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Programming language: OCTA

WHITE PAPER

The OCTA is a domain-specific object-oriented programming language intended specifically for handling and manipulating financial data. It can be used by developers to build sophisticated financial algorithms intended for use by banks, credit unions, private lending clubs, and other financial institutions. The programs that can be written in OCTA include mortgage calculator, car loan calculator, statistical computation, loan amortization, and repayment summary. Also, OCTA's library might be useful for building predictive algorithms that would allow banks to identify loans that are at risk for defaulting or detecting mortgage fraud schemes.

The data type of programming language will be tailored to financial market needs. The main primitive types would be int, float, and string. These parameters will be used to specify key values such as loan, mortgage, interest, principal, payment, which are fundamental in projecting loan payments. The language will have handy built-in methods such as calculating monthly payments, creating payment schedules, plotting graphs based on the collected data. At the same time, we will provide essential mathematical operations, widely used by banking industry, allowing a developer to make necessary modifications with relative ease.

The OCTA will feature object-oriented programming properties. The reason why we decided to implement object-oriented programming model is due to its changing-state and mutable data. It makes sense for the output value of the function to depend on the objects and their behavior in a financial context. For example, if the user makes bigger monthly payment, he will be able to pay off his loan faster by reducing principal's amount. Thus, we will need to be able to modify our data structure based on the change that happened to one object.