

## DESKTOP APPLICATION FOR STUDYING INFORMATION SEARCH TIME

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**Annotation.** A desktop application has been developed to study the time of information search. The application allows you to conduct experiments on the study of information search time with varying parameters such as the number of indicators in the search field, the number of presentations and the type of indicators. The development allows you to receive experimental data, process them and save them in .txt and .xlsx files for further use in research.

**Keywords:** information retrieval time, desktop application, ergonomics, block diagram, data processing

**Introduction.** Currently, when the information load on the operator increases, the importance of studying the consistent patterns of information search in the context of the operator's work increases. One of the most pressing problems is software engineering in the field of organizing engineering and psychological research – automation of experimental data collection. It allows you to speed up data collection processes and also simplifies their subsequent structuring and processing. Thus, automation of the study of information search time will not only speed up the collection and processing of experimental data, but will also make it possible to effectively study information search processes.

In this article, we propose a block diagram of a software tool for studying the time of information search. A description of the system's structural diagram is also provided, with consideration of the functions of the main modules.

**Main part.** The relevance of this development is due to the need for a software product to study the timing of information errors. The goal of the design process is to develop a desktop application to study information retrieval time.

The functionality of the application implements the ability to conduct a series of experiments with specified settings for the number of repetitions, the number of elements in the search field, as well as the type of stimulus material.

An integral part of conducting engineering and psychological research is the analysis and processing of the results of the experiments. Based on the above, we can say that the application being developed is not only a tool for collecting experimental data, but also saves it in a form suitable for subsequent analysis with the possibility of using automation tools.

Based on the previously described requirements for the system, the following tasks were put forward that the application solves:

- conducting a series of experiments to study the time of information search;
- variation of independent variables;
- primary processing of experimental data;
- the ability to visualize results by plotting a dependence graph;
- saving and exporting experimental results in various formats (.txt, .xlsx).

The primary processing of experimental data includes:

- calculation of the average experimental value of information search time;
- calculation of theoretical expectation of information search.

To visualize the data, the following graphs are drawn:

- graph of the theoretical expectation of information search time;
- graph of the experimental values of information search time.

It should be noted that these graphs are plotted in the same coordinate system, which subsequently simplifies their analysis.

The block diagram of the application being developed is shown in figure 1.

