

# LearNet

Tudose George-Daniel, 2B5

## 1 Introduction

*LearNet* is an application-layer protocol that helps users with learning the basic principles of *computer networks*. The client will be able to:

- search information
- have discussions with other users on specific subjects
- save the discussions
- classify the discussions
- form groups in one's friend list

## 2 Used technologies

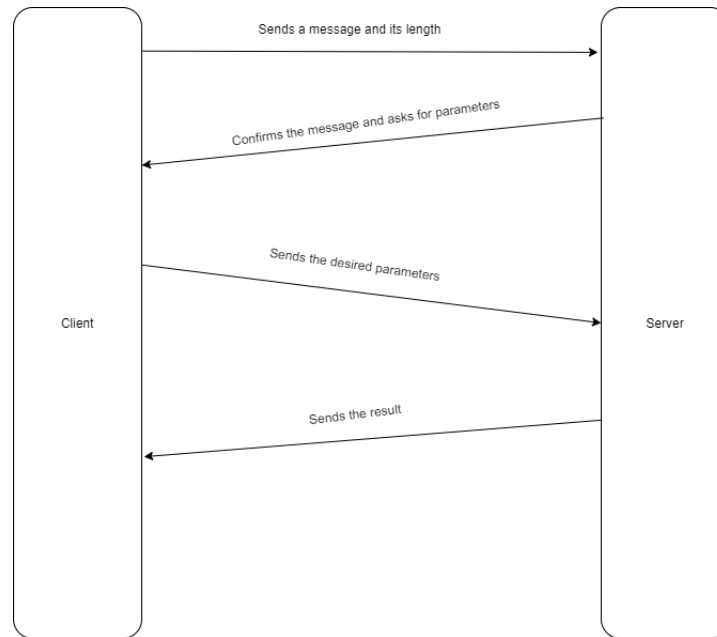
### 2.1 Protocol

The **TCP** protocol will be used. It is *connection-oriented* and the connection between a client and the server will be done once. It assures that data is safely and wholly transported in order between the client and the server.

Because of these reasons, the **TCP** protocol has been chosen over the **UDP** protocol

### 2.2 Use-case diagram

The communication is realised by sending a pair of an integer and an message between the client and the server. The former represents the length of the latter. The client sends the message to the server which confirms the command and asks for the parameters of the command. The server receives the parameters, executes and command and sends the result to the client.



**Fig. 1.** An instance of how the client and the server communicate

### 3 Application's architecture

The server will receive specific commands from the user.  
 The server will transmit the educational material to the client.  
 The information about the user will be kept in a **SQLite** database.

A work-in-progress structure of the database consists of the following tables:

- users
  - userID
  - username
  - password
  - loggedIn
- lessons
  - lessonID
  - title
  - pages
- recentLessons
  - userID
  - lessonID

## 4 Details of implementation

The server uses a thread implementation to assign a thread for each connected client. This way, the server uses a concurrent model.

## 5 Conclusions

*LearNet* is an application meant for users that want to learn the basics of *computer networks*. The project can be improved by implementing additional features of the likes of:

- the ability to ask questions to specialised personnel
- group discussions
- highlight information

## Referinte

1. LearnNet  
<https://profs.info.uaic.ro/~computernetworks/ProiecteNet2020.php>
2. Guidelines of the *LNCs* format  
<https://www.springer.com/gp/computer-science/lncs/conference-proceedings-guidelines>
3. Renaming the bibliography  
<https://bit.ly/3mgeUAq>
4. Shortening of URL links  
<https://bitly.com>
5. Diagram drawing application  
<https://app.diagrams.net>
6. Computer Networks, Course & Laboratory  
<https://profs.info.uaic.ro/~computernetworks/cursullaboratorul.php>
7. Bogdan Ioana, *Week 7*  
<https://docs.google.com/document/d/1udCcy98st54i1zszvgtfxnIZnxoM-xevdXnxLLS-lqM/edit>