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A Review of Software Quality Models for the Evaluation of Software Products

José P. Miguel¹, David Mauricio² and Glen Rodríguez³

¹Department of Exact Sciences, Faculty of Sciences, Universidad Peruana Cayetano Heredia, Lima, Peru

²Faculty of System Engineering and Computing, National University of San Marcos, Lima, Peru

³Faculty of Industrial and System Engineering, National University of Engineering, Lima, Peru

ABSTRACT

Actually, software products are increasing in a fast way and are used in almost all activities of human life. Consequently measuring and evaluating the quality of a software product has become a critical task for many companies. Several models have been proposed to help diverse types of users with quality issues. The development of techniques for building software has influenced the creation of models to assess the quality. Since 2000 the construction of software started to depend on generated or manufactured components and gave rise to new challenges for assessing quality. These components introduce new concepts such as configurability, reusability, availability, better quality and lower cost. Consequently the models are classified in basic models which were developed until 2000, and those based on components called tailored quality models. The purpose of this article is to describe the main models with their strengths and point out some deficiencies. In this work, we conclude that in the present age, aspects of communications play an important factor in the quality of software

KEYWORDS

Software Quality, Models, Software quality models, Software components, COTS

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Different Approaches To Black box Testing Technique For Finding Errors

Mohd. Ehmer Khan

Department of Information Technology Al Musanna College of Technology, Sultanate of Oman

ABSTRACT

Software testing is the process of analyzing software to find the difference between required and existing condition. Software testing is performed throughout the development cycle of software and it is also performed to build quality software, for this purpose two basic testing approaches are used, they are white box testing and black box testing. One of the software testing technique which I have explain in my paper is Black Box Testing, it is a method of generating test cases that are independent of software internal structure, I have also briefly explore various different approaches to black box testing technique for finding errors. Since black box testing is always based either directly or indirectly on the software specification so it is also called specification based testing.

KEYWORDS

Equivalence Partitioning, Boundary Value Analysis, Fuzz Testing, Orthogonal Array Testing, All Pair Testing

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Authors

Mohd. Ehmer Khan

I completed my B.Sc in 1997 and M.C.A. in 2001 from Aligarh Muslim University, Aligarh, India, and pursuing Ph.D (Computer Science) from Singhania University, Jhunjhunu, India. I have worked as a lecturer at Aligarh College Engineering & Management, Aligarh, India from 1999 to 2003. From 2003 to 2005 worked as a lecturer at Institute of Foreign Trade & Management, Moradabad, India. From 2006 to present working as a lecturer in the Department of Information Technology, Al Musanna College of Technology, Ministry of Manpower, Sultanate of Oman. I am recipient of PG Merit Scholarship in MCA. My research area is software engineering with special interest in driving and monitoring program executions to find bugs, using various software testing techniques.



E-GOVERNMENT MATURITY MODELS: A COMPARATIVE STUDY

Abdoullah Fath-Allah¹, Laila Cheikhi¹, Rafa E. Al-Qutaish², and Ali Idri¹

¹Software Project Management Research Team, ENSIAS - Mohammed V University -
Souissi, Rabat, Morocco

²Dept. of Software Engineering & IT, École de Technologie Supérieure, University of
Québec, Montréal, Canada

ABSTRACT

Many maturity models have been used to assess or rank e-government portals. In order to assess electronic services provided to the citizens, an appropriate e-government maturity model should be selected. This paper aims at comparing 25 e-government maturity models to find the similarities and differences between them and also to identify their weaknesses and strengths. Although the maturity models present large similarities between them, our findings show that the features included in those models differ from a maturity model to another. Furthermore, while some maturity models are covering some features and introducing new ones, it seems that others are just ignoring them.

KEYWORDS

E-government, portal, maturity model, comparison, best practices, e-services, maturity stages

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Authors

Abdoullah Fath-Allah

He holds a bachelor degree in computer science (2005) and a master degree in computer networks with a minor in software engineering (2007) from Alakhawayn University in Ifrane, Morocco (AUI). Abdoullah has almost an 8 years' experience in industry, and he is an e-HR portals' consultant. He is currently a PhD student at ENSIAS (Morocco).

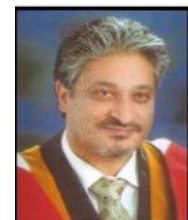


Laila Cheikhi

She is a Professor at Computer Science and Systems Analysis School (ENSIAS, Rabat, Morocco). She received a M.Sc. (2004) from University of Montréal and Ph.D. (2008) from ETS, University of Quebec at Montreal, and Both in software engineering. She has over eight years of experience in computer engineering at the Ministry of Finance of Morocco. Her research interests include software quality models, software metrics, software engineering ISO standards, software product and process quality, software engineering principles and data analysis.

