**Coursework Report: Roman Numeral Converter Application**

**1. Introduction**

**a. What is your application?**

This coursework presents a Python application for converting between Roman numerals and decimal numbers. It offers functionality to convert Roman numerals to decimal numbers and vice versa.

**b. How to run the program?**

To run the program, ensure you have Python installed on your system. Then, execute the **main()** function in the provided Python script.

**c. How to use the program?**

Upon running the program, the user is prompted to choose the conversion type:

* Enter '1' for Roman to Decimal conversion.
* Enter '2' for Decimal to Roman conversion.
* Enter '0' to exit the program.

Based on the chosen option, the user is further prompted to input the Roman numeral or decimal number they want to convert.

**2. Body/Analysis**

**a. Explain how the program covers functional requirements**

The program utilizes a class structure with inheritance to implement the functionality.

* The **NumeralConverter** abstract base class defines methods **to\_decimal()** and **from\_decimal()**.
* The **RomanNumeralConverter** subclass implements these methods to convert Roman numerals to decimal and vice versa.
* The **DecimalConverter** subclass acts as a bridge to convert decimal numbers to Roman numerals using the **RomanNumeralConverter**.

**3. Results and Summary**

* The implementation successfully meets the functional requirements by providing accurate conversions between Roman numerals and decimal numbers.
* Challenges faced during implementation included ensuring the correctness of the conversion algorithms, especially for edge cases and error handling.

**4. Conclusions**

The coursework has achieved its objective of creating a functional Roman Numeral Converter application. Future prospects include:

* Adding more robust error handling and validation.
* Extending the application to support additional numeral systems.
* Enhancing the user interface for better usability and feedback.