UNIVERSITI TEKNOLOGI MARA

SOFTWARE REUSABILITY IN GREEN COMPUTING

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in according with the regulation of Universiti Teknologi MARA. It is original and the result of my own work unless otherwise indicated or acknowledge as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

Green technology involves a wide range of subjects, from new energy-saving techniques to advanced materials innovation that can be applied to daily life. Its main goal is to protect the environment from harmful effects that technology sometimes brings. Green computing has taken off in Malaysia but not all information technology companies in the country see its long-term benefits. Although most green computing initiatives have concentrated on innovating hardware, little attention has been paid to the software aspect and how it can enhance green computing. This research shows how software reusability can promote green computing and to illustrate this point, quantitative analysis method is used to gather data from questionnaires distributed among the employees of IT companies in Malaysia. The questionnaire has been structured into three sections to meet the main goal, to achieve the objectives of this study and answer the research questions. The data collected will be thoroughly examined before it is tabulated or published. Reliability analysis, factor analysis, normality analysis, correlation analysis and regression analysis are used to analyze the amassed data. It can be discerned that the main software reusability approaches used in the IT industry include design patterns, component-based development and application frameworks. Telecommuting is the main green computing approach while algorithmic efficiency, power management, voice over internet protocol (VOIP) and virtualization approaches are also commonly used methods. The implication of this study to IT companies in Malaysia is that it substantiates the benefits of software reusability practices which drive savings in development costs. It also highlights software reusability as an important method in preventing the negative effects of global warming and maintaining environmental sustainability.

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