

LIMITED METHODS OF AUTOMATED FILE MANAGEMENT AND ORGANIZATION USING THE MATLAB ENVIRONMENT IN THE EDUCATIONAL PROCESS

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Annotation: This article discusses the study of finite methods for managing files and their efficient operation in the Matlab environment. The development of information technologies has created a need for educators to properly store and manage various digital resources in the educational process. This article discusses methods for systematically organizing files, using cloud technologies, taking security measures, and increasing efficiency in the pedagogical process. The article provides practical recommendations for educators and students on organizing digital information.

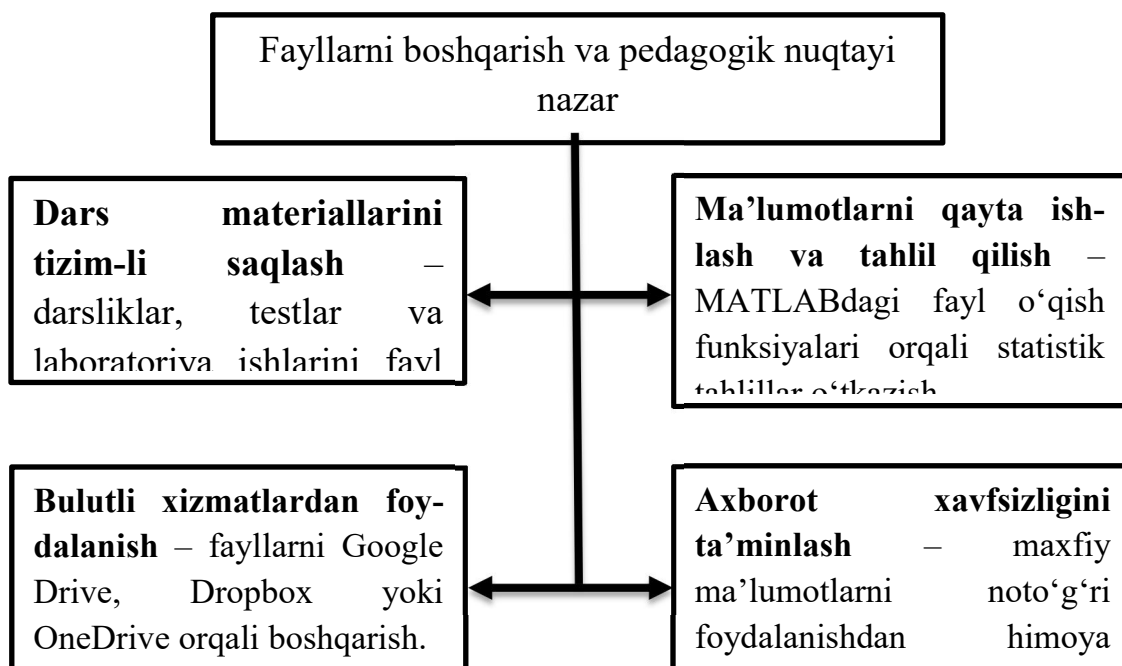
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The main part

The development of digital technologies has also significantly changed the educational process. Teachers and students are required to work with various files, store and manage them correctly. Improper file management can lead to loss of time, loss of important information and a decrease in overall work efficiency. Therefore, it is important to use effective and limited methods of file management in the pedagogical process. In order to create an environment for exchanging information in this way, it is advisable to organize file systems and express them through software systems.

A file system is a set of rules for storing, storing, and accessing various types of data on a computer or other device that stores digital data. File system parameters initially define the format of the content, group it in a way that is understandable to the operating system, include a set of files and directories, set maximum file and directory size limits, control access priority, encrypt files, and set a set of file attributes. Computer storage management software identifies (define) any disk as a set of clusters of the same type. File system drivers organize clusters into files and directories on the available disk space and maintain a list of the clusters they have created, and based on this, they track and mark which clusters are used, free, or unused, and also move them to the desired storage slots. File systems cover any storage media and manage different categories, such as random or sequential access media, virtual and network file systems, optical media, etc.

