

interesting problem that is planned to be investigated is the construction of a basis for the case of discontinuous boundary conditions. After all, in places of sharp field difference, this method is not applicable in its usual form due to the presence of the Gibbs phenomenon.

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#### MODELING OF GENERATIVE RECOMMENDATION SYSTEMS

The goal of this work is to describe shortly the approaches to building the system which provide recommendations in the form of an ordered sequence of HTML pages of the resource that is proposed to the user [1; 2; 4; 5] and the results, obtained in the process of research. To perform the ranking procedure, which is in the center of different investigations [4; 6; 7], statistical information about user transitions between web pages is used. The web resource model is depicted as a web graph as well as the user behavior model is represented as a graph of transitions between resource pages. In its turn, the web graph is represented by an adjacency matrix, and the transition graph has a weighted probability matrix of transitions between vertices.

It is considered that user transitions between web resource pages can occur by entering a URL in the browser's address bar or by following a link on the current page [3]. User transitions between vertices in a finite graph, in accordance with probabilities determined by the weight of the graph edges, are represented by a homogeneous Markov chain and are considered as a random walk process on the graph with the possibility of transitioning to a random vertex. It is noteworthy

that the Random Walk with Restarts method is used to rank web resource pages for a particular user.

For obtaining the valuable practical results the numerical analysis was performed for an existing website of an online store. The output data on user sessions were divided into training and test samples. Based on the training sample data, a weighted probability matrix of user transitions between web resource pages was constructed. Metrics such as accuracy, completeness, and Half-life Utility were used to evaluate the quality of the constructed recommendation system. Accuracy values of 65-68% were obtained on the elements of the test sample, and the optimal number of elements in the list of recommendations was determined. The influence of model parameters on the quality of the recommendation system was studied.

The study's findings will form the basis for further research.

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