

The Research on Applying Relation Database Component Generator for Quality Improvement of Project Management in ...

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ABSTRACT

Component-based software development (CBSD) was adopted to combine the relation database property and Object-Oriented development methodology to develop the relation database business component generator (DBCG) for senior developers and designers with business knowledge. By using DBCG to reduce the unexpected problems of project quality which were caused by the usage of different engineers, it is believed that DBCG can also shorten the developing schedule and avoid the mistakes occurred in the process. This paper is to bring up an DBCG on business logic tier of three-tier application system of structure. DBCG can rapidly generate the database business components (DBC) to offer the use of the web form or window form. The generated components convert ADO.Net object or OLE DB.Net object to link the relational database through the DataReader, DataAdapter and Command objects by the data providers. It can transact with the relational database exchangeably. DBC can be the intermediary component between the presentation tier and data service tier to deposit and withdraw the materials. The system developers can base on the DBCG to develop the application system with the software component assembled methods. The system developers can generate a new component occasionally due to the change of the relations. When the system needs to be modified, the software developers only need to focus on some valued business logic writing without modifying the whole system. The data showed that according to the software features and software measurement, the schedule of development can be shortened one third and every a thousand lines mistake rate on average of the system drops from 5.4 errors to 2.3 errors. It can be seen that the software quality of project management in the design phase can be improved.

Keywords : project management ; component-based software development ; database business component generator ; software metrics ; software quality

Table of Contents

封面內頁 簽名頁 授權書.....	iii	中文摘要.....	iv	英文摘要.....	vi
誌謝.....	vii	目錄.....	viii	圖目錄.....	xi
錄.....	xiii	第一章 緒論		1.1 研究背景與動機.....	1
		1.2 研究目的.....	3	1.3 研究流程.....	4
		1.4 研究範圍與限制.....	6	1.5 論文架構.....	6
		第二章 文獻探討		2.1 資料庫管理系統.....	8
		2.2 軟體專案管理.....	10	2.3 物件導向軟體工程.....	18
		2.4 應用系統架構.....	21	2.5 軟體品質管理.....	24
		第三章 研究方法與系統架構		3.1 研究方法.....	36
		3.2 系統架構.....	36	3.3 關連式資料庫元件.....	40
		第四章 關連式資料庫商業元件產生器之設計		4.1 元件基礎類別架構.....	42
		4.2 元件基礎功能.....	44	4.3 關連式資料庫商業元件產生器專案.....	51
		4.4 表格類別設計概念.....	57	第五章 專案管理設計階段品質改善	
		5.1 設計階段品質改善.....	79	5.2 研究成果.....	81
		第六章 結論		6.1 研究結論.....	86
		6.2 未來的研究方向.....	87	參考文獻.....	89
		圖目錄		圖1.1 研究流程	5
		圖2.1 專案開發模式圖	13	圖2.2 三層式架構圖	22
		圖2.3 品質評量概念圖	26	圖3.1 DBCG系統架構圖	37
		圖3.2 DBCG元件資料存取架構圖	38	圖4.1 關連式資料庫商業元件架構圖範例	43
		圖4.2 關連式資料庫關連表類別圖	44	圖4.3 關連式資料庫關連表類別圖	49
		圖4.4 異動交易處理類別圖	49	圖4.5 DBCG程式碼產生器專案	51
		圖4.7 DBCG系統操作步驟圖 - 資料來源設定	53	圖4.8 資料來源設定XML檔	53
		圖4.9 DBCG系統操作步驟圖 - 資料庫商業元件產生器	54	圖4.10 DBCG系統操作步驟圖 - Bussiness元件產生	55
		圖4.11 DBCG資料庫元件專案	57	圖4.12 收文創稿流程類別程式碼	61
		圖4.13 收文創稿流程類別程式碼 - Insert()	63	圖4.14 收文創稿流程類別程式碼 - Update()	65
		圖4.15 收文創稿流程類別程式碼 - Delete()	66	圖4.16 收文創稿流程類別程式碼 - IsExist()	68
		圖4.17 收文創稿流程類別程式碼 - Refresh()	70	圖4.18 收文創稿流程類別程式碼 - RcvflowCollection()	73
		圖4.19 同步交易類別程式碼 - DBFun.cs	75	圖4.20 同步交易類別程式碼 - 收文登記新增	78

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