

## *Exercises*

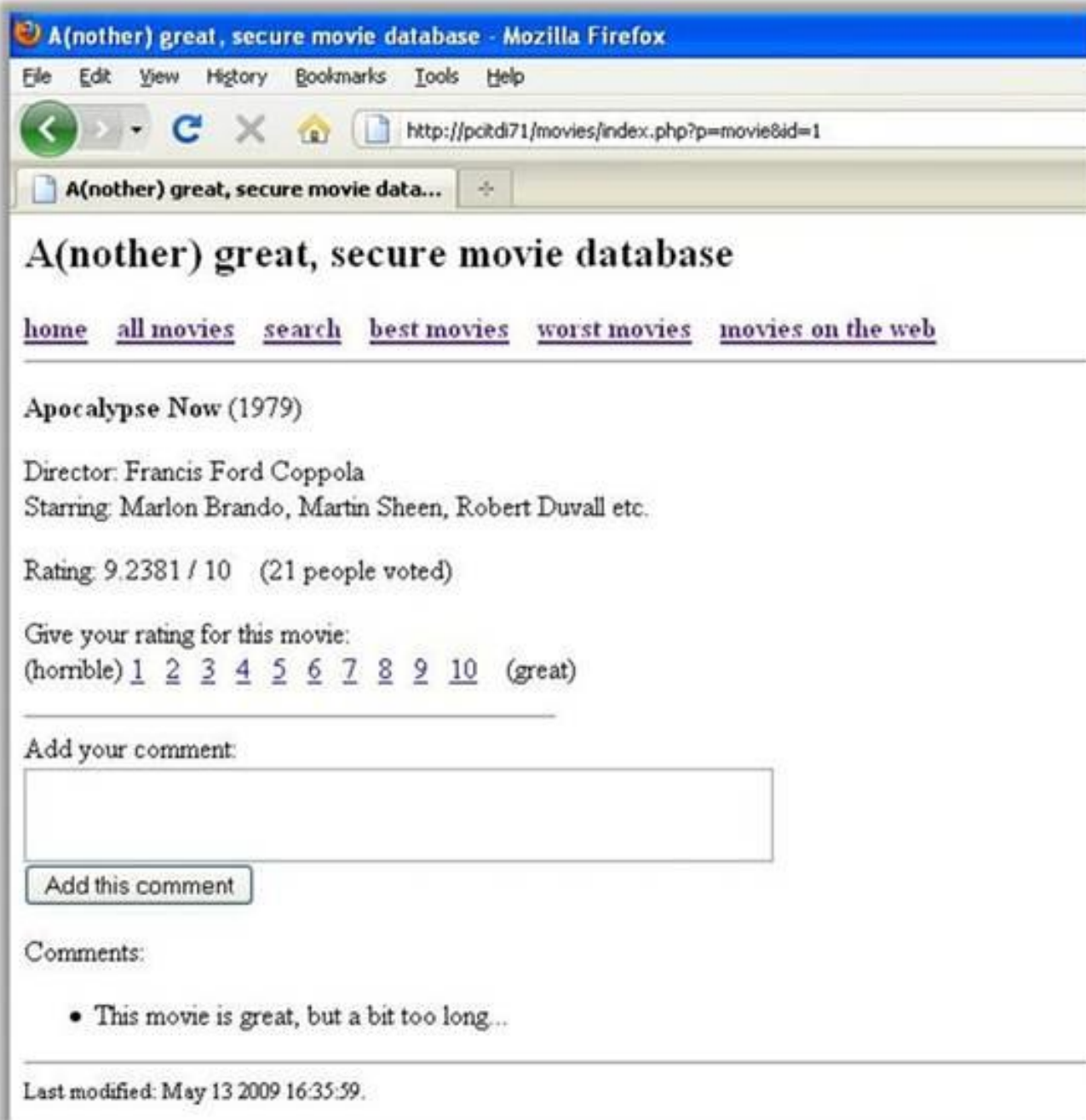
# Software security

# Exercises

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

sample	C		bash	Java	PHP					HTML
#1	#1	#2	#1	#1	#1					#1
					question 1	question 2	question 3	question 4	question 5	

- 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



A screenshot of a Mozilla Firefox browser window displaying a web application titled "A(nother) great, secure movie database". The browser's address bar shows the URL "http://pcitd71/movies/index.php?p=movie&id=1". The page features a navigation menu with links for "home", "all movies", "search", "best movies", "worst movies", and "movies on the web". The main content area displays details for the movie "Apocalypse Now (1979)", including the director "Francis Ford Coppola", the cast "Starring: Marlon Brando, Martin Sheen, Robert Duvall etc.", and a rating of "9.2381 / 10 (21 people voted)". Below the rating is a form for users to "Give your rating for this movie:" with a scale from 1 (horrible) to 10 (great). There is also a text input field for "Add your comment:" and a button labeled "Add this comment". A section for "Comments:" shows a single comment: "• This movie is great, but a bit too long...". At the bottom of the page, it says "Last modified: May 13 2009 16:35:59."

# PHP

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>
2. Log in with your *csc\_user* account
3. Enter your table number + both names  
Please tell me your name(s):
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> works