IDENTIFYING CUSTOMER SATISFACTION OF SOFTWARE PROJECTS FROM SOFTWARE PROJECT METRICS

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Degree of Master of Science

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Thesis submitted in partial fulfillment of the requirements for the degree Master of Science in Computer Science

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DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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Name of the supervisor: ENG. Dr. Indika Perera

Signature of the supervisor: ……..... Date: ……

Abstract

In the era of modern computing, software companies compete each other on respective fields to withstand in the market. It is hard to retain a customer even though every project might not be same as the other project(s). Reports suggest that huge software companies failed to secure a fortune customer while meager software companies like startups increased their business simply by focusing on customer satisfaction. Some customers tend to end the contract with the software company or move to another vendor although the project is marked as success (e.g. completion of project etc.) since the customer satisfaction is not met. The thesis focuses on identifying the customer satisfaction of software projects from software project metrics in the various stages of software projects such as beginning of the project, while the project is ongoing and during maintenance.

Success of the organization depends on the success of the project(s) they do. Success of the project depends on the delight of the customer(s). Therefore, the customer satisfaction is vital for the existence of the organization. The main objective of the thesis is to find the relationship between the actual customer satisfaction score/index and the software project metrics during the project duration. Based on the relationship built, predict the current/future customer satisfaction of the customer(s) regarding the software project will help decision makers such as project managers, higher management to get an idea about how the project is progressing and take necessary steps to eliminate the customer dissatisfaction if the progress is indicating as such.

As a solution, Composite Customer Satisfaction Rating formula was developed which is derived from the software project metrics. Among all the software project metrics, five main influencing factors of software project metrics which affects the delight of the customer(s) were identified. As the proof of concept, CDI Validation Tool was developed to prove that the concept is applicable in real life situation(s). CDI Validation Tool compares the customer satisfaction score/index and Composite Customer Satisfaction Rating and validate whether the calculated Composite Customer Satisfaction Rating reflects the actual customer satisfaction score/index and advocate of which area of the software project metrics should improve to increase the client delight.

A theoretical and empirical evaluation has been done to prove this concept works in real life cases. Evaluation of CDI Validation Tool comprises two phases: Empirical evaluation and performance evaluation. During Empirical evaluation, the Composite Customer Satisfaction Rating formula was applied to an example and results were recorded accordingly. The results illustrate that the Composite Customer Satisfaction Rating reflects the actual customer satisfaction score/index and it can be applied for real. Performance evaluation results indicate that the CDI Validation Tool exhibit an overall good performance with an average processing time of equivalent to 5 milliseconds per record for a large data set.

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List of Abbreviations

Abbreviation	Description
US	United States of America
IT	Information Technology
CDI	Client Delight Index
PM	Project Manager
AM	Account Manager
CSM	Client Service Manager
ALM	Application Lifecycle Management
ISO	International Organization for Standardization
B2B	Business to Business
B2C	Business to Customer
LOC	Lines of Code
FP	Functional Points
DEV	Development
QA	Quality Assurance
UAT	User Acceptance Testing
ETL	Extract, Transform, Load
FY19Q4	Financial Year 2019 Quarter 4
ERP	Enterprise Resource Planning

BI	Business Intelligence
DB	Database
DD	Defect Density
SQL	Structured Query Language
CCSR	Composite Customer Satisfaction Rating
®	Registered
™	Trade Mark
UI	User Interface
COM	Component Object Model