Rafa E. Al-Qutaish

He is an Associate Professor at École de Technologie Supérieure (ÉTS), University of Québec, Canada. He received B.Sc. in Computer Science and M.Sc. in Software Engineering degrees in 1993 and 1998, respectively. Also, he received the Ph.D. degree in Software Engineering from the School of Higher Technology (ÉTS), University of Québec, Canada in 2007. His research interests are in Software Measurement, Software Product Quality, Software Engineering Standardization, Reverse Engineering, Software Comprehension and Maintenance, and Compiler Construction. Dr. Al-Qutaish is a senior member of the IEEE & IEEE-CS, and also a senior member of the IACSIT. <http://www.rafa-elqutaish.ca>



Ali Idri

He is a Professor at Computer Science and Systems Analysis School (ENSIAS, Rabat, Morocco). He received DEA (Master) (1994) and Doctorate of 3rd Cycle (1997) degrees in Computer Science, both from the University Mohamed V of Rabat. He has received his Ph.D. (2003) in Cognitive Computer Sciences from ETS, University of Quebec at Montreal. His research interests include software cost estimation, software metrics, fuzzy logic, neural networks, genetic algorithms and information sciences.



FACTORS INFLUENCING QUALITY OF MOBILE APPS: ROLE OF MOBILE APP DEVELOPMENT LIFE CYCLE

Venkata N Inukollu¹, Divya D Keshamoni², Taeghyun Kang³ and Manikanta Inukollu⁴

¹Department of Computer Science Engineering, Texas Tech University, USA

²Rawls College of Business, Texas Tech University, USA

³Department of Computer Science Engineering, Wake forest university, USA

⁴Department of Computer Science, Bhaskar Engineering College, India

ABSTRACT

In this paper, The mobile application field has been receiving astronomical attention from the past few years due to the growing number of mobile app downloads and withal due to the revenues being engendered. With the surge in the number of apps, the number of lamentable apps/failing apps has withal been growing. Interesting mobile app statistics are included in this paper which might avail the developers understand the concerns and merits of mobile apps. The authors have made an effort to integrate all the crucial factors that cause apps to fail which include negligence by the developers, technical issues, inadequate marketing efforts, and high prospects of the users/consumers. The paper provides suggestions to eschew failure of apps. As per the various surveys, the number of lamentable/failing apps is growing enormously, primarily because mobile app developers are not adopting a standard development life cycle for the development of apps. In this paper, we have developed a mobile application with the aid of traditional software development life cycle phases (Requirements, Design, Develop, Test, and, Maintenance) and we have used UML, M-UML, and mobile application development technologies.

KEYWORDS

Mobile applications, low quality/bad apps, mobile apps marketing, Mobile Application development, Mobile Software Engineering, M-UML, UML

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PEOPLE FACTORS IN AGILE SOFTWARE DEVELOPMENT AND PROJECT MANAGEMENT

Vikash Lalsing¹, Somveer Kishnah² and Sameerch and Pudaruth³

¹TNT Express ICS Mauritius, Ebene Cybercity, Rose Hill

²Department of Computer Science Engineering, University of Mauritius, Reduit, Moka

ABSTRACT

With the increasing popularity of Agile Methods, many software organisations are moving away from traditional methods to adopt Agile development methodologies. Instead of being predictive, Agile is rather adaptive and people-focussed. It advocates a small and collaborative team that work closely together. But team size is a factor that is in turn constrained by people factors. When implementing Agile, these key factors are often overlooked. This study aims at identifying the underlying people factors to consider when adopting Agile for a team to be effective. The method used is the study of three different sized Agile teams developing products based on the same technologies and using Scrum. Both objective and subjective measures were used and the results are supported by a survey. The results clearly show that for agile methodologies to work well, it is crucial to select the right people for the right team.

