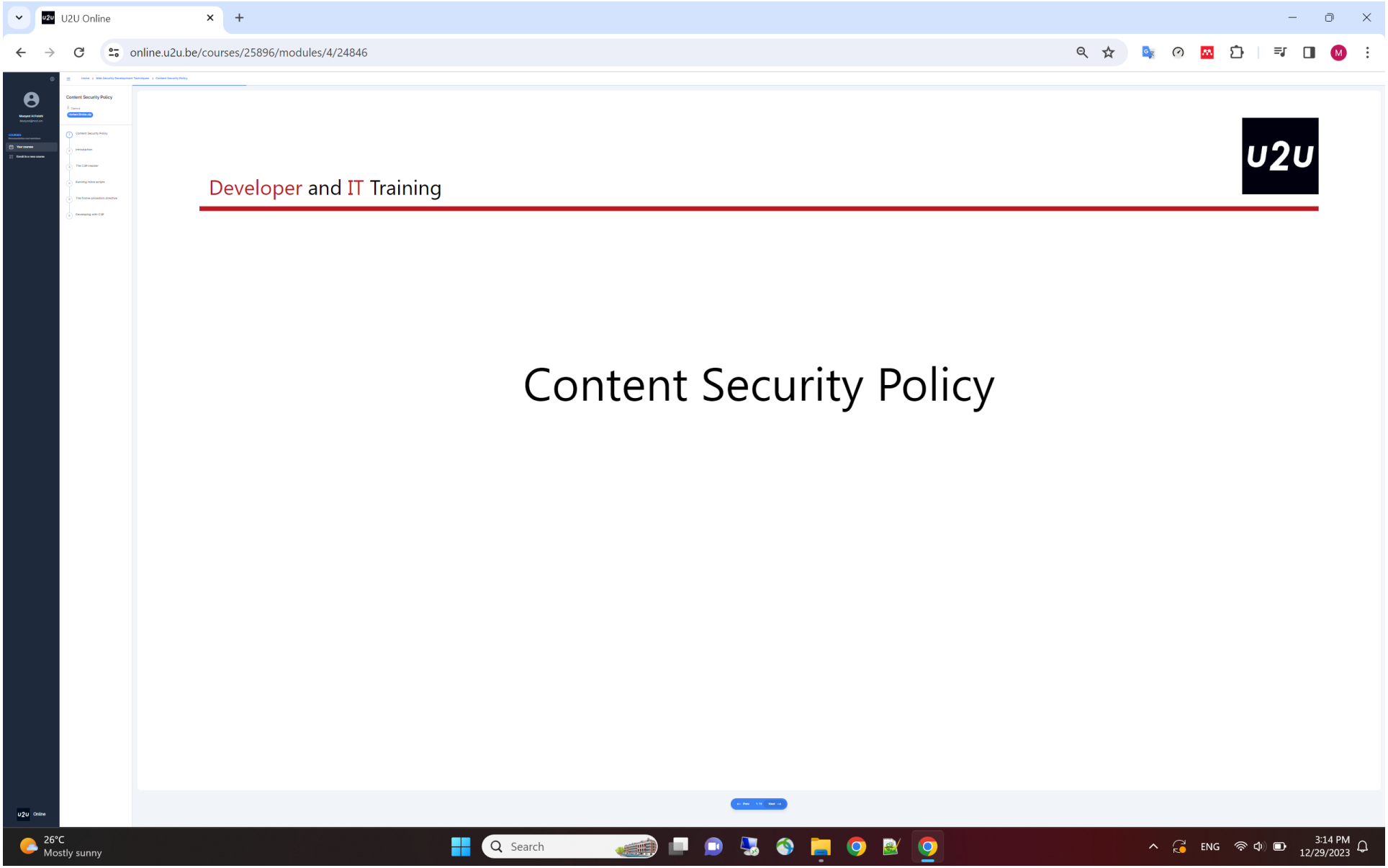
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Content Security Policy
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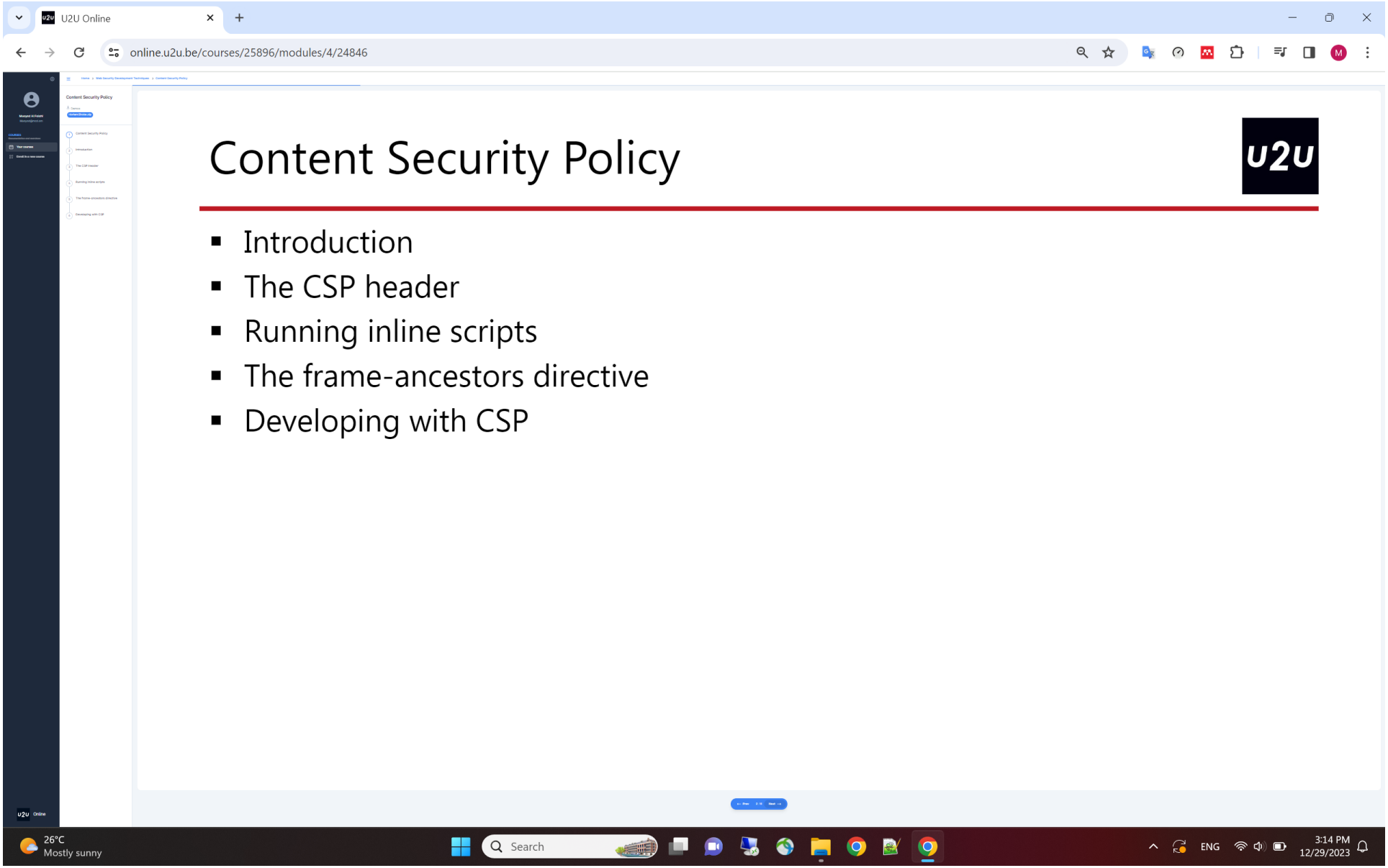
