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

蕭志昌、楊豐兆
E-mail: 9510753@mail.dyu.edu.tw

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

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