Code 004.9

APPROACH TO ARCHITECTURE DESIGN OF THE CONTENT READABILITY DETERMINATION SYSTEM

Basyuk Taras

Lviv Polytechnic National University, Lviv, Ukraine

Abstract

The role of readability of the content in the modern information space is analyzed and necessity of developing a system for its determining is shown. The description of the possible approach to architecture design of the system for determining the readability of content and formed recommendations for its design are the result of the study.

Introduction

The growth of production, consumption and accumulation of information in all sectors of human activity is the fundamental feature of civilization. All life of mankind is one way or another connected with its reception, accumulation and processing. At the same time, the Internet network has become a global repository that contains several zetabites of information, a large number of which has unstructured or inconvenient form for perception [1]. It is known that users choose the most attractive and easily readable materials in the process of information retrieval [2]. Given that, SEO optimizers should provide potential users with the maximum convenience of reading relevant texts. At the same time, it is necessary to pay attention not only to external factors (brochures, reports, charts), but also the readability of "everyday publications" should be taken into account [3]. Theoretically, the material for publication should be easily perceived and understood by the target audience of the resource users, and hence be consistent with the basic level of readability [4]. In view of this, the actual task is to create software for intellectual analysis of content in order to provide the required level of readability. In accordance with the requirements for the development of any software at the beginning of the work, it is necessary to analyze the requirements, form the models of work and carry out the construction, which is to create the architecture of the system.

Formulation of the problem

The actuality of the task of architecture design of the system for determining the readability of content is primarily due to the dynamism of the industry and increase in the volume of "digital consumption" [3]. According to studies conducted by the SEMSOCIAL resource, if in 2017, each user had about 12 gigabytes of information, in 2020 this figure will increase to 24 GB, which will require a satisfaction of the high demand for high-quality resources that are characterized by high readability.

In the case of computer design of the architecture of readability determination system, this process is associated with considerable difficulties. Technical problems (the variety of software platforms that operate in the global network), as well as problems associated with the specifics of task can be referred to their list (the set of techniques used in the definition of readability) [4].

At the same time, the stages of creating models and developing the architecture of the system are considered as one of the most difficult. Because it involves defining all the functions of the system being developed, interface links between component elements and choosing design solutions to ensure trouble-free operation.

Major research results

According to modern technology of designing, constructing the architecture of the system for content readability determining requires the adoption of the following design solutions:

system partitioning on the module; management of data warehouses; implementation of software management; management of boundary situations.

System partitioning on the module. This stage includes the allocation of a set of individual objects, subsystems that are interconnected and have well-defined interface connections with other parts of the system. They define the form of all interactions between subsystems, but do not contain connections to their internal structure. Considering this feature, each subsystem can be developed independently, which allows sharing work between developers.

Management of Data Warehouses. Internal and external data warehouses represent clear segments that separate the subsystems with defined interface connections. Since the projected system is a real-time system, non-relational databases can be used for its operation.

Implementation of software management. All interactions in the system are presented in the form of events during the operation. There are two classes of methods for managing them: external and internal. Creating a system for determining the readability of content requires designing with the use of the principles of external management applying the method of the interactive interface. The need to select objects that form an interface using REST and Ajax technologies is the feature of this type of system. The emergence of Ajax's client architectural web-style has made it possible to reformat the design of web application in order to match the architectural style of REST. This feature enables creating Ajax/REST system, which far exceeds the traditional server web applications both in terms of speed and versatility.

Management of boundary situations. It is provided during the design of the system by predicting the reaction of each object and whole system to certain external actions. The following boundary situations are allocated: initialization, termination and collapse. In order to ensure this design solution it is necessary to predict the behavior of each object and whole system in such conditions.

After conducting research on these stages, the construction of the architecture of the system takes place, which, consists of three parts for the solved task: input / output (intended for the organization of interaction); kernels (intended for the intellectual analysis of readability and providing recommendations for changing its level) and intermediate layer (designed to level the peculiarities of the use of various types of software and hardware platforms).

Conclusion

The article analyzes the current state of the Internet space and shows the increasing need to take into account readability in the process of publishing web sites. The description of the approach to designing and developing recommendations for constructing the architecture of the system for determining the readability of the content is the result of the research.

References:

1.Grappone J. Search Engine Optimization (SEO): An Hour a Day / J. Grappone. - United States: Wiley Publishing, Inc., 2013. – 435p.

2.Basyuk T. The Popularization Problem of Websites and Analysis of Competitors / T. Basyuk – In: Shakhovska N., Stepashko V. (eds) – Advances in Intelligent Systems and Computing II. CSIT 2017. Advances in Intelligent Systems and Computing, vol 689. Springer, Cham pp. 54-65. DOI:10.1007/978-3-319-70581-1_4.

3.Kennedy G. Seo: Marketing Strategies to Dominate the First Page (SEO, Social Media Marketing) / G. Kennedy, CreateSpace Independent Publishing Platform, 2016. – 122p.

4.Bailin A. Readability: Text and Context / A.Bailin, A. Grafstein – Palgrave Macmillan, 2016. – 224p.