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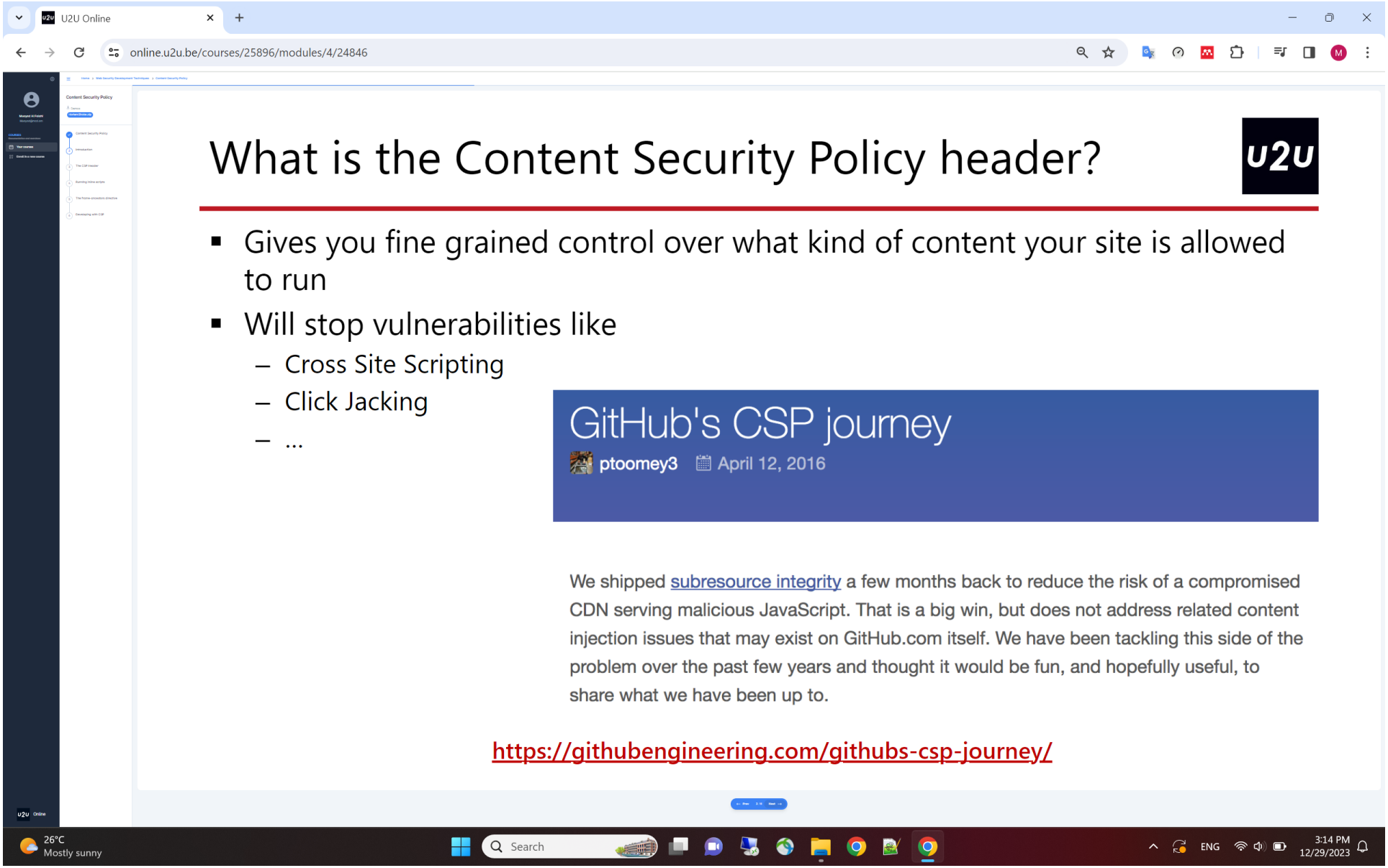
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What is the Content Security Policy header?
