EE/CprE/SE 491 WEEKLY REPORT 4

3/1/2021 – 3/15/2021

Group number: 26

Project title: Automated Configuration Testing Framework for KBase

Client &/Advisor: Myra Cohen

Team Members/Role:

Daulton Leach: Scrum master / Developer

Hunter Hall: Development

Sergey Gernega: Development

Caleb Meyer: Development

Jake Veatch: Development

Daniel Way: Development

o **Weekly Summary**

This week we presented our progress to a few potential users of our project. Implementation progress was slowed due to an unexpected error when our Selenium webdriver interacts with the KBase interface. We finished implementing and testing all of the remaining FBA input variables. We also made strides towards CI/CD and creating proper docker images. We got more information from our client on the capabilities of concurrency/parallelism within the KBase system. We began working on concurrency/parallelism after our presentation to our users.

o **Past week accomplishments**

· Daniel Way: Working on multi-card parallelism.
· Jake Veatch: Working towards creating Docker images with the standalone JAR on it.

Working on CI/CD of bundling JAR when versioning on Github. Working on multiple configurations and jobs from a single input file.

· Caleb Meyer: Completed implementation of variables. At this point the implementation for the FBA parameters are implemented and functioning properly.

· Hunter Hall: Implemented the rest of the input variables and fixed errors in the input variables.

· Sergey Gernega: Finished designing and implementing media expressions as the remainder of the variables to feed parameters into selenium runner. Refactoring code

for inputProgramVariables.
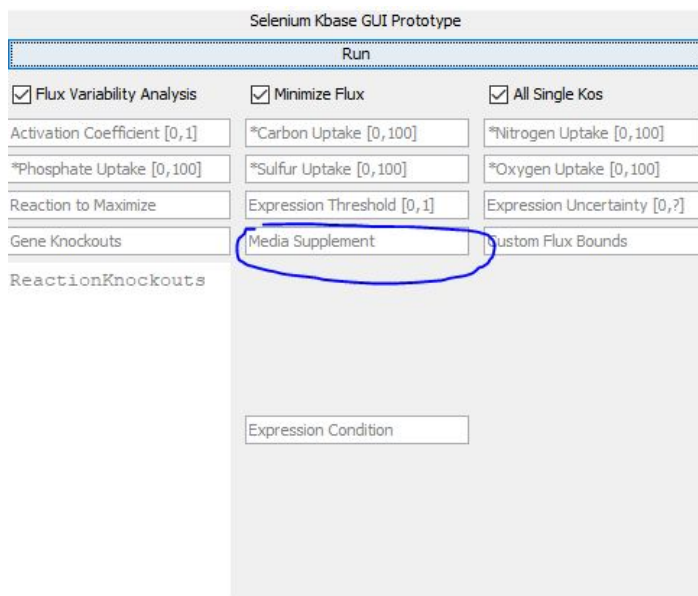
· Daulton Leach: Finished implementation and testing the file input from the GUI end. Finished Minor refactorings of the main GUI class.

- o **Pending issues**

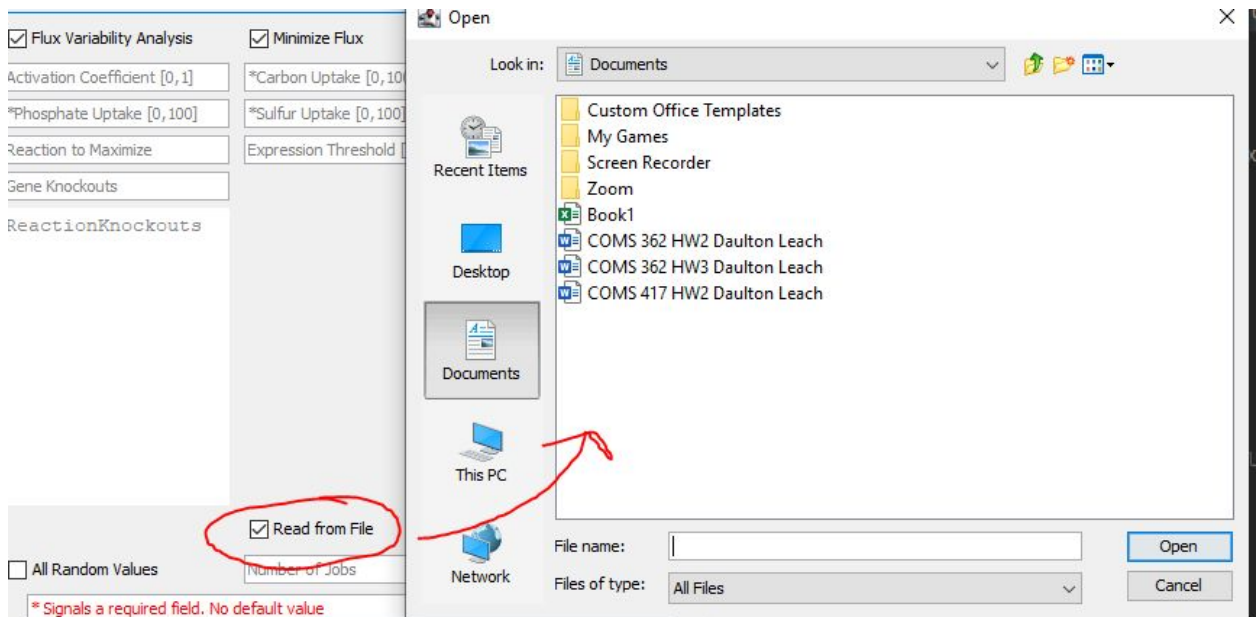 Group Issue: We are running into an issue with the interaction between Selenium and Kbase. We believe the error stems from a slight update to the Kbase GUI. When we go to look for a "advanced options" button it seems that the page isn't loading correctly. We are running into an exception on the KBase platform which is causing KBase to be in an error state and our Selenium driver doesn't know how to deal with KBase in this error state. Eventually Selenium will timeout and crash. This problem has halted most of our development and testing the