KEYWORDS

Agile Methodology, Scrum, Agile Teams, Software Development, Project Management

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THREATS AND OPPORTUNITIES WITH AI-BASED CYBER SECURITY **INTRUSION DETECTION: A REVIEW**

Bibhu Dash, Meraj Farheen Ansari, Pawan kumar Sharma and Azad Ali
Dept. of Computer and Information Systems, University of the Cumberland,
Williamsburg, KY USA

ABSTRACT

Internet usage has increased quickly, particularly in the previous decade. With the widespread use of the internet, cybercrime is growing at an alarming rate in our daily lives. However, with the growth of artificial intelligence (AI), businesses are concentrating more on preventing cybercrime. AI is becoming an essential component of every business, affecting individuals worldwide. Cybercrime is one of the most prominent domains where AI has begun demonstrating valuable inputs. As a result, AI is being deployed as the first line of defense in most firms' systems. Because AI can detect new assaults faster than humans, it is the best alternative for constructing better protection against cybercrime. AI technologies also offer more significant potential in the development of such technology. This paper discusses recent cyber intrusions and how the AI-enabled industry is preparing to defend itself in the long run.

KEYWORDS

AI, cybercrime, cyberattacks, machine learning, cybersecurity, security analytics, classification.

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Authors

Bibbu Dash is a data Architect in a Fortune 100 financial organization in Madison, WI. He is currently a Ph.D. scholar in Information Technology at the University of the Cumberland, Kentucky. Bibhu has completed his Master of Engineering in Electronics and Communication Engg. and MBA from Illinois State University, Normal, IL. Bibhu's research interests include AI, Cloud Computing, Big Data, and Blockchain technologies.

Dr. Meraj Farheen Ansari completed her Ph.D. (IT) from the Graduate School of Information Technology, University of the Cumberland. She also completed her MBA with a Specialization in Management Information Systems from Concordia University, Milwaukee, WI, USA. Her research interests include cybersecurity awareness, eliminating Cyber Threats, & ML. Her current research involves making organizational employees aware of cyber security threats using AI awareness programs. Currently, she is a Cyber Security Analyst at Northern Trust Bank, Chicago, IL.

Pawankumar Sharma is a Senior Product Manager for Walmart in San Bruno, California. He is currently on his Ph.D. in Information Technology at the University of the Cumberland, Kentucky. Pawankumar completed his Master of Science in Management Information Systems from the University of Nebraska at Omaha in 2015. He also holds another Master of Science in Information Systems Security from the University of the Cumberland, Kentucky, and graduated in 2020. His research interests are cyber security, Artificial Intelligence, Cloud Computing, Neural Networks, Information Systems, Big Data Analytics, and Intrusion Detection and Prevention.

Dr. Azad Ali, D.Sc., Professor of Information Technology, has more than 30 years of combined experience in financial and information systems. He holds a bachelor's degree in Business Administration from the University of Baghdad, an MBA from the Indiana University of Pennsylvania, an MPA from the University of Pittsburgh, and a Doctor of Science in Communications and Information Systems from Robert Morris University. Dr. Ali's research interests include service-learning projects, web design tools, dealing with isolation in doctoral programs, and curriculum development. Azad has been involved in mentoring postgraduate students to complete their doctoral dissertations and has so far mentored five students to complete their dissertations.

INTEGRATING SOFTWARE REPOSITORY MINING: A DECISION SUPPORT CENTERED APPROACH

Luiz Dourado Dias Junior and Eloi Favero

Department of Electric Engineering, UFPA, Belem, PA

ABSTRACT

Mining software repositories (MSR) research had significantly contributed to software engineering. However, MSR results integration across repositories is a recent concern that is getting more attention from researchers each day. Some noticeable research in this sense is related to the approximation between MSR and semantic web, specially linked data approaches which makes it possible to integrate repositories and mined results. Manifested that way, we believe that current research is not fully addressing the practical integration of MSR results, specially, in software engineering due to not considering that these results needs to be integrated to the tools as assistance to activity performers, as a kind of decision making support. Based on this statement this research describes an approach, named Sambasore, which is concerned with MSR results inter-repository integration and also to decision making support processes, based on tool assistance modelling. To show its feasibility we describe the main concepts, some related works and also a proof of concept experiment applied to a software process modelling tool named Spider PM.

KEYWORDS

Network Protocols, Wireless Network, Mobile Network, Virus, Worms & Trojon.

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TRACING REQUIREMENTS AS A PROBLEM OF MACHINE LEARNING

Zheng Li and LiGuo Huang

Southern Methodist University, Dallas, Texas, USA

ABSTRACT

Software requirement engineering and evolution essential to software development process, which defines and elaborates what is to be built in a project. Requirements are mostly written in text and will later evolve to fine-grained and actionable artifacts with details about system configurations, technology stacks, etc. Tracing the evolution of requirements enables stakeholders to determine the origin of each requirement and understand how well the software's design reflects to its requirements. Reckoning requirements traceability is not a trivial task, a machine learning approach is used to classify traceability between various associated requirements. In particular, a 2-learner, ontology-based, pseudo-instances-enhanced approach, where two classifiers are trained to separately exploit two types of features, lexical features and features derived from a hand-built ontology, is investigated for such task. The hand-built ontology is also leveraged to generate pseudo training instances to improve machine learning results. In comparison to a supervised baseline system that uses only lexical features, our approach yields a relative error reduction of 56.0%. Most interestingly, results do not deteriorate when the hand-built ontology is replaced with its automatically constructed counterpart.

