

Research Area: Cybersecurity - Authentication and Access Control Systems

Working Title: A Python-Based System for Brute Force Attack Prevention

Research Problem: Brute force attacks are a persistent threat to login security.

Research Question: What are the most effective methods to prevent or mitigate brute force attacks in Python-based login systems?

Aim: Develop a Python login system with effective brute force prevention techniques.

Objectives:

1. Review existing prevention methods.
2. Develop a Python login system with IP blocking, rate limiting and CAPTCHA.
3. Simulate and test brute force attacks.
4. Evaluate the effectiveness of each implemented prevention technique and discuss alternative methods that were considered.
5. Provide recommendations for incorporating these security features into small-scale applications.

Research Design: Experimental development of a login system with brute force prevention.

Artefacts: A Python-based login system featuring brute force prevention, supported by an evaluation report detailing the design, testing results, and rationale for selected methods.