Exercises

Software security
Exercises

- Small pieces of code in C, Java, shell, PHP, HTML/JS

<table>
<thead>
<tr>
<th>sample</th>
<th>C</th>
<th>bash</th>
<th>Java</th>
<th>PHP</th>
<th>HTML</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>#1</td>
<td>#2</td>
<td>#1</td>
<td>#1</td>
<td>#1</td>
</tr>
<tr>
<td>question 1</td>
<td>question 2</td>
<td>question 3</td>
<td>question 4</td>
<td>question 5</td>
<td></td>
</tr>
</tbody>
</table>

- Find security vulnerabilities
- Exploit them
  (as an external attacker, without changing the code)
- Correct them

- Any order – start with your programming language
- HTML exercise is an extra challenge
PHP

A(nother) great, secure movie database

home all movies search best movies worst movies movies on the web

Apocalypse Now (1979)

Director: Francis Ford Coppola
Starring: Marlon Brando, Martin Sheen, Robert Duvall etc.

Rating: 9.2381 / 10  (21 people voted)

Give your rating for this movie:
(horrible) 1 2 3 4 5 6 7 8 9 10  (great)

Add your comment:

Comments:

- This movie is great, but a bit too long...

PHP exercise is a sample Web application “Movie database”

• play with it a bit, to see what it can do

• 6 sub-questions about different vulnerabilities
  => because Web applications are often vulnerable

• even if you don’t know PHP, try it – it’s easy
  (and you may need it one day)
Hints, solutions, answers

If you don’t know how to proceed, see the hint
If you are still stuck, see the solution

Start with the sample exercise to see how hints and solutions work

When providing answers:
  – try different things
  – call me if you are sure that you have a good answer, but docs don't accept it

After providing a correct answer => read the solution
  (you may still learn something interesting!)
Source code tools

... for C/C++, PHP, Java...

Try them!
The goal

• **Complete at least 3 exercises**
  – displaying hints and even solutions is OK
  – the more exercises completed the better

• **Competition**: which team solves most (all?) exercises?
  – (without seeing solutions)

• **But the main goal is TO LEARN**

• BTW, don't try to hack machines of your colleagues
1. Go to [https://cern.ch/csc-security](https://cern.ch/csc-security)

2. Log in with your *csc_user* account

3. Enter your table number + both names
   
   Please tell me your name(s): 28-Laura and Paul

4. Start the VM

5. Do one of the following (*only one*):
   
   – ssh -p 27222 *csc_user*@localhost
   
   – log in to the VM and open a terminal

6. Follow instructions from the “Download” section
   
   • Download
     
     Exercises for download and installation instructions

7. Check if [http://localhost:27280/movies](http://localhost:27280/movies) works