Matlab is a programming language used for scientific computing, engineering modeling, and numerical analysis. Conditional operators are of great importance when working with files in Matlab, as they help in proper data management and processing. The following is a theoretical background and practical approach to this topic.



The file management process includes the following main steps:

- Opening a file – a file is opened using the `fopen()` function.
- Reading from a file – data is obtained using functions such as `fscanf()`, `fgetl()`, `load()`.
- Writing to a file – data is written to a file using the `fprintf()` or `dlmwrite()` functions.
- Closing a file – the file is closed using the `fclose()` function.

Positioned in the software market as a MATLAB system high-level language for scientific and technical calculations. Programming language MATLAB system includes all the tools necessary for the implementation various types of programming:

- procedural;
- operator;
- functional;
- logical;
- structural (modular);
- object-oriented;
- visually oriented.

The procedural, operator and functional types of programming are based on procedures, operators and functions, which are used as the main objects of the language. These types of objects are present in MATLAB. Logical programming is implemented in MATLAB using logical operators and functions. They allow you to implement the main ideas of logic programming, although in the outstanding. MATLAB, however, is a shining example of the fruitfulness of structured programming. The overwhelming majority of the language's functions and commands are fully-fledged modules, with data exchange between them occurring through their input parameters, although data exchange is also possible through global variables. Program modules are designed as text files that are stored on disk and connected to programs as needed.

MATLAB allows you to check the existence, status, and data inside files using conditional operators and has the following branching operators:

if – runs a block of code if the given condition is met.

if-else – if the first condition is not met, it will run another block of code.

if-elseif-else – checks several conditions in sequence.

switch-case – It performs different actions depending on the value of a variable.

For the MATLAB system language, the distinction between commands (executed when entered from the keyboard) and program operators (executed from a program) is conditional. Both commands and program operators can be executed both from a program and in direct computation mode. Commands are hereinafter mainly understood as means that control peripheral equipment, and operators are means that perform operations with operands (data).

The general form of the *if* conditional statement is:

if Condition

Instructions_1

elseif Condition

Instructions_2

else

Instructions_3

end

This construction allows for several particular variants. In the simplest, like

if...end:

if Condition Instructions end

while *Condition* returns a logical value of 1 (“true”), the *Instructions* that make up the body of the *if...end* structure are executed. In this case, the end operator indicates the end of the list of instructions. The instructions in the list are separated by the , (comma) or ; (semicolon) operator. If the *Condition* is not met (gives a logical value of 0, “false”), then the *Instructions* are also not executed

```

1 - x = 'm_baza.txt';
2 - if exist(x, 'file')
3 -     fid = fopen(x, 'r');
4 -
5 -     if a == -1
6 -         disp('Faylni ochishda xatolik!');
7 -     else
8 -         data = fscanf(a, '%f');
9 -         fclose(a);
10 -
11 -     if (m_baza >= 0)
12 -         disp('Fayldagi barcha sonlar musbat yoki nol. ');
13 -     else
14 -         disp('Faylda manfiy sonlar ham bor. ');
15 -     end
16 - end
17 - else
18 -     disp('Fayl mavjud emas. ');
19 - end

```

Searching for files from m_base in Matlab.

MATLAB allows you to automate this process, which makes teaching and learning more effective for teachers and students. As you can see above, our *.txt file named m_base does not contain a file named 'x'.

In the digital world, it is important to store data in an orderly manner, access it quickly, and work with it efficiently. File management is a key part of computer literacy, and it is necessary not only for programmers, but also for representatives of the educational sector, researchers, and general users. Nowadays, everyone works with data in various formats: text documents, image and video files, spreadsheets, program codes, and other files. There are various ways to effectively manage files. Below, we describe the most basic and useful methods in the form of functions, in a simpler and more understandable form.

```

1 - function m_baza
2 - x=input(' nomalumga qiymat kiritish-> ');
3 - if x>=0
4 -     disp('Fayl mavjud. ');
5 - else
6 -     disp('Fayl topilmadi. ');
7 - end
8 -

```

Functional representation of finite methods in file management

In the MATLAB programming language, conditional operators allow you to divide code into logical branches and perform different actions under different conditions. Conditional operators play an important role in the decision-making process and increase the flexibility of program operation.

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