

ACKNOWLEDGEMENT

All praise is to Allah (God) the Compassionate the Merciful. “O My Lord! Increase me in knowledge”, The Holy Quran 20:114.

I would like to thank my supervisor, Dr. Abdelgaffar Hamed for providing the necessary guidance in completing my dissertation. I am sincerely grateful for all his help throughout the entire project.

I would like to thank my parents, Abdulhaleem and Shadya, for their continuous and unlimited support and prayers. I would to thank my brothers and my sisters Esra, Razan and Al shima for their support.

I would like to express my deepest gratitude to Mr. Bader Aldin, for his excellent guidance and caring.

ABSTRACT

Software Product Lines (SPL) are families of software systems that share common functionality, where each member has variable functionality. The main goal of SPL is the rapid development of member systems by using reusable assets from all phases of the development life cycle. The SPL approves the ability of increasing the productivity and reduces time and costs of developing products. But still there is a lack of high level of automation in many SPL methods such as Kobra. On other hand the Model Driven Architecture (MDA) is new automation approach for software development introduced with main goal of decrease the cost of development and increase the quality of the product where models are first class. This research presents a reengineering approach to Kobra which brings high degree of automation and reuse . Specific metamodels is developed and some concepts are borrowed from the powerful UML metamodel. The result shows its rich machinery for adding value to Kobra.

المستخلص

خط إنتاج البرمجيات (SPL) عبارة عن عائلات من أنظمة البرمجيات التي تشترك في وظائف وخصائص عامه، حيث كل عضو لديه وظيفة متغيره. الهدف الرئيسي من (SPL) هو التطور المتكرر باستخدام الأصول التي يمكن إعادة استخدامها من جميع مراحل دورة حياة تطوير البرمجيات. وخط إنتاج البرمجيات أثبت قدرتها على زيادة الإنتاجية وتقليل من الوقت وتكاليف تطوير المنتجات. ولكن لازال هناك نقص في مستوى عالم التشغيل الآلي في العديد من الطرق (SPL) مثل طريقة (KobrA). على صعيد آخر المعمارية المبنية على النماذج (MDA) هو نهج آلية جديدة لتطوير البرمجيات مع الهدف الرئيسي لخفض تكاليف التنمية وزيادة جودة المنتج حيث النماذج هي العنصر الأساسي فيها. يقدم هذا البحث إعادة الهيكلة (KobrA) التي تجمع إلى درجة عالية من الأتمتة وإعادة استخدامها. تم تطوير نماذج (metamodels) محددة تم استعارة بعض المفاهيم من نماذج لغة النمذجة الموحدة (UML metamodel). والنتيجة تظهر أن هذه الآلية عالية الجودة تضيف قيمة لطريقة (KobrA).

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