

Software Requirements Engineering (SE2001)



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Requirements Managements

Requirements Identification - 1

- ❖ It is essential for requirements management that every requirement should have a unique identification.
- ❖ The most common approach is requirements numbering based on chapter/section in the requirements document.

Requirements Identification - 2

❖ Problems with this are:

- Numbers cannot be unambiguously assigned until the document is complete.
- Assigning chapter/section numbers is an implicit classification of the requirement.
 - This can mislead readers of the document into thinking that the most important relationships are with the requirements in the same section.

Requirements Identification Techniques

- ❖ Dynamic renumbering
- ❖ Database record identification
- ❖ Symbolic identification

Dynamic Renumbering

- ❖ Some word processing systems allow for automatic renumbering of paragraphs and the inclusion of cross-references.
- ❖ You re-organize your document and add new requirements.
 - ❖ The system keeps track of the cross-reference and automatically rennumbers your requirement depending on its chapter, section and position within the section.

Database Record Identification

- ❖ When a requirement is identified it is entered in a requirements database and a database record identifier is assigned.
- ❖ This database identifier is used in all subsequent references to the requirement.

Symbolic Identification

- ❖ Requirements can be identified by giving them a symbolic name which is associated with the requirement itself.
 - For example, EFF-1, EFF-2, EFF-3 may be used for requirements which relate to system efficiency

Storing Requirements

- ❖ Requirements have to be stored in such a way that they can be accessed easily and related to other system requirements.

Requirements Storage Techniques

- ❖ In one or more word processor files.
- ❖ In a specially designed requirements database.

Word Processor Documents: Advantages

- ❖ Requirements are all stored in the same place.
- ❖ Requirements may be accessed by anyone with the right word processor.
- ❖ It is easy to produce the final requirements document.

Word Processor Documents: Disadvantages - 1

- ❖ Requirements dependencies must be externally maintained.
- ❖ Search facilities are limited.
- ❖ Not possible to link requirements with proposed requirements changes.

Word Processor Documents: Disadvantages - 2

- ❖ Not possible to have version control on individual requirements.
- ❖ No automated navigation from one requirement to another.

Requirements Database - 1

- ❖ Each requirement is represented as one or more database entities.
- ❖ Database query language is used to access requirements.

Requirements Database: Advantages

- ❖ Good query and navigation facilities.
- ❖ Support for change and version management.



Requirements Database: Disadvantages

- ❖ Readers may not have the software/skills to access the requirements database.
- ❖ The link between the database and the requirements document must be maintained.

Requirements Database Choice Factors - 1

- ❖ The statement of requirements.
- ❖ The number of requirements.
- ❖ Teamwork, team distribution and computer support.
- ❖ CASE tool use.
- ❖ Existing database usage.

Requirements Database

Choice Factors - 2

❖ The statement of requirements:

- If there is a need to store more than just simple text, a database with multimedia capabilities may have to be used.

❖ The number of requirements:

- Larger systems usually need a database which is designed to manage a very large volume of data running on a specialized database server.

Requirements Database

Choice Factors - 3

❖ **Teamwork, team distribution and computer support:**

- If the requirements are developed by a distributed team of people, perhaps from different organizations, you need a database which provides for remote, multi-site access.

Requirements Database Choice Factors - 4

❖ CASE tool use:

- The database should be the same as or compatible with CASE tool databases. However, this can be a problem with some CASE tools which use their own proprietary database.

❖ Existing database usage

- If a database for software engineering support is already in use, this should be used for requirements management.



THANK YOU

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