

# Lab assignment: 2

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## Abstract

The main goal of this lab assignment is to ensure that you do have the necessary socket programming skills in order to solve the obligatory assignment and exams.

## 1 Task

The main focus of the mandatory assignment is to build and test a multi-threaded server. You will implement:

- a **server** that can simultaneously handle multiple clients.
- a **client** that will connect to the server.

### 1.1 Server

A server should keep track of the total number of clients, allow clients to send messages and broadcast everyone. Below are some key functions you must implement:

- You should implement a function named **broadcast** to notify everyone when a client joins (except the client who joined).
- You should also implement a function called **game** where it will allow two clients to play rock, paper, scissors game<sup>1</sup>.

### 1.2 Client

A client must:

- connect to the server
- receive broadcast message from a server
- send a message to the server for broadcast
- request to play a game with another client

## 2 Submission

This is a **Group** assignment. I've already created groups for you (click people and then click lab-assignment to see the groups in canvas). Please choose your own group members (maximum: 5 members per group).

1. Submit group-name.zip. Your zip file should include server.py and client.py).
2. document all the variables and definitions.
3. document the following for each function:

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<sup>1</sup>[https://en.wikipedia.org/wiki/Rock\\_paper\\_scissors](https://en.wikipedia.org/wiki/Rock_paper_scissors)

- what the function does.
- what input and output parameters mean and how they are used.
- what the function returns.
- how you handle exceptions.

**Deadline:** 21.02.2023, kl 23.59