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Domain Analysis: A Basic Introduction

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ABSTRACT

In this article, first the concept of domain, then the concept of domain analysis is briefly explained. The following is the domain analysis process, domain requirements, various methods of domain analysis, domain analysis model, domain types, and different levels of domain analysis. The knowledge map of domain analysis concepts is drawn using the YEWNO tool. Finally, the concept of domain analysis in information science is explained.

KEYWORDS: *Domain, Domain Analysis, Domain Requirement, Domain Analysis Concepts, Domain Analysis Levels, Information Science*

DOMAIN ANALYSIS

Based on the Merriam-Webster dictionary, domain is an area of knowledge or activity. Domain analysis has different definitions in different contexts, but the concept of "domain analysis" is largely the same in different sciences. In general, domain analysis is the process of analyzing a domain to examine commonalities between different domains. This process is based on identifying different classes of objects. Domain analysis can be a broad model for information systems analysis. "In information science, domain analysis is a common method for delineating the intellectual details" (Fan, & Tang, 2021). Domain analysis is performed for various purposes. This activity may be done to reuse or check for bugs and improve the domain. Domain analysis may also be done to better design new domains. Sometimes it is done to increase domain user satisfaction. In any case, this analysis and its results are effective in improving the range and increasing its lifespan. Domain analysis is performed at several levels of the domain. Researchers are usually more interested in first- to- third-level analysis. It helps researchers discover new patterns for domain definition and design. Domain requirements often reflect domain principles. If the domain requirements are not met, the system performance may not be satisfactory. Various methods are used for domain analysis. One of these methods is modeling. Domain Analysis Model is a technical representation of domain components in a system. This method provides an understanding of how to place objects in different domains of the domain. In other words, it shows how a component of an entity is categorized. For example, the Yahoo homepage URL (www.yahoo.com) has three

domains: the .com first-level domain, the second .yahoo domain, and the third-level domain www. The first domain, .com, may look different for a variety of reasons. Depending on the domain, the domain name in the first level is written differently. Domain type may include public domain types such as .com (business), .edu (educational institutions), .gov (governmental), .org (organization). The domain may also consist of country name abbreviations Such as .hu for Hungary. The second-level domain is the most competitive place for different websites. Users can usually use the secondary domain name to identify which brand the website belongs to or what services it offers. A third-level domain is known as a subdomain, most websites use .www as a third-level domain. Keywords have a big impact on the domain name. These words play an important role in searching for users. Domain Analysis examines important issues such as the presence of keywords in the domain name, the impact of the domain on user experience, domain age, domain history, domain rank, how the relationship between different domain components, domain length, and cases Other. Figure 1 shows the knowledge map of the concepts of domain analysis using the YEWNO tool. Yewno provides Augmented Intelligence. Yewno's mission is that of extracting knowledge from an overwhelming quantity of unstructured and structured data. As shown in this figure, based on the analysis of scientific literature available on the web, the concept of domain analysis is directly related to various concepts such as Metamodeling, RISE Editor, Domain engineering, Feature-oriented domain analysis, VIATRA, Model-based testing, Model driven engineering, Automatic programming, General purpose modeling, Domain-driven design, Domain specific modeling, and Model-driven architecture.

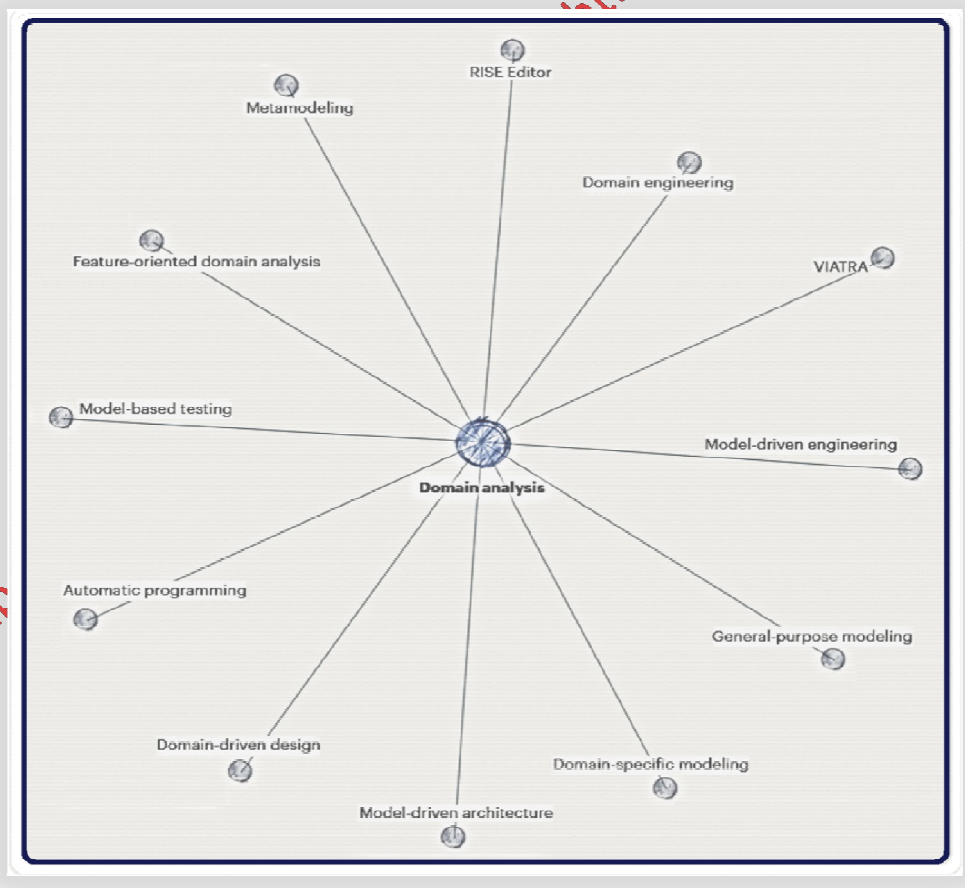

Figure 1: Knowledge map of domain analysis's concepts using Yewno tool

In information science, there are 11 approaches for domain analysis, namely: 1. Literature guides, 2. Special classifications and thesauri, 3. Indexing and retrieving specialties, 4. Empirical user studies, 5. Bibliometric studies, 6. Historical studies, 7. Document and genre studies, 8. Epistemological and critical studies, 9. Terminological studies, 10. Studies of structures and institutions in scientific communication, 11. Domain analysis in professional cognition and artificial intelligence (Hjørland, 2002).

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