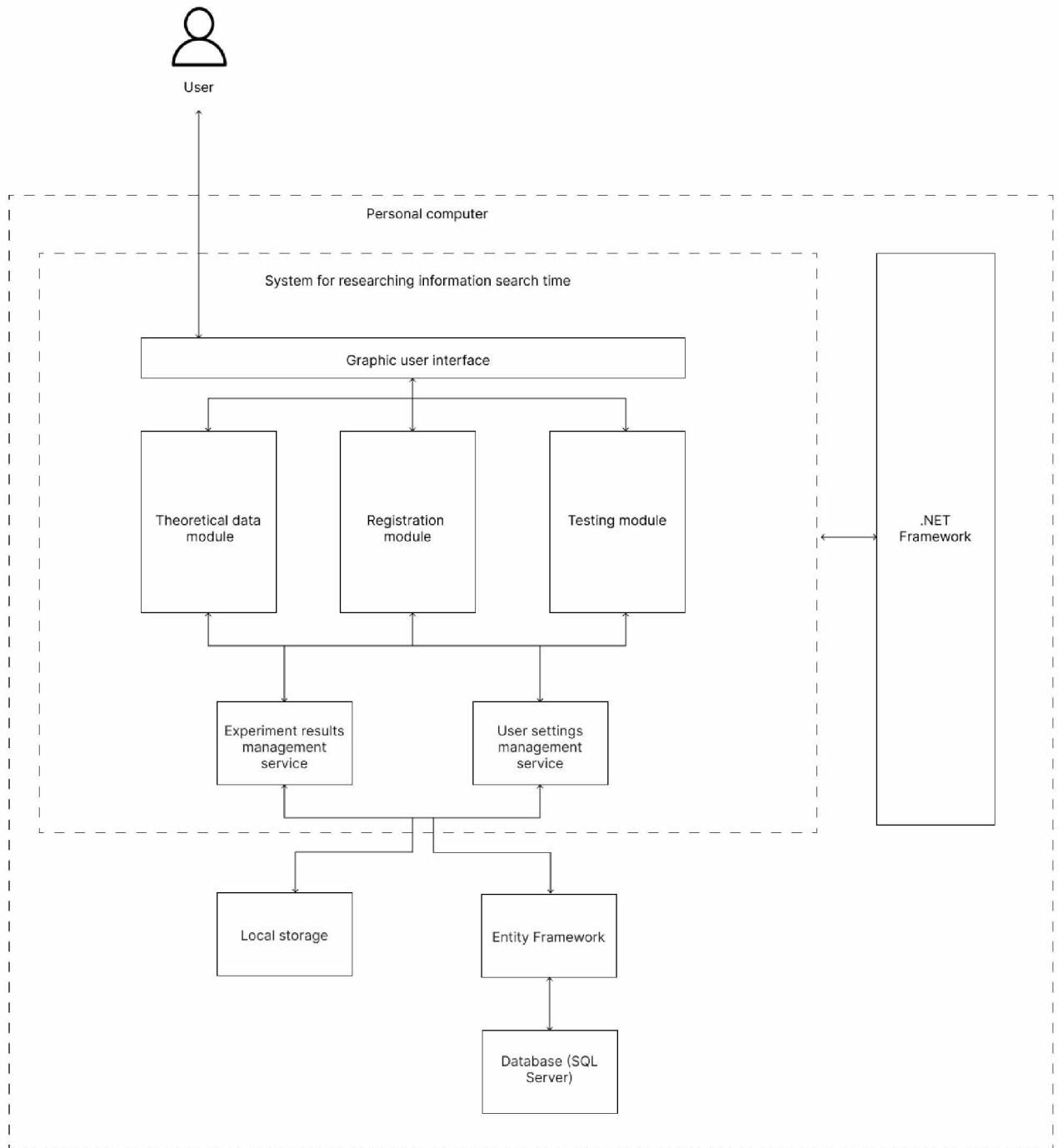


Figure 1 – Structural diagram of a desktop application for researching information search time

Based on the above block diagram, the following description of the designed system can be given:

- communication between the user and the system is carried out through the user interface;
- the system has a modular structure and consists of three modules:
  - 1) theoretical data module,
  - 2) registration module,
  - 3) testing module.

– the system is developed on the C# programming language based on the .NET Framework technology;

– Entity Framework technology is used to interact with the relational database;

– SQL Server is used as a database.

The theoretical data module implements the functionality of familiarizing the user with the experimental procedure.

The registration module implements the functionality of subject registration. To register, the subject enters his full name in the appropriate field.

The testing module implements the functionality of selecting user settings: the number of experiments, the number of elements in the search field, as well as the type of stimulus material; Based on the settings, experiment windows are displayed. The experiment window is shown in figure 2.

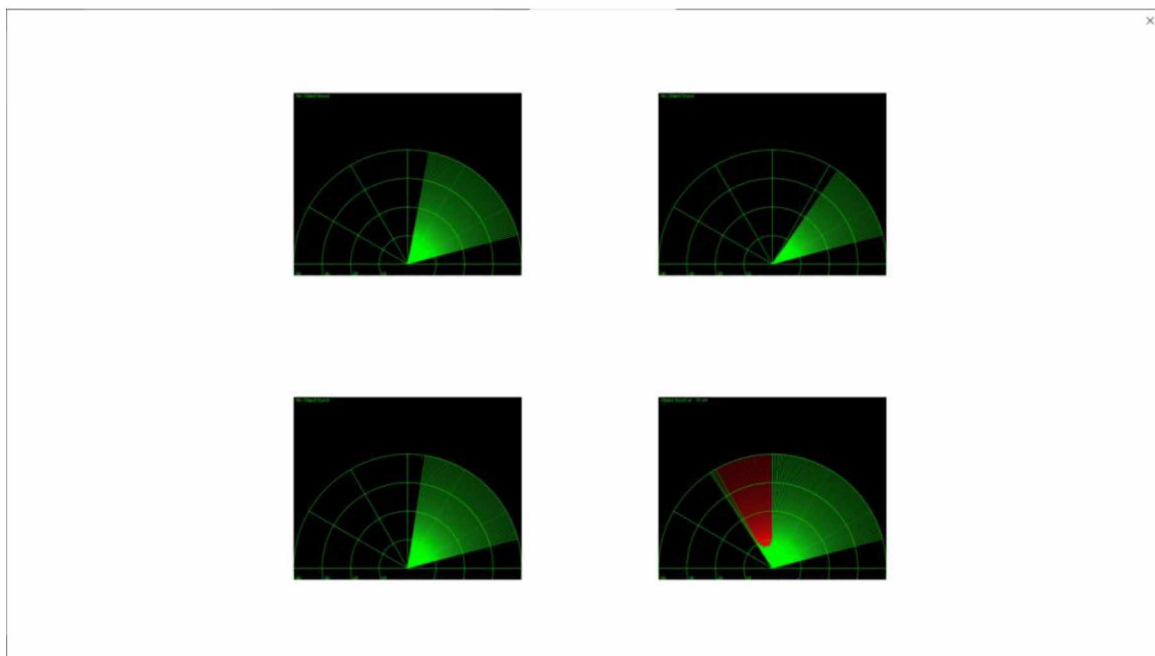


Figure 2 – The experiment window

At the end of the experiment, the user can view his results on the screen or in a file which name corresponds to the users name. The results contain a description of user settings, information about the types of indicators used, as well as information search time values for each presentation.

**Conclusion.** The developed system can be used as a tool for collecting experimental data when studying information search time. The data collected using the developed application can serve as the basis for research into the dependence of information search time on the number of indicators in the search field, the number of presentations, and the type of indicators.

### References

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