Universidad Ana G. Méndez – Gurabo José Domingo Pérez School of Engineering

**“PROBLEM DEFINITION” SHEET for Major Design Experience**

**Major: CpE** **Mentor:** Dr. Alcides Alvear Suárez

# Course: CPEN 491/492

**Project Title:**

*Adversary Emulation Framework with Dynamic Defense Thwarting for Post-Exploitation Ease*

**Problem Definition:**

*In the current state of anti-malware systems, defenders focus on a broad understanding of modern malware evasion techniques that their systems have the capability to detect, but the knowledge gap between malicious actors and security engineers makes these systems look frail.*

**Preliminary Scope of the Project:**

* *Outline weak defense mechanisms in current security products.*
* *Provide feasibility to Red Team Operators to stay “under the radar” when performing security assessments.*
* *Attack visualization to pinpoint weak links in the organization’s landscape.*

# Projected Activities and Specific Areas Covered in the Curriculum

1. *Software Development: Writing software code to create the different parts of the C2 Framework, such as tools for collecting data, analyzing, and reporting.*
2. *Database Design and Management: Making a plan for and taking care of the database system that stores and handles the data gathered by the C2 Implants.*
3. *Networking: Designing and putting into action the network system to help communication and the flow of data between the C2 server and implants, and the database management system.*
4. *Algorithm Development: Making algorithms to support the analysis of data and automate tasks within the C2 Framework.*
5. *User Interface Design: Making a plan for and creating the user interface for the C2 Framework, which could involve using Windows Forms from .NET Framework.*
6. *Security: Implementing safety measures to keep the data and systems within the C2 Framework secure, like controls for who can access it, encryption, and avoid data tampering.*
7. *Project Management: Taking charge of different aspects of the project, like assigning resources, keeping track of deadlines, and managing budgets, to make sure the C2 Framework is finished and delivered on time and within the budget.*

Name of Students that selected this project:

**Students:** Genesis Resto García S00779729

**Students:** Kiara De Los Angeles Domenech S01259151

**Students:** Carlos A. Roque Fontánez S01299757

# Mentor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_