An Investigation into Aspect-Oriented Programming

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I. Abstract

The modularisation of cross-cutting concerns has been a significant problem in object-oriented programming. Aspect-oriented programming aims to provide a solution to this problem by modularising cross-cutting concerns into units called aspects. The aim of this project is to understand why cross-cutting concerns are problematic in the object-oriented domain and determine exactly how aspect-oriented programming can be beneficial to the software developer. A simple audio processing application in which cross-cutting concerns are present is used as a vehicle to demonstrate how aspect-oriented programming is applied and how it is beneficial. The results of applying aspect-oriented programming show that cross-cutting concerns can be modularised cleanly in a way that is beneficial for the programmer both in terms of unit cohesion and design enhancement. This project concludes that the way in which aspect-oriented programming makes you think about a particular problem can lead to a greater understanding of the limitations of object-oriented programming. By understanding these limitations, modularising code in a different dimension from object-oriented programming becomes much more intuitive at great benefit to the programmer.

II. Declaration

No portion of the work referred to in this dissertation has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.