**Wallet**

**Introduction:**

This document provides a brief explanation of how to use the Wallet Application, its features, how it works, and the issues encountered while creating it on a macOS desktop. Additionally, future improvements for the application are also highlighted.

**Usage:**

To use this application, simply run it on your local machine or emulator, and input a credit card number into the text box provided. If the card number is valid, the application will add a label showing the card number and its type (Visa, MasterCard, Amex or Unknown) to the stack layout. If the card number is invalid, the application will display an error message.

**How it works:**

This application uses the Luhn algorithm to validate the entered credit card number. The algorithm takes the last digit of the credit card number and doubles every other digit, starting from the second-to-last digit. If the resulting sum of all digits is divisible by 10, the credit card number is valid. The application then identifies the type of the credit card based on the first few digits of the card number.

**Interfaces:**

The application has a simple user interface, consisting of a single text box to input the credit card number and a button to submit the number for validation. When the validation is successful, a label is added to the stack layout showing the credit card number and its type.

**Difficulties encountered:**

While developing the application on a macOS desktop, there were compatibility issues with the macOS version, Xcode, and .NET MAUI installation errors. Additionally, there were issues related to dependencies or libraries used in the application. These issues were mostly resolved by updating the software, reinstalling or repairing the installation, and troubleshooting dependencies and libraries.

**Future improvements:**

Some of the future improvements that can be made to the application include adding support for additional credit card types, improving the user interface, and adding support for international credit card numbers. Additionally, the application could be extended to include features such as expiration date validation, CVV validation, and more.