U2U
Gives you fine grained control over what kind of content your site is allowed to run
Will stop vulnerabilities like
Cross Site Scripting
Click Jacking
...
GitHub's CSP journey
ptoomey3
April 12, 2016
We shipped subresource integrity a few months back to reduce the risk of a compromised CDN serving malicious JavaScript. That is a big win, but does not address related content injection issues that may exist on GitHub.com itself. We have been tackling this side of the problem over the past few years and thought it would be fun, and hopefully useful, to share what we have been up to.
https://githubengineering.com/githubs-csp-journey/
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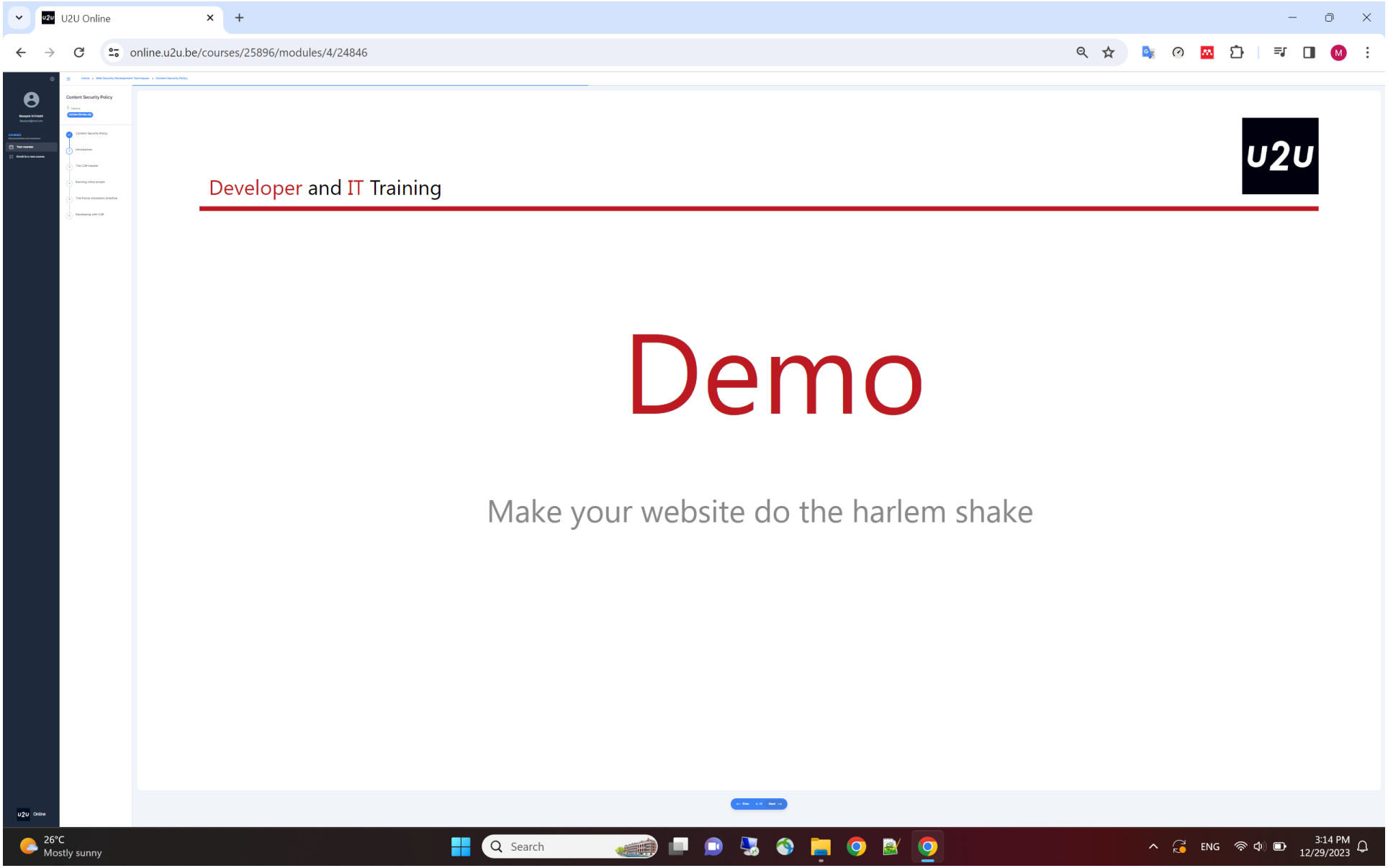
