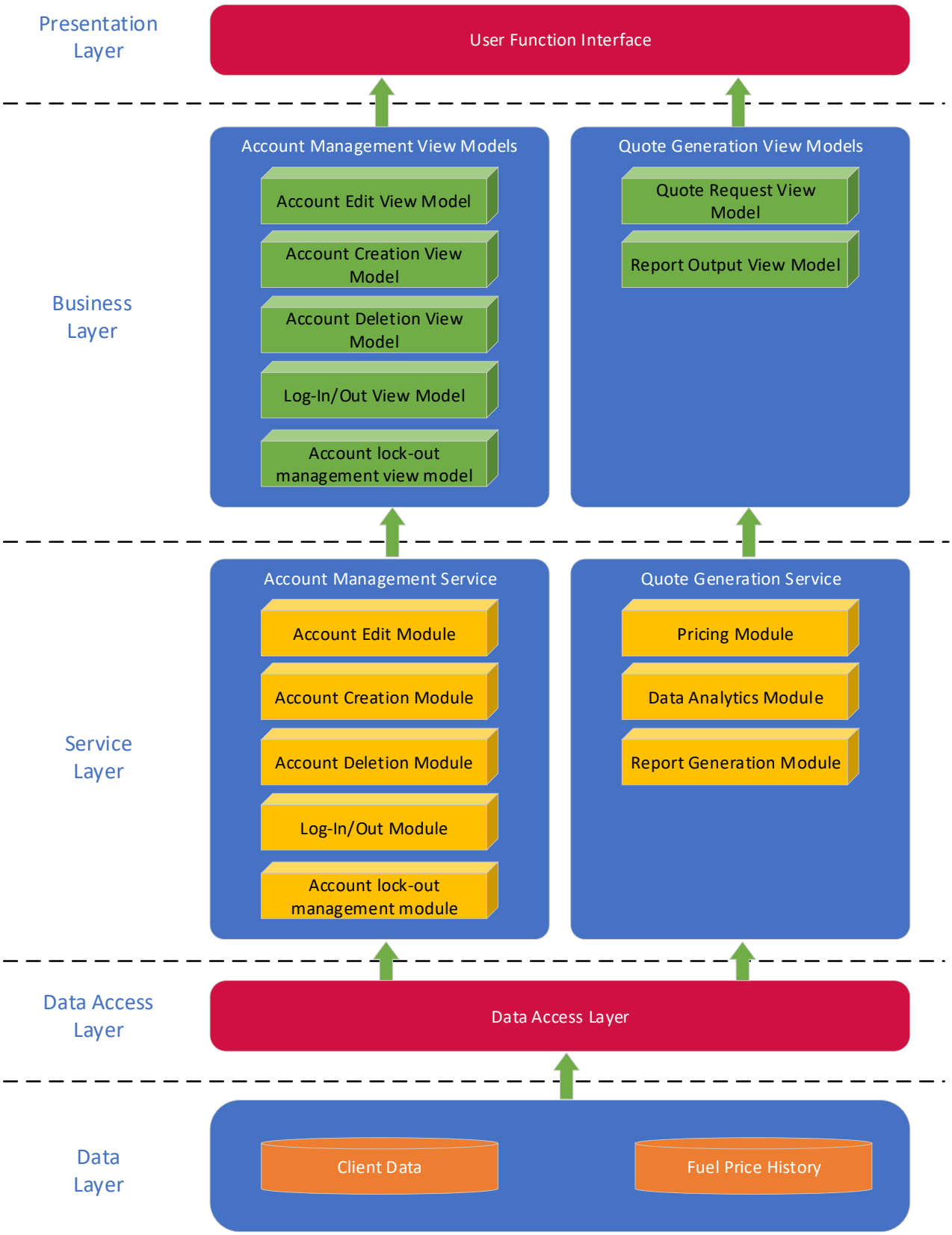
1. Our thoughts on the design of the prediction is using machine learning with linear regression. We will train on historical data with the following stages of machine learning:
    a. Train: With about 60% of the historical data.
    b. Validate: We will approach validation with the loss function.
    c. Test: After adjusting the model, we will test with the remaining 40% historical data

    Also, we will create separate modules for login, registration. profile management, fuel quote form, pricing module, a data analytics / machine learning module, and the quote history at least and allow for the possibility of splitting those into more modules if needed. Based on the overview of the nature of client accounts, we will have to implement some sort of security to encrypt confidential information such as passwords and personal information.

2. The development methodology that we will use is the agile method with scrum framework. To keep the project organized, we want to make sure all procedures are checked and properly implemented. If an issue arises, we can quickly go back and find the stage where we to address. This methodology ensures productivity and reduces the risk, increases productivity, and is flexible. The following are the development states that we will implement:
    a. Plan: Brainstorm the container and modules needed for each part of the software.
    b. Design: Start with the framework of pseudocode, only focusing on the most important modules for now.
    c. Test: Code up the test program. The goal is to make the program run properly; not efficiently. At this stage just make the most important components of the software.
    d. Debug: Run the code and attempt to remove any bugs / errors. We will also make any optimization to run the code efficiently.
    e. Deploy: Once the code is ironed out, we can then compile the whole program and use it as if we are the clients.
    f. If needed, re-plan and redesign based on the outcome of testing / deploying
    g. Add some of the rest of the modules that are less important, and maybe add component and module to the software design that proved to be necessary after deployment.
    h. Test, debug, deploy, and adjust the program as needed in iterations until everything is complete

    If there is any reason for potential updates / improvements to the design, the methodology allows us to push for new features / debugging from the feedback received upon deploying the software.

3.


Presentation Layer
User Function Interface
Business Layer
Account Management View Models
Account Edit View Model
Account Creation View Model
Account Deletion View Model
Log-In/Out View Model
Account lock-out management view model
Quote Generation View Models
Quote Request View Model
Report Output View Model
Service Layer
Account Management Service
Account Edit Module
Account Creation Module
Account Deletion Module
Log-In/Out Module
Account lock-out management module
Quote Generation Service
Pricing Module
Data Analytics Module
Report Generation Module
Data Access Layer
Data Access Layer
Data Layer
Client Data
Fuel Price History

4. Megan and Alex drafted the answers to questions 1 and 2
   David put together the high-level architecture diagram for question 3.
   All parties agreed to their roles and completed their tasks.

REPOSITORY

https://github.com/megant20/4353project

REFERENCES

https://www.edrawsoft.com/software-architecture-example.html

METHODOLOGY (Google Search)

https://bit.ly/2Yq6pco
https://www.synopsys.com/blogs/software-security/top-4-software-development-methodologies/
https://www.businessnewsdaily.com/4987-what-is-agile-scrum-methodology.html#:~:text=Agile%20scrum%20methodology%20is%20a,with%20a%20potentially%20deliverable%20product.&text=Agile%20scrum%20methodology%20has%20several%20benefits.