

Data Dictionary for Security Index - A New Perspective

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ABSTRACT

From the beginning of its use, the term Data Dictionary has had a wide range of meanings. Every software modules requires a dictionary or directory as an informant of the metadata on databases, users, applications and systems within the environment. Our primary focus of attention is on enhance the exiting data dictionary at initial phase of software development process may strongly supports to complex software system and as well as provide help to project manager. In order to include new features and functionalities such as security factors and their estimation in data dictionary at different stage of software development life cycle which have positive impact on project manager responsibility. This article provides a new data dictionary of security factors as a roadmap that helps software development teams understand the importance of security at design stage.

Keywords : Data Dictionary, Security Factors, Quality Criteria, Fault Issues

I. INTRODUCTION

Data dictionary has been studied and researched for years and it also depends on use. The data dictionary a repository that contains descriptions of all data objects consumed or produced by the software. More important role that such a dictionary will fulfil within the software development phases would be that of support mechanism for software life cycle methodology. To date, the current use of data dictionaries within the system analysis is limited owing to the failure of bringing about their full capital capacity. Data Dictionary is one of the most important topics in system analysis and design which is an efficient means to give the information on software modules [7]. The project manager can use the data dictionary; know about the modelling registry, vocabulary one source and repository of Meta data [1]. The data dictionary has been portioned into different views, each characterised either by information contained in it, by its aggregation state, by its differentiated users or by users it is relevant [12]. Information of data always supports the software

development phases and facilitates the improved of better quality software. Many disciplines like environmental planning, documentation and analysis uses for development of software and improves the quality of the software and description of that data are very important subjects to get good results.

II. DATA DICTIONARY

An easy way to Data dictionary provides a way to characterize real information within the software system. A data dictionary is a file or a set of files that contains a database's metadata. The data dictionary contains records about other objects in the database, such as data ownership, data relationships to other objects and other data. It can give its users valid, uniform, and continue updated system and program documentation, which is a reliable, permanent record that can ease future modification and conversion work [13]. Here, we introduced a conceptual summarize in term Controlling data, Generating data definition, Minimizing data redundancy, Indicating Relationship, Data Tracking and Integrity of use with respect to Data dictionary shown in Figure 1.

TABLE 1. DATA DICTIONARY FOR SECURITY FACTORS

Security factors Index		
		Calculated Index
Security Factors	Confidentiality	.999 ^F [3], .965 [8]
	Integrity	.999 ^F [4], .999[5]
	Availability	.998 ^F [6]
	Authorization	.930 [2]
	Durability	No Index Value
	Stability	No Index Value
Security	Security Index	0.998 [9], 0.999 ^F [10]

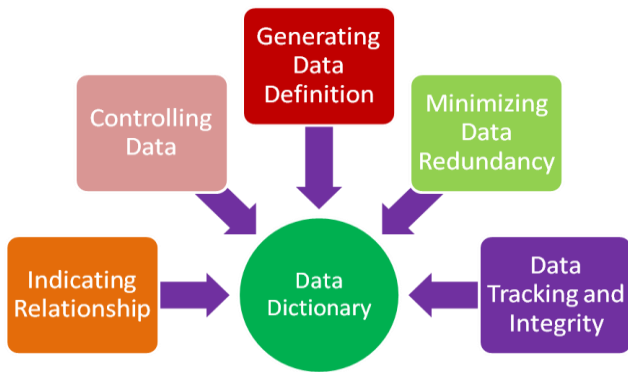


Figure 1. Data Dictionary Actions

III. DATA DICTIONARY: A NEW PERSPECTIVE

All paragraphs Data dictionary are detailed descriptions of all the functional and non-functional requirements the software must fulfil to meet business and user needs. Data dictionary, which are documented in a software specification, establish initial level information of software modules. The idea generates the data dictionary at initial level of software Development life Cycle Phases, includes the security factor, security criteria, security evaluations, security quantification for provide the help to developer or project manager [11]. A new data dictionary focuses on security evaluations and their impact through security index in table1. In this work on data dictionary have supported following strategy and guidelines.

- To add more features and functionalities in data dictionary in tem of security factor at design phase
- Provide the attention to security factors such as confidentiality, integrity, availability and fault
- It is provided that security estimation is an important process at design phase.
- It describes all the security theme and evaluation process at design stage, which generalizes all the others.
- It helps to provide complete security monitoring document of software
- Provides the ability to perform failure free dictionary for a long period of time in a specific environment
- Fields of dictionary ensures that system or software cannot deny for information to recognize problem at later stage.
- In this demonstration, we present new data dictionary, a tool that simplifies the security tasks, and generates structured data of security.

IV. Critical Impact

Some design fault constructs of object-oriented programming languages affect software security. These constructs are Interdependency level within module, Complexity Ratio, Data Bundling Ratio, Coupling Ratio and Abstraction Ratio. In order to maintain confidentiality, integrity and availability it is required to maintain security. Impact of fault design constructs on security factors has been shown in table 2, table 3 and table 4.

Table 2. Impact Analysis Dictionary between fault issues and Confidentiality

Security Parameters	Impact Analysis	Fault Factors		
		Coupling Ratio	Data Bundling Ratio	Abstraction Ratio
↓				
Rule 1: Effect of Integrity on secure design	If Integrity is Low	↓	↓	↓
	If Integrity is High	↑	↑	↑
	If Integrity is Medium	↔	↔	↔
Result	Integrity Assures Security in respect of Fault			

Table 3 Impact Analysis Dictionary between Fault issues and Integrity

Security Parameters	Impact Analysis	Fault Factors		
		Interdependency level within module	Complexity Ratio	Data Bundling Ratio
↓				
Rule 1: Effect of confidentiality on secure design	If Confidentiality is Low	↓	↓	↓
	If Confidentiality is High	↑	↑	↑
	If Confidentiality is Medium	↔	↔	↔
Result	Confidentiality Assures Security in respect of Fault			

Table 4. Impact Analysis Dictionary between Fault issues and Availability

Security Parameters	Impact Analysis	Fault Factors	
		Coupling Ratio	Interdependency level within module
↓			
Rule 1: Effect of availability on secure design	If Availability is Low	↓	↓
	If Availability is High	↑	↑
	If Availability is Medium	↔	↔
Result	Availability Assures Security in respect of Fault		

V. FUTURE CONSIDERATIONS

In this work, initialize data dictionary architecture that allows for security of metadata in the software system. Since data dictionary has been widely accepted as a key to achieving complete information to relevant system. Our immediate goal is to successfully implement our design and improved to security; also provide the help to project manager. The proposed work can be more extended in many directions. One direction is to extend the dictionary interfaces to design data as well as security factors. Another direction might be to incorporate knowledge into the security and to extend the dictionary security functionality with in fermenting capability. We are of the opinion that the work presented in this paper provides a sound foundation upon which theoretical solutions to the problems encountered in the design of software systems and dictionary systems can be develop.

VI. CONCLUSION

The structure of the dictionary we have shown here is being used for security description at design stage. It supports a variety of activities in development of secured system. Beside the generation from the core, it supports documentations and evaluation of security. Overall, the availability of a dictionary with a visible structure is very useful in the development of secured software and in the maintenance of the tool itself. Proposed work showed that impact analysis between fault and security factors.

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