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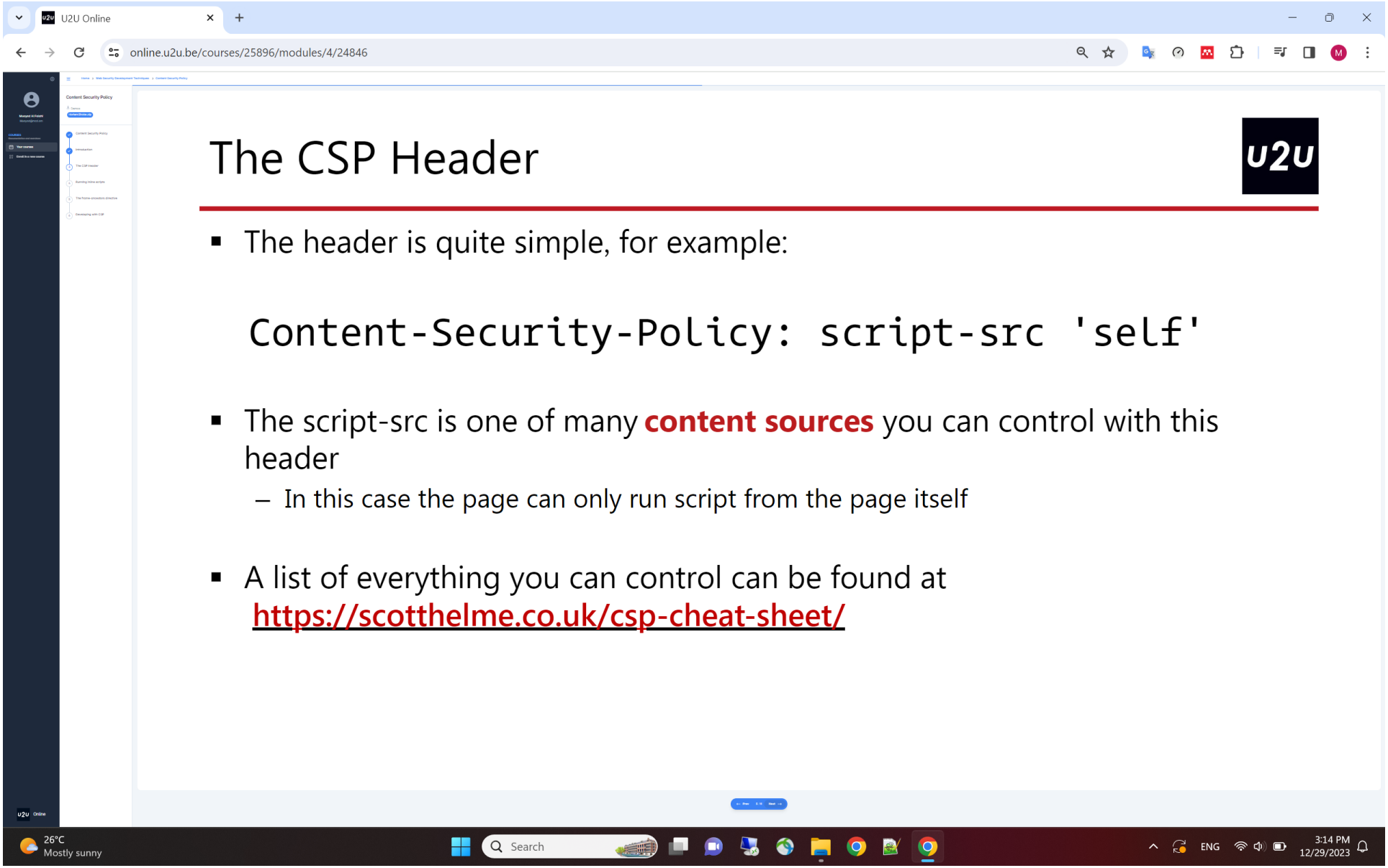
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The CSP Header
U2U
The header is quite simple, for example:
Content-Security-Policy: script-src 'self'
The script-src is one of many content sources you can control with this header
In this case the page can only run script from the page itself
A list of everything you can control can be found at https://scotthelme.co.uk/csp-cheat-sheet/
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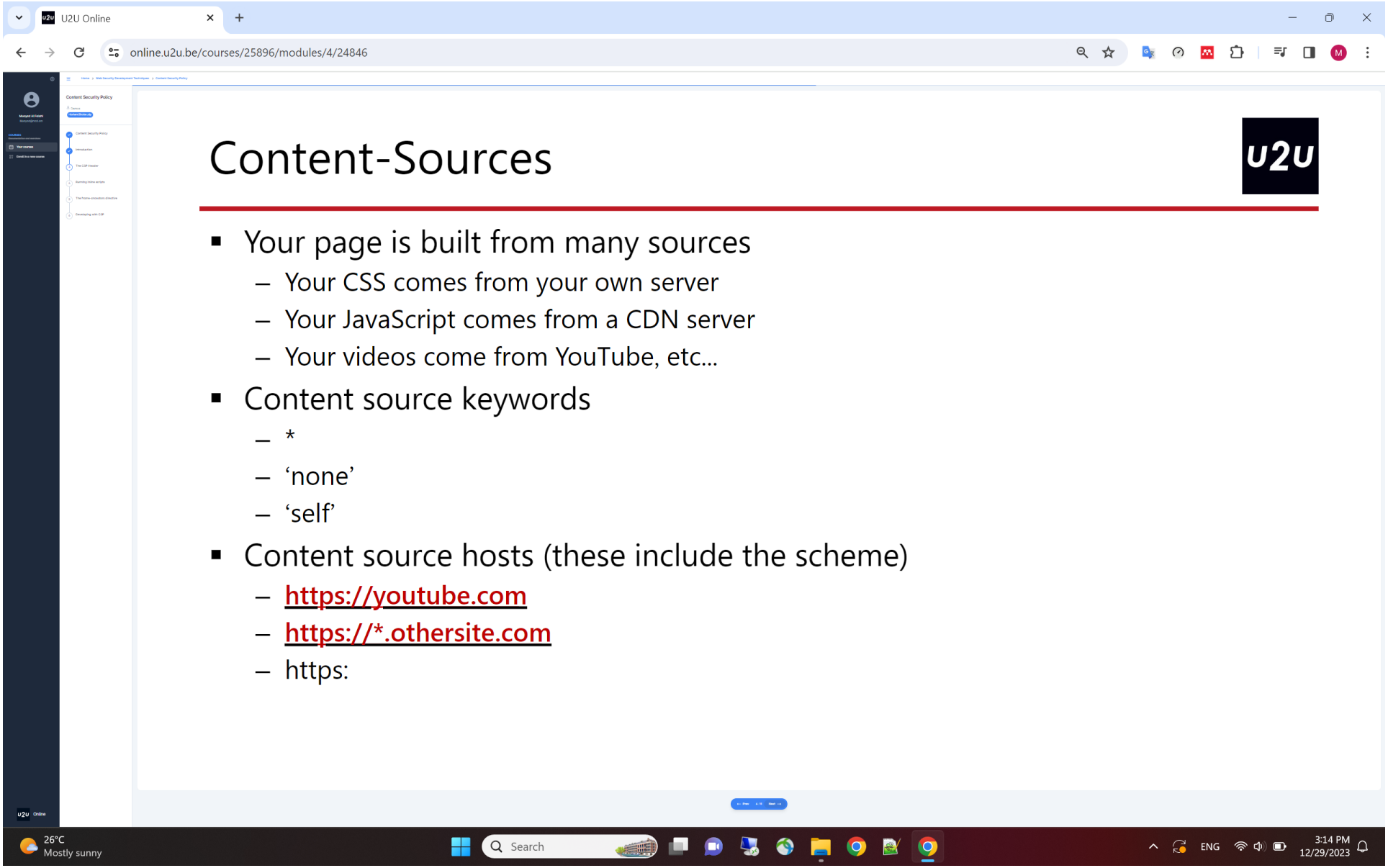
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Content-Sources
