HIDDEN GEMS IN CF2016

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- Major features of CF2016 (quick overview)
- Hidden gems in many areas
  - Installation, configuration, administration, web server config
  - New/changed features, new language constructs, new member functions
  - New/changed CFML functions, tags
- As well as other topics:
  - Updates to underlying libraries' version numbers
  - Deprecated/obsoleted features
  - What's in Standard vs Enterprise
  - Pricing, licensing, end of life support
  - And lots more

TOPICS

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- Security Code Analyzer
- API Manager
- PDF Improvements (redaction, sanitization, more)
- CFML language improvements (tags, functions, and more)
- Security improvements (especially more NTLM support)
- Performance improvements
- More about some of these later

MAJOR FEATURES OF CF2016

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- Now, on to the gems in the areas of
    - Installation, configuration, administration, web server config
    - New/changed features
    - New language constructs, new member functions
    - New/changed CFML functions, tags

HIDDEN GEMS IN MANY AREA

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- During installation, asked whether to install API Manager
  - If installed, then asked whether to implement it within JVM or as own service

INSTALLATION GEMS

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- CF Admin option to store CF sessions in redis (cache) rather than heap memory
  - gotcha: works only with CF sessions, not "J2EE sessions"
  - helpx.adobe.com/content/help/en/coldfusion/2016/external-session-storage.html
  - If using "j2ee sessions", must modify Tomcat (underlying CF) on our own
- CFscripts folder now moved to to its own directory, not in CFIDE
  - Great move for security, administration
  - New folder called cf_scripts, found in the cfusion wwwroot
  - pointed to as a virtual directory in IIS, Apache, etc.
  - Related to this…

CONFIGURATION GEMS

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- CF Admin now available <u>only</u> via internal web server by default
  - This is a another very good thing, for security
  - If you REALLY want to enable via external web server, see manual steps in my blog post below (Step 1a)
- For more on this and the last two config changes, see
  - www.carehart.org/blog/client/index.cfm/2016/2/23/cf2016_CF_Admin_changes
- Improvements to web server configuration tool

ADMINISTRATION GEMS

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- No longer any need to manually reconfigure connectors after update!
  - Update mechanism will handle this for us
  - Also offers new "upgrade" option, (in wsconfig tool) if needed
- For those using multiple instances (in CF Enterprise/Trial/Dev)
  - Wsconfig UI finally offers option to pick instance name to connect to (like in CF9 and before)!
  - In CF10/11, we had to start wsconfig in instance's bin to connect site
  - Of course, cfusion will be only choice available in CF Standard
- …

WEB SERVER CONFIG TOOL (WSCONFIG) GEMS

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- Wsconfig UI now offers option to set/change connection_pool_size!
    - Found under "advanced settings"
    - Previously only offered connection_pool_timeout, max_reuse_connection
- Now defaults to timeout of 60 (seconds); was 0 (infinite) before
    - Defaults to pool size (500), max_reuse (250): better suited to 2-site setups
    - CF2016 also now includes maxthreads="500" and connectionTimeout="60000" in server.xml, by default

WEB SERVER CONFIG TOOL (WSCONFIG) GEMS (CONT.)

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- "Advanced Settings" now also offers "skip iis custom errors" option
  - Disabled by default. Useful for some scenarios
  - Needed to add manually to isapi_redirect.properties file in CF10/11
- No longer offers an "all" option (for all sites) but instead "all - individually"
  - Creates a new connector *for each site* (using the selected settings)

WEB SERVER CONFIG TOOL (WSCONFIG) GEMS (CONT.)

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- New command-line interface (CLI)
  - Allows cmd line CFML execution by pointing to a cfm file, via cf.bat
    - As in, **cf.bat cliscript.cfm**
    - Not a real interactive shell (with tab completion, etc.), no repl, no package manager, no extensibility as with CommandBox project
  - Still, is useful for cron jobs/windows scheduler, etc. to run cfml pages
  - Quite a few options and capabilities
- For more, see
  - helpx.adobe.com/coldfusion/2016/command-line-interface.html

NEW FEATURE GEMS

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- Many enhancements to PDF support
  - Mentioned before sanitization, redaction
- Also
  - Export/import of comments, metadata
  - Archiving, including newer PDF/A-2b and -3b standards
  - Support for attachments, stamps
- For more, see substantial article with examples, and code download
  - www.adobe.com/devnet/coldfusion/articles/pdf-enhancements.html
- Not mentioned on that page:
  - Cfpdf adds new **encrypt** attribute values: **AES_256R5** and **AES_256R6**
- …

CHANGED FEATURE GEMS

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- New argument for structnew, ordered, maintains insertion order
    - Looping over such a struct will also return in insertion order
    - All other forms of creating new structs keep same order as before
    - Also support for creating empty ordered struct
    - helpx.adobe.com/coldfusion/2016/language-enhancements.html#CollectionsupportOrdered

- …

CHANGED FEATURE GEMS (CONT.)

