Background

Abstract

Software processes relate to the sequences of steps that must be performed by software engineers in order to pursue the goals of software engineering. In order to have an accurate representation and implementation of what the actual steps are, software processes may be modeled and enacted by a process modeling language (PML) and its process support system (called the Process Centered Environments i.e. PSEE). Although there has been much fruitful research into PMLs, their adoption by industry has not been widespread. Furthermore, no single PML and PSEE have assumed dominance and accepted as the de facto standard. For these reasons, research into PMLs and PSEEs are still necessary.

This project captures the design of the process support environment for a new process modeling language, called the Virtual Reality Process Modeling Language (VRPML). In doing so, this project identifies the main components of the VRPML process support environments as well as implements the working prototypes. Our experience highlights some lesson learned and offers insights into the design of next-generation PMLs and PSEEs.

Keywords: Process Modelling Language, VRPML, Software Engineering

For Bahasa Malaysia Abstract, see Appendix A.

Introduction

A software process can be defined as sequences of steps that must be followed by software engineers to pursue the goal of software engineering. In order to allow a better control of a particular software process, a model of that process (called a process model) can be created using a process modelling language (PML) making the process explicit and open to examination.

Through enactment (or execution) of the process model, automation, guidance, and enforcement of the policy embedded in a particular process model can be usefully achieved. Because of the aforementioned benefits, a PML and its process support environment (termed *the Process Centered Environment (PSEE)*) could form an important feature of future software engineering environments. For these reasons, research into PMLs and PSEEs are still necessary.

This research aims to design and implement the heterogeneous process support environment for the Virtual Reality Modelling Language (VRPML), a visual PML developed elsewhere as part of the author's PhD work. The aim of this research is to investigate the suitable support mechanism as well as the suitable runtime environment to realize some of the main novel features of VRPML, that is, in terms of the integration with a virtual environment, the support for dynamic creation and allocation of resources as well as the support for enactment in a distributed environment.

The objectives of this project are:

1. To identify the main requirements for the VRPML process support environment.
2. To build a heterogeneous prototype runtime support system.
3. To utilize an object-oriented analysis and design techniques using the Unified Modelling Language (UML) for designing the VRPML support environment
4. To evaluate VRPML and its supporting environment under the real software engineering settings.

Project Members

The project members for this project are:

1. Dr Kamal Zuhairi bin Zamli (Project Leader)
2. Dr Nor Ashidi Mat Isa
3. Siti Norbaya Azizan (RA for two months)
4. Iza Sazanita Isa (RA for two months)

Progress

The duration of the project is 2 years beginning 1 November, 2004 till 31 October, 2006. Referring to Figure 1, this project has now been completed.