finishing touches on the frontend. Most of the group is dealing with this issue and we are working to solve it as soon as possible.


```
FBA    ⚠ Run Flux Balance Analysis                                    — ⌃ ⌄ ⊟
       Use flux balance analysis to predict metabolic fluxes in a metabolic model of an organism grown

   Reset                                    View Configure   Info   Job Status   Error

Type
unknown

Message
An unknown error was detected

Advice

Detail

Info

JSONRPCError: -32500. Error on ObjectSpecification #1: Object name cannot be null or the empty
string
java.lang.IllegalArgumentException: Error on ObjectSpecification #1: Object name cannot be null
or the empty string
    at us.kbase.workspace.kbase.IdentifierUtils.processObjectSpecifications(IdentifierUtil
s.java:194)
    at us.kbase.workspace.WorkspaceServer.getObjectInfoNew(WorkspaceServer.java:1039)
    at sun.reflect.GeneratedMethodAccessor63.invoke(Unknown Source)
    at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:4
3)
    at java.lang.reflect.Method.invoke(Method.java:498)
    at us.kbase.common.service.JsonServerServlet.processRpcCall(JsonServerServlet.java:681)
    at us.kbase.common.service.JsonServerServlet.doPost(JsonServerServlet.java:553)
    at javax.servlet.http.HttpServlet.service(HttpServlet.java:660)
    at javax.servlet.http.HttpServlet.service(HttpServlet.java:741)
    at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterCh
ain.java:231)
    at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.jav
a:166)
    at org.apache.tomcat.websocket.server.WsFilter.doFilter(WsFilter.java:52)
    at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterCh
ain.java:193)
```

o **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Daniel Way	Continuing research/analysis into multi-card parallelism.	15	39
Jake Veatch	Docker Image for JAR, CI/CD for JAR, multi-input configuration files.	13	39
Caleb Meyer	Finished the implementation of all remaining variables.	13	41
Hunter Hall	Worked on the input variables	15	41
Sergey Gernega	Finished implementing media supplement and refactoring code.	14	43

Daulton Leach	Finished implementing/testing file reading capabilities with our GUI and sending the JSON values from the file to the Selenium driver.	15	44

- **Plans for the upcoming week**
  - · Jake Veatch: Finish investigating and reworking for a Docker image for the standalone application. Finish a build process on Github for creating a JAR when versioning the application. Finish being able to load multiple jobs from a single configuration file.
  - ·Caleb Meyer: Investigate kbase errors.
  - · Hunter Hall: Refactor the code for the input variables to achieve a looser coupling.
  - · Sergey Gernega: Investigate Kbase creating Output log error where FBA card isn't being reset correctly which then doesn't allow us to feed in input params.
  - · Daulton Leach: Fix KBase errors/find a solution to allow us to progress. Work on testing the fully implemented GUI. Help team members with concurrency. Take a look at garbage collection after the FBA has been run.
  - · Daniel Way: Hope to create a PoC for detecting multiple FBA cards and allowing separate jobs on each.

- **Summary of weekly advisor meeting**

  - Good feedback from last meeting with national lab
  - Cons of working with live gui. Can change. Have to update it. This is a risk with the project.
  - Talked about the issue we have run into with kbase interface updating and some root causes.