

1 Introduction

Modelling of critical and embedded systems is a complex task with many parts. One of the most popular and mature languages designed for modelling such systems is the Vienna Development Method (VDM) which has received an object-oriented extension called VDM++ [5]. The upsides of modelling using VDM++ are that tools exist for formally validating and ~~verifying~~ your model. Another feature of VDM++ is that it encapsulates the behaviour of the modelled system as classes.

The task of modelling systems is complex and requires a deep understanding of the modelling tools in use. The widely used Eclipse IDE allows for easier modelling, including several debugging tools and plugins. One of these plugins is the transformations from and to Unified Modelling Language (UML) files [11]. This connection was developed because UML class diagrams is a fitting and intuitive way of visualizing object-oriented VDM++ models.

The Eclipse IDE is slowly growing obsolete as a new contender rises, the VDM VSCode extension for Visual Studio Code, letting VS Code function as an IDE for modelling in languages from the VDM language family. Many of the features from Eclipse have been ported to the extension already, but the UML connection has not.

The UML transformations were developed with the informal modelling tool, Mod-
elio, in mind, but it is old and has its flaws. New more modern tools have since been developed, and it may be worthwhile looking into if the connection can be repurposed for such tools.

yet been incorporated

Thesis Goals

UML connection to VDM VSCode: To port the UML transformations implemented on the Eclipse IDE to the newly developed VS Code extension, VDM VSCode.

UML Visualization: To examine and begin implementation of a better visualization method of the generated UML models.

write as full paragraph or give numbers

2 Background

2.1 Vienna Development Method

~~The Vienna Development Method (VDM)~~ is a leading formal method, focused on the modeling of computer-based systems. The goal of the method is to help enforce stringent system requirements using formal semantics, to ensure safety and security in the software before it is deployed for either industrial use or as an aid in the research process. [10]

At the core of the VDM methods ~~usefulness~~ ^{utility} for software development lies the VDM model. This model encapsulates data and functionality. The data can, along with the usual assortment of basic types for any kind of programming language, be