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- New cfapplication attributes / application.cfc this scope vars
  - **searchImplicitScopes, passArrayByReference**
  - Each can change long-standing behavior for these operations, vastly *improving performance* (5x and 25x, respectively)
  - See:
    - www.adobe.com/devnet/coldfusion/articles/language-enhancements-cf-2016.html
    - helpx.adobe.com/coldfusion/2016/language-enhancements.html#Scopesearch
    - helpx.adobe.com/coldfusion/2016/language-enhancements.html#Arraysbr
  - …

CHANGED FEATURE GEMS (CONT.)

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- CF Admin "whitespace management" now suppresses whitespace at compile time as well as runtime

- Swagger doc generation (for restful api's)

  - helpx.adobe.com/coldfusion/2016/swagger-document-generation.html

CHANGED FEATURE GEMS (CONT.)

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- Safe navigation operator (?.)
  - Used when accessing members of a struct or values of an object
  - Used instead of ".", to prevent exception if not defined, null, etc.
  - Simplified code, versus nested isdefined tests
  - *Examples:*
    - *<cfoutput>#employee?.firstname#</cfoutput>*
      - Will output empty string if firstname does not exist/null
    - *Writeoutput(employee?.name?.firstname?.trim());*
      - Will output empty string if all 3 are undefined/null
- …

NEW LANGUAGE CONSTRUCTS

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- For more info and examples (including setting variables), see:
  - helpx.adobe.com/coldfusion/2016/language-enhancements.html#Safenavigation
  - helpx.adobe.com/coldfusion/developing-applications/the-cfml-programming-language/using-coldfusion-variables/using-periods-in-variable-references.html#Usingthesafenavigationoperator
  - blog.adamcameron.me/2015/10/coldfusion-12-it-goes-to-show-you.html
  - www.adobe.com/devnet/coldfusion/articles/language-enhancements-cf-2016.html

NEW LANGUAGE CONSTRUCTS (CONT.)

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- ▸ Many new member functions (expanding on the new feature in CF11)
- ▸ New array member functions: arrayDeleteNoCase
- ▸ New string member functions:
  - ▸ encrypt, paragraphFormat, replaceListNoCase
  - ▸ decodeFromURL, decodeForHTML, encodeForHTML, encodeForHTMLAttribute
  - ▸ encodeForXML, encodeForXMLAttribute, encodeForXPath
  - ▸ encodeForCSS, encodeForJavaScript, encodeForURL
  - ▸ getSafeHTML, isSafeHTML
  - ▸ urlDecode, urlEncodedFormat
- ▸ …

NEW MEMBER FUNCTIONS

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- New datetime member functions:
  - LSDateFormat
  - setSecond, setMinute, setHour
  - setDay, setMonth, setYear
- New query member functions:
  - queryEach, queryKeyExists, queryFilter, queryMap, queryReduce, querySort, valueArray
- New display and formatting member functions:
  - booleanFormat, yesNoFormat
- More info on member functions:
  - helpx.adobe.com/coldfusion/developing-applications/building-blocks-of-coldfusion-applications/using-the-member-functions.html

NEW MEMBER FUNCTIONS (CONT.)

