

METHODS OF ANALYZING USER BEHAVIOR OF WEB RESOURCES

Kiva V.O., Liutenko I.V., Kosmachov O.S.

National Technical University «Kharkiv Polytechnic Institute», Kharkiv

The relevance of the task of analyzing and predicting the behavior of web resource users lies in the rapid development of digital technologies and the growth of competition in the online environment. Modern companies, regardless of the field of activity, actively use web resources (sites, applications, online services) as the main channels of interaction with users. The success of such resources directly depends on the ability to understand, predict and adapt to the behavior of their audience. In a highly competitive market, it is important not only to attract new users, but also to retain existing ones. To do this, it is necessary to identify patterns in the actions of visitors, assess their interests, identify churn factors and develop personalized offers.

Behavior analysis allows you to optimize the structure and content of a web resource, increase its conversion, improve user experience and, as a result, increase business profitability. Behavior forecasting, in turn, allows you to make decisions in advance: anticipate customer needs, recommend relevant content, reduce the likelihood of failures, plan marketing campaigns and effectively manage resources. This task is becoming especially relevant in the era of big data and the development of machine learning methods that allow us to build accurate models based on the behavior of millions of users in real time. Thus, the task of analyzing and predicting user behavior is an important scientific and practical problem that has wide application in marketing, e-commerce, user interface development, and strategic management of digital products.

To analyze the behavior of web resource users, many methods are used, which can be conditionally divided into qualitative and quantitative.

Quantitative methods are based on collecting and analyzing numerical data. These include:

1. Web Analytics (using tools like Google Analytics, Matomo – visits (sessions), unique users, viewing depth, time on site, bounce rate).

2. Click Tracking (tracking clicks on interface elements (buttons, links); tools used: Hotjar, Crazy Egg, Clarity).

3. User Flow / Funnel Analysis (studying the routes users take through the site; Helps identify bottlenecks and exit points).

4. A/B testing (comparison of several versions of pages/site elements to determine the most effective).

5. «Heatmaps» (visualize user activity (clicks, mouse movements, scrolling)).

Qualitative methods focus on user motivation, emotion, and goals. These include: Usability testing, Surveys and questionnaires, Interviews, Session Replay analysis.

Additional methods that can be used include: Cohort analysis, Behavioral targeting and segmentation, Event tracking, etc.