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Your page is built from many sources
Your CSS comes from your own server
Your JavaScript comes from a CDN server
Your videos come from YouTube, etc...
Content source keywords
*
'none'
'self'
Content source hosts (these include the scheme)
https://youtube.com
https://*.othersite.com
https:
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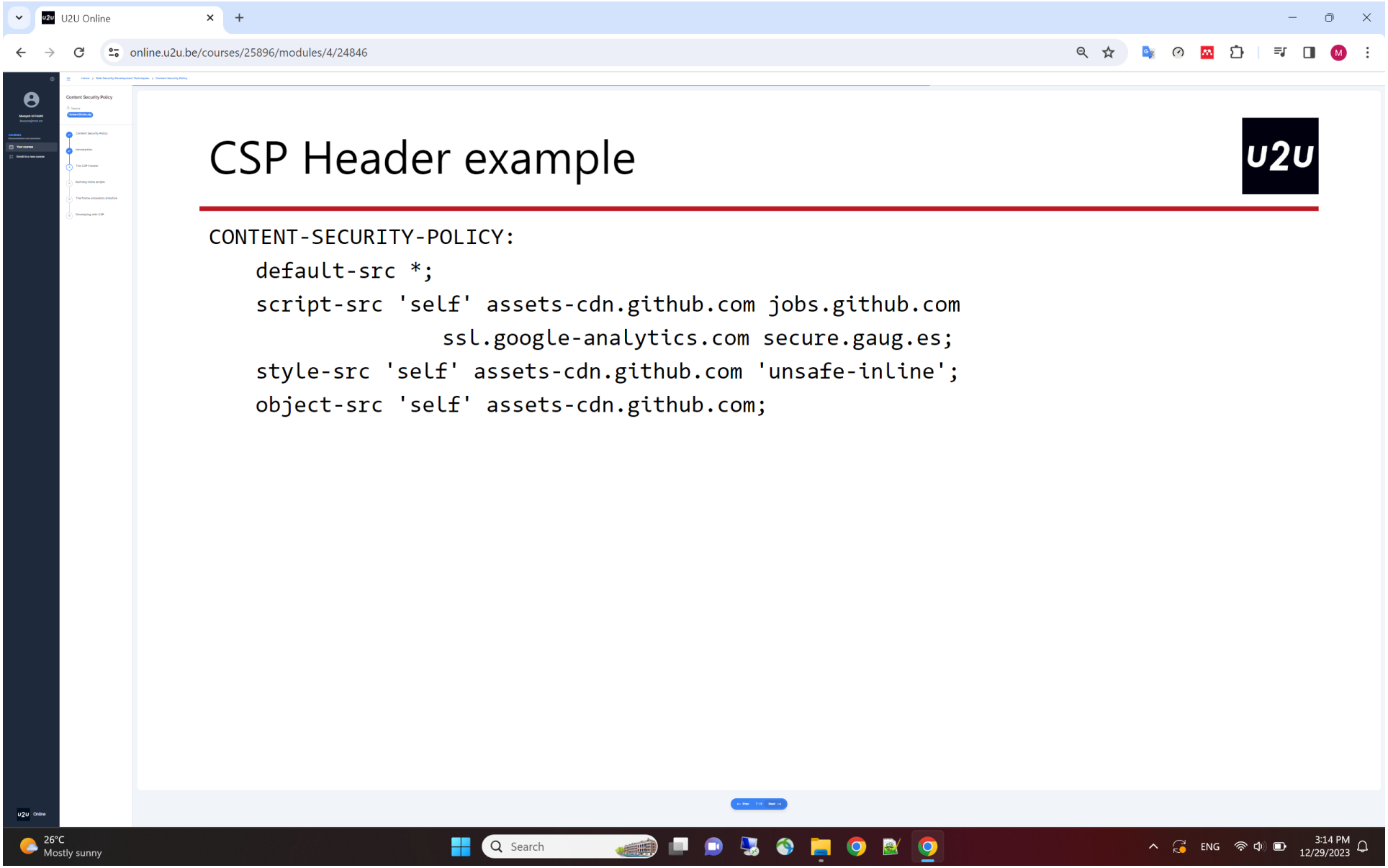
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CSP Header example
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CONTENT-SECURITY-POLICY:
default-src *;
script-src 'self' assets-cdn.github.com jobs.github.com
ssl.google-analytics.com secure.gaug.es;
