

APPLICATION FOR TIME SERIES ANALYSIS AND FORECASTING IN WEB MINING

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Web Mining is the process of finding the information about Web resources previously unknown to practically useful knowledge **needed** for cost-effective solutions in support and development of Web resources. One of the most important tasks of Web Mining is the prediction based on the time series. Time series is a static data rate (one-dimensional time series) or a group of indicators (panel data) over time. The purpose of analysis of the time series is to construct a model that adequately describes the behavior of the studied characteristics.

Time series analysis allows us to better assess the impact of non-random factors on the object under study and make a prediction about its behavior in the future. Of interest are the following non-random factors: long-term (A) and seasonal (B) and cyclic (C). In this case, the purpose of the analysis of time series is to construct a model that adequately describes the behavior of the studied parameters of Web Mining. Then the construction of the model is to identify non-random functions describing the behavior of non-random factors:

$$x(t) = \chi(A)f_{tp}(t) + \chi(B)\varphi(t) + \chi(C)\psi(t) + \varepsilon(t), \quad t = 1, 2, \dots, N,$$

where

$$\chi(i) = \begin{cases} 1, & \text{if factors of type } i \text{ participate in formation } x(t), \\ 0 & \text{otherwise, } i = \{A, B, C\}. \end{cases}$$

Analysis of the conditionally offered to carry out in five phases: checking for the presence of autocorrelation and homoscedastic, testing for stationary, construction lagged models, models of time series forecasting with this model.

The most common analytical method for constructing time series model - the method of least squares or its generic version. Its essence is to build quality of the regression model. That is, requires that obtained from the model values of the time series were as close to real values of the time series.

Thus, the use of time series as a fairly simple mathematical tool allows you to increase the efficiency of the analysis Web Mining information. Web Mining for the use of time series - the best way to predict quality. In addition, in the future for time series model can be implemented with the task of achieving the desired result by using dynamic optimization techniques.

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