The purpose of this lab is to introduce the participant to advanced Policy Check features related to creating your own rules using regex or python.

Open the workshop VM by going to the URL on your browser that you were assigned at the beginning of the workshop by one of the presenters. For example, http://wshoptest.liquibaselabs.org

Username - workshopuser
Password - Liquibase1

You should see a Windows desktop that looks like this after logging in:

Applications needed for lab:
Visual Studio code
Command prompt session
Chrome browser

References :
→ Policy Checks Command Documentation Page
https://docs.liquibase.com/commands/policy-checks/subcommands/home.html

→ List of Policy Checks
https://docs.liquibase.com/commands/quality-checks/checks/home.html

→ github repo of Example Custom Policy Checks
https://github.com/liquibase/custom_qualitychecks/tree/main

1. Open Chrome browser and open a new tab. Click on the 'regex101.com…' shortcut below the url entry box and expand it to full window.

2. Review the last changeset in our Release-1.1.0.sql file (see below) copy that text and paste copied text into "TEST STRING" area on regex101.com page:

```
--changeset jenn:20240402-delete-a-row-student1 labels:jira-220,r1 context:dev
--comment: remove Viktor from student table
DELETE FROM T_student
--rollback INSERT INTO T_student (student_fname, student_lname, state, testdml_rep,notes)
--rollback VALUES ('Viktor', 'Hargreeves', 'NY', 'Random comment for notes');
```

3. In the far left column in regex101 - make sure Java 8 is chosen as the FLAVOR (it will look bold)

4. Open the regex-text.txt file in the Workshop folder on your Desktop where the Lab instructions are by double-clicking the icon called that on your Desktop and copy the single line of text `(?is)(?=.*\b(delete)\b)(?!.*\b(where)\b).*` into the "REGULAR EXPRESSION" area in regex101.com above the TEST STRING AREA

5. In the far right column upper corner section on regex101 you should see "EXPLANATION" area with a "MATCH INFORMATION" area. This is showing that the regex string we provided has found a match in the test changeset we copied in as well. Meaning this regex string would identify a scenario within a changeset where there is a "DELETE" statement that does not have a defined WHERE clause. Now we can create a custom policy check using this information. You can use the example provided here or create your own variation if you so choose.You can use the example provided here or create your own variation if you so choose.

6. Refer to `liquibase checks show` output

7. Go to an open command session and make sure that you are in the vigilant-umbrella directory or open one by executing the shortcut on the desktop 'workshop.bat'.

8. Create a new policy check by running this command in the CMD session window.

   ```
   liquibase checks copy  --check-name=SqlUserDefinedPatternCheck
   ```

   Shortname —> `NoDeleteWithoutWhere`
   Severity —> `1`
   SEARCH_STRING —> `(?is)(?=.*\b(delete)\b)(?!.*\b(where)\b).*`
   MESSAGE —> `Error! All DELETE statements must have a WHERE clause.`
   STRIP_COMMENTS → [true] default (Just hit enter to accept default)
   REGEX PATH FILTER → (Just hit enter)
   SPLIT STATEMENTS → (Just hit enter)

9. Execute `liquibase checks run` in your CMD session and find the output that refers to the new policy check just created. You should see this in your output:

```
Check Name:          Check for specific patterns in sql
(NoDeleteWithoutWhere)
Changeset ID:        20240402-delete-a-row-student1
Changeset Filepath: Release-1.1.0.sql
Check Severity:      MINOR (Return code: 1)
Message:             Error! All DELETE statements must have a WHERE clause.
```

10. You will also see this the in the latest "Checks-run-report-<DD-MON-YYYY-HHMMSS>.html report

11. To resolve this check being triggered you can edit Release-1.1.0.sql changelog with this chageset and add a WHERE clause to the DELETE statement. For example:
    `DELETE FROM T_student WHERE student_fname = 'Viktor';` (If you are using Visual Studio Code this would be on line 19)

    Save your changes.

12. Re-run `liquibase checks run`. Confirm the QC message for the NoDeleteWithoutWhere has been resolved. Review the latest the latest "Checks-run-report-<DD-MON-YYYY-HHMMSS>.html report

13. Feel free to create some other policy checks to exercise this process in any extra time you have you are welcome to.

END OF LAB