# EDU: Enhancing and Broadening Computer Security Education with Stepwise and Reusable Problem-solving Challenges

Challenge:
- Practical Cyber Security Education needs continuous development of hands-on exercises, such as CTF challenges.
- CTF challenges are difficult to develop and can only be used once (after a write-up is published).

Sample Stepwise Challenges
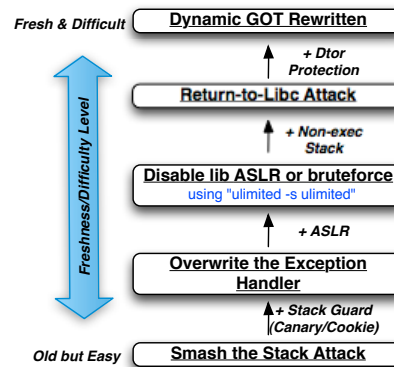
Scientific Impact:
- Organized security challenges and concepts in groups and linked them with stepwise problem-solving puzzles.
- Identified factors that do not change the nature of an educational challenge but prevent simple replaying of known exploitations.

Solution:
- Developed Stepwise & Reusable Educational Challenges
- Evaluated the effectiveness and learning outcome for applying problem-solving challenges under various setup

Generate Reusable Challenges
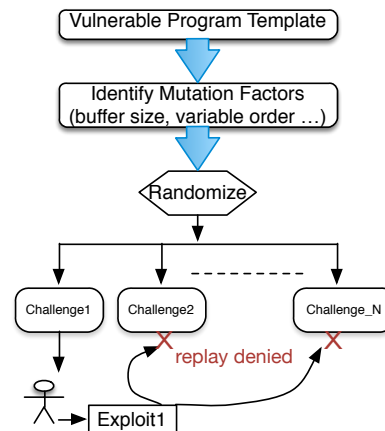
Broader Impact:
- Provide a platform for building and managing reusable challenges for security education
- Introduce security related components to non-security courses.
- Enhance students' hands-on skills