**Birzeit University**
**Faculty of Engineering and Technology**
**Department of Electrical and Computer Engineering**
**ENCS5121 – Information Security and Computer Network Laboratory (Term 1242)**
**Project (*Phase-1*), Due Sunday, April 20, 2025**

# A. Document Objectives

This document describes the lab project phase 1, its deliverables, and its grading criteria.

# B. Project - Phase I:

## Description:

Create a client-server guessing game application in Python. The server randomly selects a hidden number between 1 and 100, and the client (player) attempts to guess it. After each guess, the server provides feedback, indicating whether the hidden number is lower, higher, or correct. The application must use TCP as the transport layer to ensure reliable communication. To support development, refer to the ENCS3320 course materials, which include initial versions of the client and server Python code along with explanatory resources on Python socket programming here:
https://drive.google.com/drive/folders/1XXqn4lifBWeNSc3JFGyo4SX3gExAe_YM?usp=drive_link.
Revise the ENCS3320 code so that once the client connects to the server, it displays a menu with two options:

1. Start a new guessing game round
2. Exit the game

After each game round, the menu should be shown again. If the player selects the exit option, the client should close the TCP connection and terminate the application. Ensure a thorough understanding of the code and test it preferably on a physical machine and a virtual machine or between two virtual machines. You can use VirtualBox or VMware to set up the virtual environment. **Note:** You may need to adjust your PC's firewall settings to enable communication between the client and server machines.

# C. Deliverables

Submit the following items through RITAJ in one .zip file (ID.zip → ***1191615.zip***) before the deadline:

1. Well-commented source code of your implementation (**.py**).
2. A short video containing the execution part of your application's testing step by step no more than **five minutes**. The video should clearly show the execution process and the networking aspect, including the IP addresses used for testing both the client and server sides.
3. A step-by-step **README** (.txt) file explaining the requirements for running your implementation (e.g., necessary libraries) and instructions on how to execute and test the application.

## D. Grading Criteria

This is some sort of project competition. So one factor of the evaluation depends on how a project distinguishes itself. The evaluation factors that may distinguish your project:

- The more properly working features the better (i.e. a project of three well designed and implemented features is better than four poorly designed or implemented features).
- How well the parts are integrated with each other to serve the project goal.
- Modular programming (Building/using functions and library for different parts of the project).
- The level of understanding the details of implementation.
- How difficult it is to interface and use the parts (relatively).

The following table summarizes the grading criteria of the lab project phase 1:

| | |
|---|---|
| Program readability and comments (.py) | 20 pts. |
| Step-by-step readme file (.txt) | 20 pts. |
| Video for the execution part | 20 pts. |
| Program executes correctly over a network | 40 pts. |
| **Total** | **100 pts.** |

Generally, just by following the guidelines presented in this document, you should get a good score in phase one. However, failing to stick to these guidelines may result in a reduction proportional in magnitude to the deviation.

## Good luck, *ENCS5121 Team*