style-src 'self' assets-cdn.github.com 'unsafe-inline';
object-src 'self' assets-cdn.github.com;
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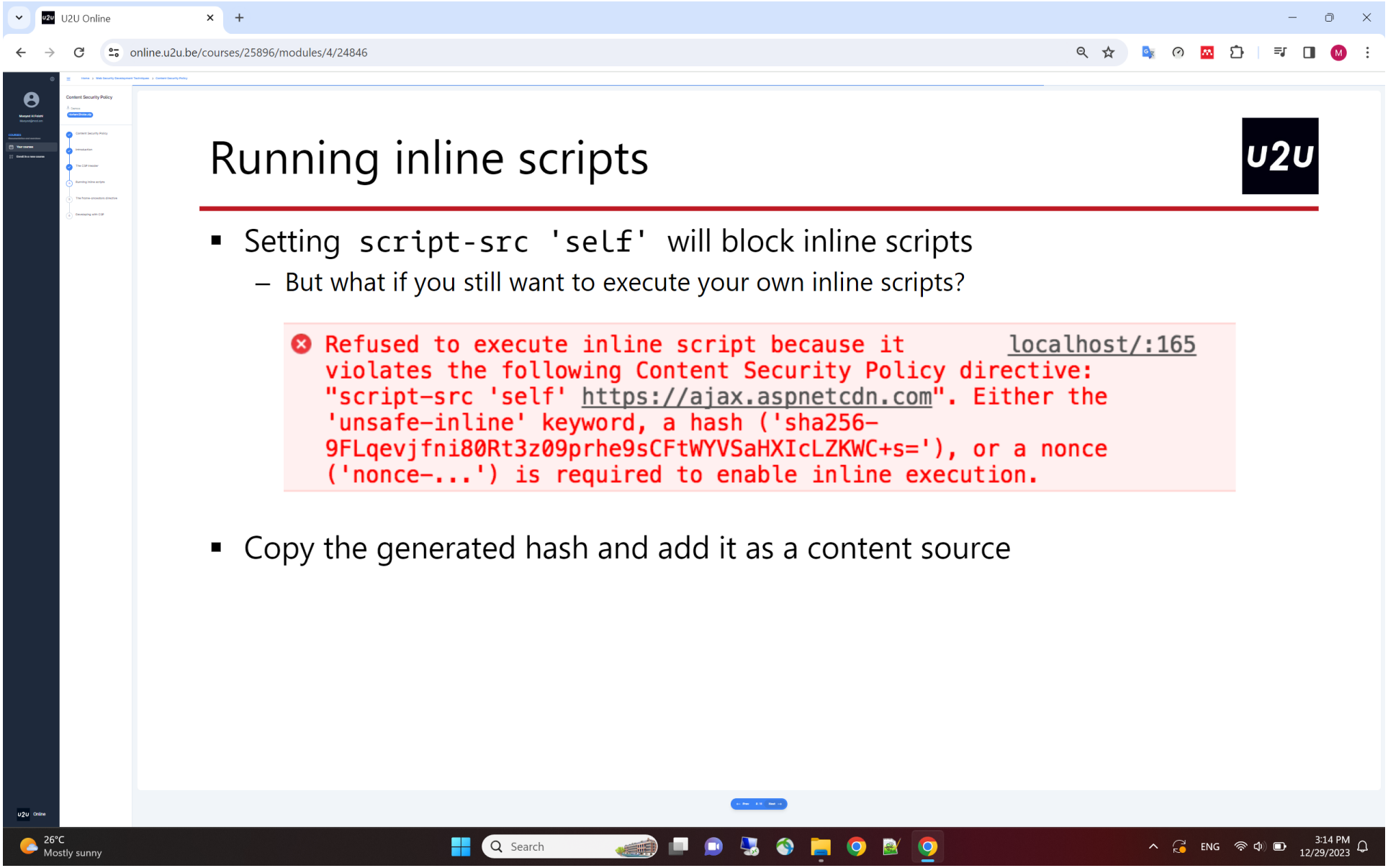
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Setting script-src 'self' will block inline scripts
But what if you still want to execute your own inline scripts?
Refused to execute inline script because it violates the following Content Security Policy directive: "script-src 'self' https://ajax.aspnetcdn.com". Either the 'unsafe-inline' keyword, a hash ('sha256-9FLqevjfni80Rt3z09prhe9sCFtWYVSaHXIcLZKWC+s='), or a nonce ('nonce-...') is required to enable inline execution.