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- New CFML functions
  - arrayContainsNoCase, arrayDeleteNoCase, valueArray
  - querySort, queryEach, queryFilter, queryKeyExists, queryMap, queryReduce
  - booleanFormat, floor, isPDFArchive, replaceListNoCase, spreadsheetGetColumnCount
- Changed functions:
  - arraynew, cacheRemove, dateFormat, timeFormat, createDateTime
  - replace, replaceList, spreadsheetAddRows, writeoutput
- More info, links to details on new/changed CFML functions:
  - helpx.adobe.com/coldfusion/2016/other-enhancements.html
  - helpx.adobe.com/coldfusion/2016/language-enhancements.html#ArrayFindNoCase

NEW/CHANGED CFML FUNCTIONS

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- Changed CFML tags…
- cfloop
  - New **item** attribute, for use with loops over list, array, or file
  - Named **item** var will hold element looped over
  - Named **index** var (optional) will hold index value, if any
- …

CHANGED CFML TAGS

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- cfmailparam
    - new, optional **filename** attribute, to give different name for file attached to email using cfmailparam **file** attribute
    - **File** points to name as on server, **filename** points to name as shown in email
- cfsearch
    - New **Type** attribute values (for parser): **Standard**, **Dismax**
    - Old verity-based types no longer supported
        - *simple, explicit, internet, internet_basic, natural*
- …

CHANGED CFML TAGS (CONT.)

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- cfoutput
  - New **encodefor** attribute, names encoding type to be used for strings within tags, if not surrounded by an **encodefor** function (types: html, htmlattribute, url, javascript, css, xml, and so on)

- Cfsocialplugin
  - See comments in [ColdFusion2016]\cfusion\CustomTags\socialplugin.cfm

- …

CHANGED CFML TAGS (CONT.)

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- cfcollection
  - *path* attribute is now ignored
  - All collections are created in the **collections** directory at the location specified in **Solr_Home** field in the ColdFusion admin
- More info on changed tags, with links to details:
  - helpx.adobe.com/coldfusion/2016/other-enhancements.htm
  - helpx.adobe.com/coldfusion/2016/language-enhancements.html

CHANGED CFML TAGS (CONT.)

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- We're more than half-way home. Areas remaining…
- Deprecated features
- Updates to underlying libraries' versions numbers
- What's in Standard vs Enterprise
- Pricing
- And more!

OTHER TOPICS

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- Deprecated features (nothing obsoleted)
  - These may (will likely) be dropped/obsoleted in later releases
- Language features:
  - Cfchart format="flash"
  - cffileupload Flash component
  - cfmediaplayer
  - cftable
  - UI Tags based on YUI toolkit - cftree, cfcalendar, cfautosuggest, cfmenu (also "no longer supported"/updated)
- Report Builder

DEPRECATED FEATURES

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- Admin features deprecated
  - Event gateways - Jabber, Flash Media server
  - Portlets*
  - System Probes
  - Server Manager
  - Server Monitor
- For more on deprecation, drop of support for some things
  - helpx.adobe.com/coldfusion/deprecated-features.html
  - www.carehart.org/blog/client/index.cfm/2016/2/22/cf2016_deprecated_features

DEPRECATED FEATURES (CONT.)

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- Antisamy 1.5.3 (OWASP security library)
- Axis 2 1.7.0 (web services library, and note that's "Axis 2" v 1.7.0, not "Axis")
- Derby 10.11 (embedded DB)
- Ehcache 2.10.0 (caching library)
- Esapi 2.1.0 (OWASP Enterprise Security API)
- Ext JS 4.1 (JS library which underlies various UI tags)
- Ewsapi 1.1.5 (MS Exchange API)
- Hibernate 4.3.10 (ORM library)
- Httpclient 4.4.1 (underlies CFHTTP and more)
- Jetty 9.3.6v20151106 (underlies Solr, HTMLTOPDF, and more)
- Java 1.8.0_72 (the JVM which underlies all of CF)

- JDBC Drivers 5.1.4.000138 (the built-in Merant DB drivers, such as for SQL Server, Oracle, and even MySQL. CF no longer includes the MySQL-provided driver, but you can add it yourself)
- jQuery 1.6.1 and jQuery UI 1.8.16 (JS library which underlies various UI tags and Admin interface features)
- Lucene 5.2.1 (underlies Solr, the embedded search engine in CF)
- POI 3.12 (underlies MS Office Integration features)
- PostgreSQL 9.4-1201 (db driver)
- Quartz 2.2.1 (underlies CF Schedule tasks)
- Servlets 3.1 (underlies CF/Tomcat processing)
- Solr 5.2.1 (the embedded search engine, used by CFSEARCH/CFINDEX/CFCOLLECTION, etc.)
- Tomcat 8.0.27.0 (the application server which underlies CF, when deployed in traditional "Server" configuration)
- YUI 2.3.0 (JS library which underlies various UI tags)

