**Introduction**

The development of this project has given me profound knowledge in comprehending and implementing fundamental web service functionalities. This project dives into the different sectors or sections of software development that includes HTTP methods, XML manipulation, error handling, and external API integration, providing a practical platform for learning and applying these essential concepts. By creating a web service that handles POST, PUT, and DELETE operations, this project aims to show the resourcefulness of web-based applications and the vital role they play in facilitating data exchange and manipulation. Throughout the project of creating this microservice, the focus has been on achieving key learning outcomes, such as gaining proficiency in HTTP requests, understanding XML handling, and solidifying skills in error management.

**What were your learning outcomes in respect to this project?**

Through the development of this project, I have achieved several key learning outcomes. Firstly, I have gained a solid understanding of handling HTTP requests and creating a simple web service. The project required the implementation of various HTTP methods like POST, PUT, and DELETE, building up my practical experience in dealing with these operations. In addition, I have also grasped manipulation of XML and parsing has been acquired, as the project involves reading and updating XML files. The project has also enhanced my skills in error handling and data validation. It required careful consideration of potential errors that might occur during HTTP requests, file operations, and XML parsing. This has led to a more comprehensive understanding of robust programming practices and dealing with unexpected scenarios. Moreover, working with external APIs for fetching live currency rates has broadened my understanding of integrating third-party services into web applications.

**How might the application you have built be extended and improved?**

The application has several points which can be considered for enhancements. Firstly, the introduction of user authentication and authorization mechanisms would add a layer of security. This could involve creating user accounts, allowing only authorized personnel to perform operations, and logging their activities. Improving the functionality to handle a wider range of currencies and incorporating more sophisticated currency conversion features could also be beneficial. The application could provide historical exchange rates, graphs, and trends, offering users a more comprehensive financial analysis. This data could be used elsewhere in creating reports and could also be used in predictions. Implementing a frontend interface for users to interact with the system would significantly improve user experience. This could involve creating a dashboard where users can view, add, or modify currencies with ease. Introducing user-friendly forms and visual representations of data would make the application more accessible.

How could the application and/or its components promote re-use?

The application and its components can promote reusability through modular design and documentation. Breaking down the functionalities into separate components or modules allows them to be reused in other projects or extended in the current one. For example, during the handling of XML and HTTP request functions can be encapsulated into reusable smaller groups such as functions or classes. Furthermore, documentation included information on how to use each function, what parameters they accept, and what they return. This makes it easier for other developers (or even oneself in the future) to understand and integrate the components into their projects. In addition, taking into consideration design patterns such as the Singleton pattern for components that should exist only once, such as a currency manager, enhances reusability. This ensures that only a single instance of the component is created and reused throughout the application, reducing resource consumption.

**Conclusion**

In conclusion, the project has not only imparted technical skills but has also emphasized the importance of designing scalable, secure, and well-documented applications, promoting a holistic understanding of software development.