localhost/:165
Copy the generated hash and add it as a content source
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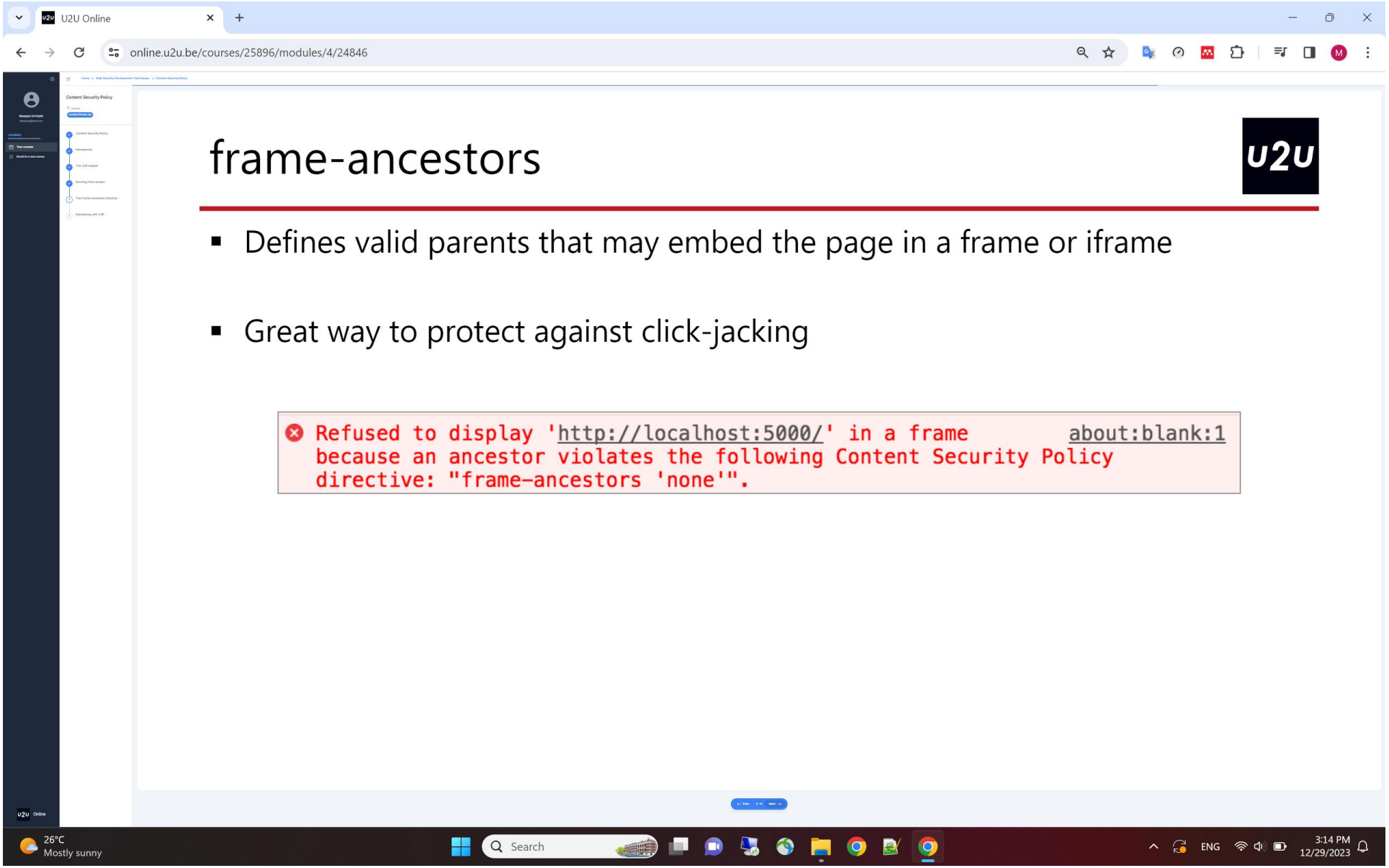
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frame-ancestors
U2U
Defines valid parents that may embed the page in a frame or iframe
Great way to protect against click-jacking
Refused to display 'http://localhost:5000/' in a frame because an ancestor violates the following Content Security Policy directive: "frame-ancestors 'none'".
about:blank:1
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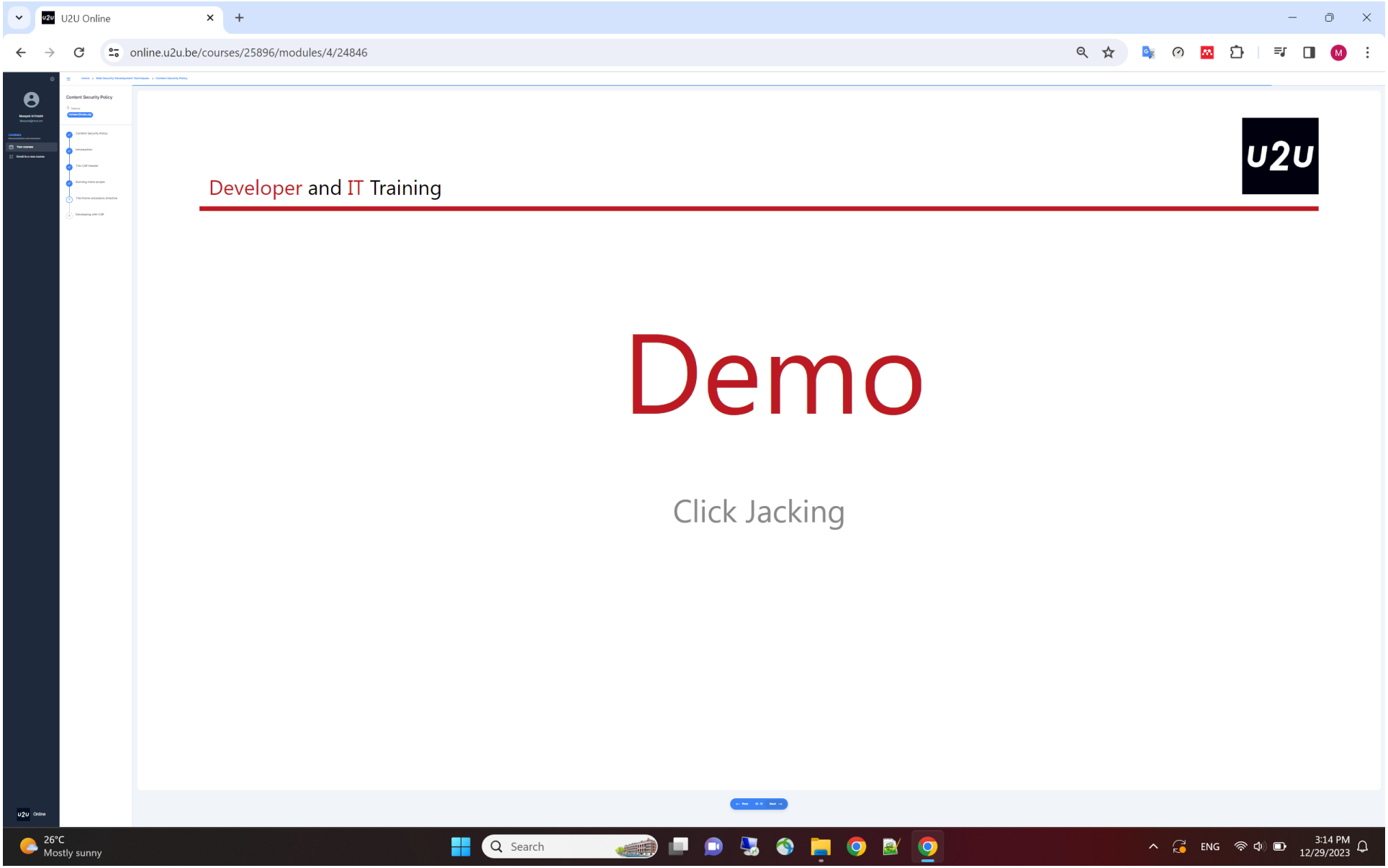