See:
www.carehart.org/blog/client/index.cfm/2016/2/17/what_are_cf2016_embedded_library_version_numbers

UPDATES TO UNDERLYING LIBRARIES' VERSIONS NUMBERS

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- Referring here only to what's new/changed in CF2016

- Enterprise or Trial only (not even Developer edition)

  - API Manager

  - Security Analyzer

- You can take an enterprise license key and use it on a "dev" machine, of course

- www.carehart.org/blog/client/index.cfm/2016/2/25/cf2016_enterprise-only_features

WHAT'S IN STANDARD VS ENTERPRISE

	Base Price	Upgrade Price				
		From CF12 Standard	From CF11 Standard	From CF11 Enterprise	From CF10 Standard	From CF10 Enterprise
CF 2016 Standard	$1499	n/a	$749	n/a	$899	n/a
CF 2016 Enterprise	$8499	$7599	$7599	$4249	$7599	$5099

▸ For more, including how I found this info, see www.carehart.org/blog/client/index.cfm/2016/2/24/pricing_for_coldfusion_2016

PRICING

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- Some debate/confusion about aspects of new EULA

- See http://wwwimages.adobe.com/content/dam/acom/en/legal/licenses-terms/pdf/ColdFusion-2016.pdf

- Reach out to CF Product Mgr, Rakshith Naren, with any questions

    - rakshith@adobe.com

LICENSING/EULA

- CF10 support not terminating at end of this year
  - As happened with CF9 in 2014 when 10 came out
  - Instead, ends May 2017 (extended support, May 2019)
- CF11 support ends April 2019 ("extended support" April 2021)
- CF9 "extended support" ends 12/31/16
- More: www.adobe.com/support/products/enterprise/eol/eol_matrix.html#63

END OF LIFE/END OF SUPPORT

- Back to what should be good news for all…
- Previously, when downloading CF installer from Adobe, we were forced to use Akamai Download Manager
  - That has been removed!
  - Just generally a better experience (I suppose some may miss it)
- see www.carehart.org/blog/client/index.cfm/2016/2/19/cf2016_download_no_longer_requires_Akamai_DL_mgr
- Unfortunately, CF install has gotten huge because of API Mgr

REMOVAL OF AKAMAI DLM!

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- Update 2 released this week
  - Allows specifying the type of data when serializing structs or arrays
  - Configure SSL in API Manager: access API Mgr portals over HTTPS
  - New member functions:
    - ArrayDeleteNoCase
    - BooleanFormat
    - YesNoFormat
  - Introduction of CK Editor/deprecation of FCKEditor
    - In cftextarea, ajax form controls
  - …

UPDATES SINCE RELEASE OF CF2016

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- More changes in Update 2
  - Change related to new NTLMDomain attribute
    - helpx.adobe.com/coldfusion/2016/ntlm-support.html
  - PhoneGap is upgraded to version 5.2
  - Addresses vulnerability mentioned in the security bulletin APSB16-22
  - Several important bug fixes (77, total bug fixes)
    - security, core language features, server, and other areas
- No change to web server connector
- …

UPDATES SINCE RELEASE OF CF2016 (CONT.)

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- ▶ Update 2 resources
  - ▶ Overview
    - ▶ helpx.adobe.com/coldfusion/kb/coldfusion-2016-update-2.html
  - ▶ Release notes (covers both updates)
    - ▶ helpx.adobe.com/content/help/en/coldfusion/release-note/coldfusion-2016-updates-release-notes.html
  - ▶ Bug fixes and known issues
    - ▶ helpx.adobe.com/coldfusion/kb/bugs-fixed-coldfusion-2016-update-2.html

UPDATES SINCE RELEASE OF CF2016 (CONT.)

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- Update 1 released in May

  - Tomcat updated to 8.0.32

  - Various updates to Security Analyzer

  - Several important bug fixes for security, core language features, server, and other areas (20 total bug fixes)

- No change to web server connector

- …

UPDATES SINCE RELEASE OF CF2016 (CONT.)

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- Update 1 resources
  - Overview
    - helpx.adobe.com/coldfusion/kb/coldfusion-2016-update-1.html
  - Bug fixes and known issues
    - helpx.adobe.com/coldfusion/kb/bugs-fixed-coldfusion-2016-update-1.html
- Single page listing all CF2016 updates:
  - helpx.adobe.com/coldfusion/kb/coldfusion-2016-updates.html

UPDATES SINCE RELEASE OF CF2016 (CONT.)

