Using Time Series Models for Defect Prediction

in Software Release Planning

A Thesis

Presented to

The Graduate Faculty

Central Washington University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

Computational Science

by

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June 2015

CENTRAL WASHINGTON UNIVERSITY

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ABSTRACT

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To produce a high-quality software release, sufficient time should be allowed for testing and fixing defects. Otherwise, there is a risk of slip in the development schedule and/or software quality. A time series model is used to predict the number of bugs created during development. The model depends on the previous numbers of bugs created. The model also depends, in an exogenous manner, on the previous numbers of new features resolved and improvements resolved. This model structure would allow hypothetical release plans to be compared by assessing their predicted impact on testing and defect-fixing time. The VARX time series model was selected as a reasonable approach. The accuracy of the model appeared low for a single dataset, but the error was found to be normally distributed.

ACKNOWLEDGEMENTS

The author is grateful to Dr. John Anvik, for his advice and patience, to Dr. Yvonne Chueh for her help with exploratory data analysis, and to Dr. Kathryn Temple for her guidance with time series modeling.

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