KEYWORDS

Requirements Traceability, Software Design, Machine Learning

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A NOVEL EFFORT ESTIMATION MODEL FOR SOFTWARE REQUIREMENT CHANGES DURING SOFTWARE DEVELOPMENT PHASE

Jalal Shah, Nazri Kama and Nur Azaliah A Bakar

Department of Razak Faculty of Technology and Informatics, Universiti Teknologi
Malaysia, Kuala Lumpur, Malaysia

ABSTRACT

Software Requirements Changes is a typical phenomenon in any software development project. Restricting incoming changes might cause user dissatisfaction and allowing too many changes might cause delay in project delivery. Moreover, the acceptance or rejection of the change requests become challenging for software project managers when these changes are occurred in Software Development Phase. Where in Software Development Phase software artifacts are not in consistent state such as: some of the class artifacts are Fully Developed, some are Half Developed, some are Major Developed, some are Minor Developed and some are Not Developed yet. However, software effort estimation and change impact analysis are the two most common techniques which might help software project managers in accepting or rejecting change requests during Software Development Phase. The aim of this research is to develop a new software change effort estimation model which helps software project manager in estimating the effort for software Requirement Changes during Software Development Phase. Thus, this research has analyzed the existing effort estimation models and change impact analysis techniques for Software Development Phase from the literature and proposed a new software change effort estimation model by combining change impact analysis technique with effort estimation model. Later, the new proposed model has been evaluated by selecting four small size software projects as case selections in applying experimental approach. The experiment results show that the overall Mean Magnitude Relative Error value produced by the new proposed model is under 25%. Hence it is concluded that the new proposed model is applicable in estimating the amount of effort for requirement changes during SDP.

KEYWORDS

Software Change Effort Estimation, Software Requirement Changes, Function Point Analysis, Constructive Cost Model and Software Development Phase.

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AUTHORS

Jalal Shah, he is pursuing PhD in the field of Software Engineering from Universiti Teknologi Malaysia. He has more than 8 year of teaching & research experience. He is currently working in the area of Software Effort Estimation. He has also published & presented papers in refereed journals and conferences.



Nazri Kama, He is an Associate Professor at Universiti Teknologi Malaysia (UTM) specializing in software engineering. He graduated in Bachelor in Management Information System from Universiti Teknologi Malaysia. Later, he obtained a Master Degree from the same university in Real-time Software Engineering. In 2011, he received a Doctorate in Software Engineering from the University of Western Australia in Australia



Nur Azaliah Abu Bakar, PhD is a Senior Lecturer at Advanced Informatics Department, Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia. She graduated with a Bachelor (Information Technology) in Information Systems Engineering from Multimedia University (MMU) Malaysia (2000). She then obtained her Masters in Information Technology from Universiti Teknologi Mara (UiTM) in 2004. In 2017 she was awarded a Doctor of Philosophy degree in Information Technology (Enterprise Architecture) by Universiti Teknologi Malaysia.



I.T. PROJECT SUCCESS: PRACTICAL FRAMEWORKS BASED ON KEY PROJECT CONTROL VARIABLES

Godfred Yaw Koi-Akrofi, Eleanor Afful and Henry Akwetey Matey

Department of IT Studies, University of Professional Studies, Accra

ABSTRACT

The objectives of this study were to research into the interdependencies IT project control variables, and also come out with frameworks to help IT project managers understand how to effectively control these variables to ensure the success of IT projects. The study employed six control variables: Cost, Time (Schedule), Scope, Quality, Risk, and Benefits. A qualitative approach was adopted, where selected IT program and project managers of the Telecom industry in Ghana were interviewed individually and in a group based on a set of questions. The findings, espoused in the frameworks, reiterated the theory of the dependence of one control variable on the other, and the fact that varying one affects the others positively or negatively in relation to IT project success, as is the case for the iron triangle. Again, key activities of the control variables necessary to ensure IT project success were discovered.

KEYWORDS

Information, Technology, Control, Variables, Projects.

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