Final Project- Winter 2022

1. Introduction

In the Networking and Data Security course (COMP8677), students review concepts of computer networks and related cybersecurity challenges. In this course, they study and implement some network security attacks in different labs. To have a practical experience, students can implement the achieved knowledge on some practical applications in their projects. The aim of these projects is to apply the concepts learned in class to a real system, such as a protection system, or show the potential effects of launching a network attack. Eventually, students will obtain hands-on experience in developing a real system using the networking concepts and.

The project involves developing a **Security Protection System** or a **Network Security Attack**. It uses concepts from three to five different network security concepts learned in class. To this end, a scenario should be defined and based on this scenario an attack is launched or a protection system is developed. Projects can be developed either individually or as a group, although group work is encouraged. In case of group work, an individual mark will be assigned to each group member. Students are encouraged to propose their own ideas on which features the network security system will include. Although students are not limited in their topics, some examples are as follows:

- Network security protection
  - Network traffic analyzer
  - Attack detection system
  - Spoofing protection system
  - DNS protection
  - TCP protection
- Network security attack
  - Packet sniffing
  - Packet spoofing
  - DOS attack
  - ARP attacks

2. Specific tasks to do

For each project, team members should describe the provided features in their detection/protection system or the security attack:

- All provided features
- How these features have been implemented and the used concepts discussed in class

To present the work,

- Students should provide a short presentation (15 minutes in total; 10-15 slides) of their work and record a video of this presentation
- In this presentation, all team members show present. Each student explains his/her contribution and work in this project. The presentation may also include a demonstration of the system

- Upload the presentation video and the source code (in Python format) by the end of week 11. Marks will be deducted if the presentation file and source code are not uploaded by the due date

3. Submission

In each group, students must submit: (i) presentation video and (ii) all source files used in their project, ideally, in Python format.

- Students should upload presentation video on YouTube and all source code files to a cloud place (e.g., Dropbox, GitHub, uwin365, etc.).
- To obtain a mark, all students who participate in the project must submit both links of the presentation video on YouTube and source codes to the Blackboard. In the presentation, include the name of participant along with his or her role
- The presentation must provide a clear description of the project and the features, concepts used and the other items as requested. Marks will be deducted if explanations or descriptions are missing.
- Any submission after the deadline will receive a penalty of 10% for the first 24 hrs, and so on, for up to three days. After three days, no mark will be achieved.
- Unlimited resubmissions are allowed. But students should keep in mind that the last submission is considered. That means that if they are resubmitted after the deadline, a penalty will be applied, even if a student submitted an earlier version in time.

Good luck

Mahdi Firoozjaei
Department of Computer Science, University of Windsor