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- Can no longer access CF11 installers on Adobe site
  - Look to bit.ly/cfdownloads (community-run site)
- Can't even license CF11 anymore
  - Must buy CF2016 and request "backward license" to CF11
- Annoying: while there are PDFs of CF docs (helpx.adobe.com/coldfusion/home.htm)
  - They generally show only one level within a section, then offer a link to online page for more detail (sometimes confusing)
- …

TRAPS/GOTCHAS

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- Mentioned previously that Security Analyzer works only with CF Enterprise (or trial)
  - Also requires CF installed in "Developer mode", with RDS enabled
- And again, new redis-based session vars support only CFML sessions, not j2ee sessions
- See other (few) "known issues" listed in update docs
- Be sure to apply updates before believing web reports of "known bugs". May since have been fixed!

TRAPS/GOTCHAS (CONT.)

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- In addition to many mentioned so far (do see them also)…
- www.adobe.com/devnet/coldfusion/articles/whats-new-cf-2016.html
- helpx.adobe.com/coldfusion/whats-new.html
- helpx.adobe.com/coldfusion/2016/topics/features.html
- helpx.adobe.com/coldfusion/release-note/coldfusion-2016-release-notes.html
- Video on CF2016 (8-minute overview) www.youtube.com/watch?v=Bm6dJjNSPNg
- helpx.adobe.com/coldfusion/home.htm (*CF2016 docs*)
- …

RESOURCES FOR MORE ON CF2016

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- www.adobe.com/products/coldfusion-standard/features.html
- helpx.adobe.com/pdf/Cf2016-standard-datasheet.pdf
- helpx.adobe.com/pdf/Cf2016-standard-comparison.pdf (*compares to previous releases*)

- www.adobe.com/products/coldfusion-enterprise/features.html
- helpx.adobe.com/pdf/Cf2016-enterprise-datasheet.pdf
- helpx.adobe.com/pdf/Cf2016-enterprise-comparison.pdf (*compares to previous releases*)

- …

RESOURCES FOR MORE ON CF2016 (CONT.)

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- helpx.adobe.com/coldfusion/standard/system-requirements.html
- helpx.adobe.com/coldfusion/enterprise/system-requirements.html

- helpx.adobe.com/pdf/coldfusion2016-support-matrix.pdf (web servers, OS's, DB's supported)

- www.adobe.com/products/coldfusion-standard/buying-guide.html
- www.adobe.com/products/coldfusion-enterprise/buying-guide.html
- …

RESOURCES FOR MORE ON CF2016 (CONT.)

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- Whitepapers
  - CF2016 Security audit report:
    - blogs.coldfusion.com/post.cfm/coldfusion-2016-release-security-audit-report
  - CF2016 Performance report:
    - wwwimages.adobe.com/content/dam/acom/en/products/coldfusion/pdfs/cf2016/CF2016_Performance.pdf
  - CF2016 lockdown guide:
    - wwwimages.adobe.com/content/dam/acom/en/products/coldfusion/pdfs/coldfusion-2016-lockdown-guide.pdf
  - CF2016 migration guide:
    - wwwimages.adobe.com/content/dam/acom/en/products/coldfusion/pdfs/coldfusion-2016-lockdown-guide.pdf

RESOURCES FOR MORE ON CF2016 (CONT.)

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- Adobe CF team blog: blogs.coldfusion.com
- Anit (CF team member) blog: coldfusionsolution.wordpress.com
- Akbarsait's CF2016 meta resource guide: www.akbarsait.com/blog/index.cfm/2016/2/21/ColdFusion-2016-Tutorials-and-Articles-by-ColdFusion-Community/
- My sites: cf411.com and cf911.com (and carehart.org)
  - I often link to the resources of others in the community, past/present
  - I can help you with any CF server troubleshooting/admin challenges

SOME GENERIC GEMS
FOR CF2016 <u>AND</u> EARLIER

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- So, how many changes did we cover? Any guesses?
  - I counted about 80! (not including bug fixes)
  - As is often the case, most can name only a few
- Hope you may be more motivated—and informed—to consider CF2016
  - To understand if and how it may work for you
  - Or at least where things stand regarding it as of now
- Thanks, and don't forget to fill out your evals

SUMMARY

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