Overall Automation Tool(s) Selection Process

Why:

- QA would like to find one consolidated platform or set of tools for automation
- we need to get away from Silk

Criteria for evaluation

See: 📄 QA Automation Infrastructure - Pain Points

See: 📄 QA Automation Tool Requirements

- functionality
- monetary cost
- ramp up time (learning curve, building up locators and objects and methods)
- identifying a first use case (GMM UI Tests, early 2024)

Acceptance / Exit Criteria

- Selecting a singular tool and figuring a timeline for tool implementation, identify further action items (e.g., further POC if necessary)

Evaluation

Tool	Selenium (+chrome driver), Appium, Postman/Newman	Katalon	Cypress (cypress dot io)	Playwright	Jest	Mocha
Relevant links:		📗 Katalon AI-augmented Test Automation Platform	🌀 Testing Frameworks for Javascript | Write, Run, Debug | Cypress	🎭 Fast and reliable end-to-end testing for modern web apps | Playwright	🃏 Testing React Apps · Jest	☕ Mocha - the fun, simple, flexible JavaScript test framework
Language	Java (, Python)	Java, uses Selenium for web elements and Appium to interact	Javascript	Javascript or Typescript	Javascript	Javascript
Cost	Free	Test Studio (basic) = free, Studio Enterprise (additional features need to inquire) $1999 per license annually. Starting costs around $3000.	Free to try, $800 per year for team	Open Source (free)	Free	Open Source (free)
IDE integration	Yes (Eclipse, Visual Studio, etc.)	Has its own IDE	Yes (Visual Studio, VS Code)	VS Code	no IDE; often people use Cypress or	no IDE; often people use Cypress or

					Katalon to integrate	Katalon to integrate
Ramp-up time/learning curve		Fairly easy	Moderately easy			
Integration with pipelines and reporting results		yes. Also integrates with Docker, Jira.	Yes.			
scope (GUI, API)	Web - Selenium Mobile, Windows standalone apps - Appium API - Postman/Newman	Web, API/Web Service, Mobile, Desktop, Database via java/jdbc	both Web and API, Mobile with frameworks/emulator	both Web and API	Web plus database	Web
robust?		yes/mostly	moderately			
generating framework/objects	yes - manual via Inspect / OIC Object Spy	record, modify, fairly good support	poor support; manual via inspect.	see gotchas	NO	NO
Gotchas			not as easy to define objects. Missing some verbs like hover/mouse over.	very limited ways to identify objects (xpath, "by role" == gui element, label, name which is really text, not class nor name)		
When started?	2004	2015	2018	2010		
Marketshare	10%	9%	3%			

Small demos included.

Questions from team, Wednesday Nov. 8:

- can Katalon access Environment variables, define its own variables:
  - Environment: yes: Java System.getenv('MY_VAR')
  - Global Katalon variables
  - test [case] variables
  - Groovy variables
- Data driven testing … overview: https://docs.katalon.com/docs/create-tests/data-driven-testing/data-driven-testing-with-katalon-studio
  - Test files: CSV, Excel, Database query
  - When to use Test Data Files in Katalon? data-driven-tests/Data Files at master · katalon-studio-samples/data-driven-tests
  - Example of SQL query for Test Data File: this is a bit of a misnomer, because it's more like "we know we always want to run a certain SQL query at the beginning of the test, and based on certain values, we'll use that data"
  - look at MCR DB Util: https://mcrtech.visualstudio.com/SaaS/_git/ht?path=/test/GuiTests/HTTestCommon/src/HTTestCommon/MCRDBUtil.java

- Can we just use Test Studio for free and integrate with junit?
- Budget: no limit, but do need to make a case for it
- How does it integrate with git, Azure DevOps? Free edition integrates with git, Azure DevOps in Studio preferences, uses https; Enterprise uses ssh (faster)
  - https://docs.katalon.com/docs/create-tests/manage-projects/project-settings/git-integration/work-with-git-in-katalon-studio
  - https://docs.katalon.com/docs/execute/cicd-integrations/azure-devops-integration
- check IAM, Wakefield (no Ordering) (Wakefield done)
- demonstrate Dynamic WaitForPageLoad, WaitForElementToBeVisible, etc. (done)
- Katalon Chrome extension for recording: 🟢 Download Recorder
- Timeframe to build out Automation Framework (e.g., for locator)
- prove API testing - did do a POST to wakefield

Summary of Free (mostly to create basic tests), Enterprise (will be needed to run tests):

- https://docs.katalon.com/docs/administer/katalon-studio-enterprise-and-katalon-runtime-engine-license/katalon-studio-vs-katalon-studio-enterprise-feature

	Free	Enterprise
Inspect (setup locators, xpath)	Yes	Yes
Advanced web locators (attributes, css)	No	Yes
Record and playback	No after 2500 results	Yes
Image-based testing	No	Yes
API import, testing	No	Yes
API: schema validation; GraphQL	Yes	Yes
Web, API: SSL certificate	No	Yes
Mobile: Image based testing	No	Yes
Windows Desktop: native Windows recorder	No	Yes
integration with Oracle, SQL Server, other JDBC	No	Yes
Basic Reports	Yes	Yes
Smart Wait	Yes	Yes

🔺 Onboarding best practice.pdf

Noted Katalon instabilities/weirdnesses:

- importing a sizable postman file might crash Katalon. Then you get into an unusable state. (Have to rename the Katalon (%USERPROFILE%\.katalon\packages\Katalon_Studio_Windows_64-9.0.0) and unzip it from the zip file again (%USERPROFILE%\.katalon\packages\Katalon_Studio_Windows_64-9.0.0.zip).
- timeouts if you leave the Executable running too long (tries to reach license server). Need to restart Katalon.exe.
- Must run in Administrator mode.
- Occasionally you have to update ChromeDriver.

Finalist list:

1. Free tools set ("Three Musketeers")
    a. Selenium
    b. Appium
    c. Postman/Newman
2. Katalon

note that Cypress.io can be worked into some of these as well and we can migrate from Selenium to Katalon

Actions/TODOs for more information:

- Selenium POC in action
- Katalon: Data Bindings
- Katalon: Licensing options/cost

Decided at end of meeting:

- majority favored Katalon
- however, there is no immediate usecase
- therefore, we will table the decision on adopting any new tools until January 2024
- we can proof out Selenium further as well as more on Katalon in that time frame

PROJECT COMPLETED (January 22, 2024):

We figured out we can use Katalon Recorder and Katalon Object Spy, free tools, and these give us much of the functionality and benefit that we would want from Katalon without paying the heft price tag for (Katalon Studio for test generation and workstation-based runs + Katalon Run-time Engine + Katalon TestOps).

We already have our own Azure DevOps integration and save the runs.