

CAP785:WEB PERFORMANCE OPTIMIZATION

L:3 T:0 P:2 Credits:4

Course Outcomes: Through this course students should be able to

CO1 :: understand how to increase web performance by using various techniques

CO2 :: analyze websites for higher conversions and better user satisfaction.

CO3 :: evaluate the performance of web resources using various metrics.

CO4 :: construct websites for better user engagement and better ranking

Unit I

Introduction to Web Performance Optimization : Overview, Getting up and running client's website, Auditing the client's website, optimizing the client's website, Performing the final weigh-in

Utilizing Client Side Caching : Caching Meaning, What can be cached?, Locations where web content is cached, Caching headers, Page Caching, Browser Caching, Database and Object caching

Unit II

Content Compression : compression methods, transfer encoding, compressing PHP-generated pages, compressing other resources

Reducing Size with Minification : javascript minification, css minification, html magnification

Unit III

Optimizing Web Graphics and CSS : various image formats, optimizing images, css sprites, css performance, Making image responsive

Jscript, DOM and Ajax : javascript,jscript, and ecmascript, the document object model, getting the most from javascript, ajax

Unit IV

Working with Web Servers : apache, looking beyond apache, multiserver setups with nginx and apache, load balancers

Tuning MySQL : looking inside mysql, understanding the storage engines, tuning mysql, tuning myisam, tuning innodb, working with the query cache, optimizing sql

Unit V

MySQL in the Network : using replication, partitioning, sharding, complementing mysql, alternatives to mysql

Utilizing NoSQL Solutions : nosql flavors, memcache, mongodb, other nosql technologies

Unit VI

Working with SSL : ssl caching, ssl termination and endpoints, sending intermediate certificates, determining key sizes, selecting cipher suites, investing in hardware acceleration, the future of ssl

Optimizing PHP : extensions and compiling, opcode caching, compiling PHP, sessions, profiling with xhprof

List of Practicals / Experiments:

List of Practicals

- Utilizing Client side caching
- Content Compression
- Minifying HTML
- Minifying CSS
- Minifying Javascript
- Optimizing PHP
- Working with Web Server
- Tuning MySQL
- MYSQL in the network

- NOSQL Solutions
- Optimizing Web graphics and CSS
- Working with SSL

Text Books: 1. HIGH PERFORMANCE WEB SITES by STEVE SOUDERS, O'REILLY

References: 1. PROFESSIONAL WEBSITE PERFORMANCE -OPTIMIZING THE FRONT END AND THE BACK END by PETER SMITH, JOHN WILEY & SONS