

6. Tasks (Applications)

TASK 1. Create a Console Application "Home Library".

General requirements for the application:

- The system takes into account ebooks and paper versions of books.
- Existing roles: user, administrator.
- The administrator can modify the book catalog.
- The book catalog is stored in a text file.
- User authentication data is stored in a text file. The password is not stored in clear text.

Special conditions:

- When a book description is added to the catalog, a notification about it is sent to all users by e-mail.
- While catalog browsing, it is desirable to implement page-by-page view.
- The user can suggest adding a book to the library by sending it to the administrator by e-mail.

TASK 2. Create a console application that works with Notes in Notebook. Each Note consists of a subject, a date, an e-mail address and a message body.

General explanations for the task:

- The data should be read from the file and saved to the file at the end of the work.
- The user should be able to find a note by any parameter or by a group of parameters (you can define a group of parameters yourself):
 - get the required note in a sorted form,
 - find the note,
 - the text field of which contains a specific word,
 - and add a new note.

Special conditions:

- Search, compare and validate the input information using regular expressions.
- Verification of the entered information for validity should be carried out by the code that directly adds the information.

...Try to solve this problem by at least 50%.

TASK 3. Create a client-server application "The Archive".

General requirements for the application:

- The archive contains Profiles (for example, Profiles of students). The archive is located on the server.
- The client, depending on the rights, can request the case to be reviewed, the changes to be made, or a new case to be created.

Other requirements:

- Use sockets to implement a network connection.
- Format of data storage on the server - xml-files.

...Try to solve this problem by at least 50%.

TASK 4. Multithreading. "Sea Port" application. Ships enter the port to unload and load containers. The number of containers currently in the port and on the ship must be non-negative and in excess of the specified cargo capacity of the ship and the port capacity. There are several berths in the port. One ship can stay at one berth. The ship can be loaded at the berth or unloaded.