HiddenX Cybersecurity CTF Event Proposal

Name:
HiddenX

Date:
Wednesday, November 13th, 2024 [4:30 - 6:30 P.M]

Maximum No. of Participants:
30-40 Participants

Organizers:

Neelesh Padmanabh, Trisha Janath, Akhil Ramalingam, Atul Krishnaa, Thrisha Ravikumar

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Eligibility Criteria:

Open to CSE Department for first and second years of PSG College of Technology.

Team Structure:

- Two teams: Team X and Team Z
- Participants are secretly assigned to one of the teams and are prohibited from revealing their team to others.

Abstract:

The HiddenX Cybersecurity event is arranged to take place on **November 13, 2024** from **4:30 to 6:30 p.m**. It's designed as a CTF event, specifically focusing on social engineering and cryptography concepts. Around 30-40 participants are expected, irrespective of department or year. The aim of this event is for attendees to analyze hidden complexities such as decoy flags and false information through the use of cryptography, phishing and password cracking.

A key aspect of this event is its emphasis on imparting misinformation and looking beyond deceptive pieces of information. Attendees will learn to identify false facts by navigating through tasks in order to crack vulnerabilities. This will be done through collaboration. For example, participants will be split into 2 secret teams.

The scoring system reveals only team scores, keeping individual performance hidden to maintain suspense. The event concludes with the final team scores revealed, along with the

secret identities of each participant. Recognition is given to the highest individual scorer from each team, making it both a team-based and individual challenge.

* This event will incur no financial expenses. All necessary software and platforms will be made readily accessible. The event will also take place within college allocated labs. No refreshments will be provided due to it being a one day event.

Technical Requirements:

For the HiddenX Cybersecurity CTF event, the technical requirements have been designed to be accessible for beginners.Participants will primarily need a **laptop or desktop computer** with internet access, and most of the tools required for the challenges, such as **CrackStation** for password cracking, and online tools like **CyberChef** for cryptography tasks, will be available online or pre-installed on college computers. Communication throughout the event will be facilitated via platforms like **Whatsapp**, where participants will receive secret team assignments and event updates. Basic command-line knowledge is optional, as step-by-step instructions and help will be provided during the event. All tools and platforms are made to be beginner-friendly.

Event Schedule:

Day 1: Wednesday - 13/11/24 4:30 - 6:30

4:30-4:45 PM: Event Kickoff & Introduction

- Welcome and overview of event rules and CTF challenges.
- Secret team assignments: each participant receives their team (X or Z) through private messages.
- Explanation of trust dilemmas, misinformation tactics, and the point system.

4:45 PM - 6:00 PM: CTF Challenge Round

- Challenges include:
    - Cryptography (e.g., solving classic cipher puzzles).
        - Decrypting message using a basic shift cipher to reveal the flag
        - Using crackstation to crack the password to retrieve flags inside a password-protected zip file.
    - Social Engineering (e.g., phishing simulation).
        - Finding hidden url by inspecting html source code
- Twists:

    - Trust Dilemmas: In certain challenges, participants may collaborate, but they must be careful not to accidentally help an opponent.
    - Decoy Flags: Some challenges include fake flags that subtract points if submitted.
- Point System:
    - Each flag submission earns points for the participant's secret team (Team X or Team Z).
    - Only team scores are revealed periodically, while individual scores remain hidden to maintain secrecy.

6:00 PM - 6:30 PM: Team Scores & Reveal

Event Structure:

1. Secret Team Assignment:

- Participants are randomly assigned to Team X or Team Z at the start, with their affiliations kept secret.
- Breaking the Rule: Revealing one's team through direct communication (verbal or written) leads to disqualification or penalties.

2. Challenges with Social Engineering Elements:

Standard Challenges:

Participants will face technical tasks. However, the key to success lies in manipulating others and gathering information through social engineering.

Password List Challenge:

- Challenge: A list of hashed passwords is provided, and participants must crack them using brute-force or dictionary attacks. The goal is to find the flag hidden in one valid password from the list.
- Twist: The password list contains both valid and invalid hashes, and only one of the cracked hashes reveals the actual flag. Some hashes are designed to waste time, so participants must decide whether to focus on their technical skills or try to manipulate others into revealing helpful insights.

3. Social Engineering Tactics:

- Misinformation: Participants can use misleading tactics to confuse their opponents, such as:
    - Faking Progress: Pretending to have cracked a password or solved a challenge and offering to share solutions in exchange for information—only to provide fake or incomplete data.

    - Spreading False Leads: Planting fake hints or false solutions in group discussions or during collaborative tasks to throw others off track.
- Psychological Manipulation:
    - Pretend to Collaborate: In collaborative tasks, participants can pretend to be on the other team's side, slowly gaining their trust and persuading them to share sensitive data, such as cracked password hashes or challenge-solving techniques.
    - Infiltration: Participants might work together to infiltrate chat groups or discussion boards, offering fake help to access legitimate information.

6. Team Points System & Leaderboard:

- Points for Capturing Flags:
    - Each flag submission earns points for the participant's secret team (Team X or Team Z). Points are automatically assigned based on the player's affiliation.
- Cumulative Team Points:
    - The leaderboard shows only cumulative team points, keeping individual contributions hidden. This adds to the mystery, as no one knows who's helping or hindering their team.

7. Assigning a Winner:

- At the end of the event, the team with the highest cumulative score is declared the winner.
- The highest-scoring individual is the one who manages to find the most number of flags within the team.