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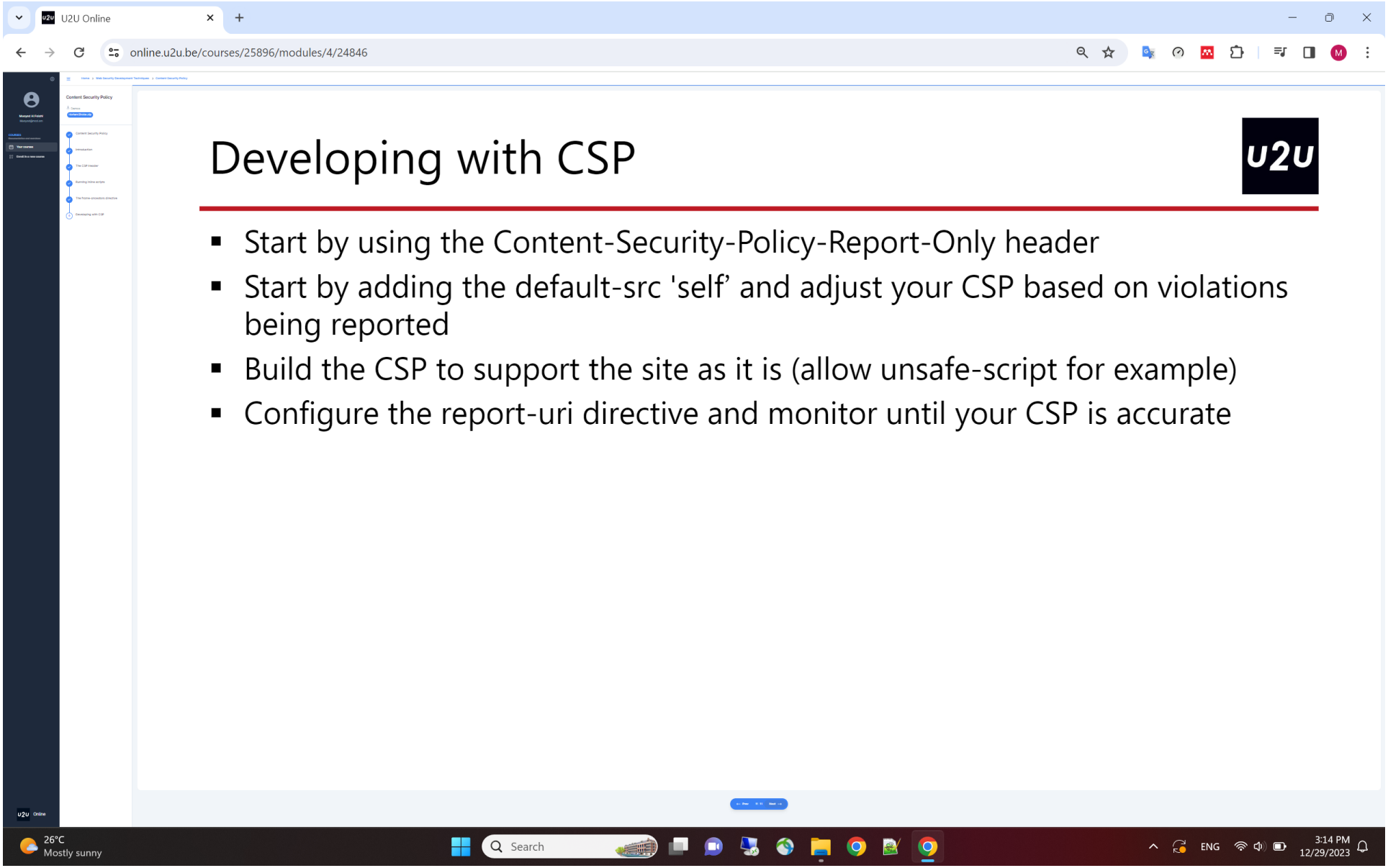
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Content Security Policy
Developing with CSP
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Start by using the Content-Security-Policy-Report-Only header
Start by adding the default-src 'self' and adjust your CSP based on violations being reported
Build the CSP to support the site as it is (allow unsafe-script for example)
Configure the report-uri directive and monitor until your CSP is accurate
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