SkillDetective Instructions (chatbot components)

Pre-requirements: You will need to make sure that you have Firefox web browser installed. You can download it here: https://www.mozilla.org/en-US/firefox/new/. If you choose not to use Firefox, the source code can be updated to use other web browsers by editing the Selenium code in "S5.java".

Step 1: Inventory.

Figure 1: Upon downloading SkillDetective (SD) from GitHub, you should have on your computer the following folders:

Figure 1

Figure 2: The "Data" folder should contain another "Data" folder, "Media" folder, "output.xlsx" file, and "Skills.xlsx" file. The second "Data" folder contains all necessary data to train, trim, and optimize the system. The Media folder is used to collect media files such as images and sound files. The output.xlsx file is used to collect the outputs received during SD interactions with virtual private assistants (VPA). Lastly, the "Skills.xlsx" contains a list of Amazon skill names to explore.

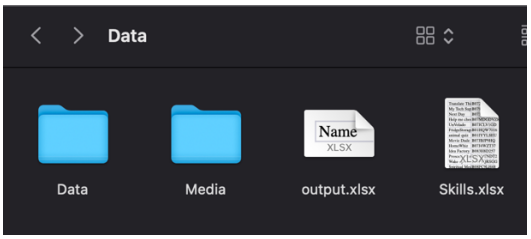


Figure 2

Figure 3: The Dependencies folder should contain all needed dependencies for SD to run effectively except stanford-corenlp-4.1.0-models.jar which can be downloaded here: https://stanfordnlp.github.io/CoreNLP/download.html.

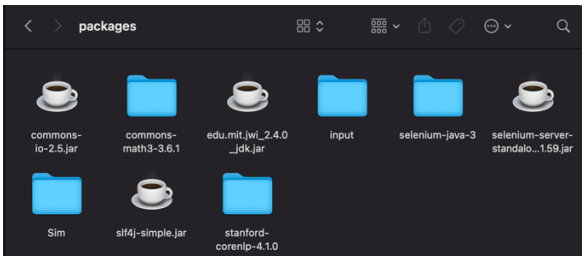


Figure 3

Figure 4: The Source folder should contain the following Java files.

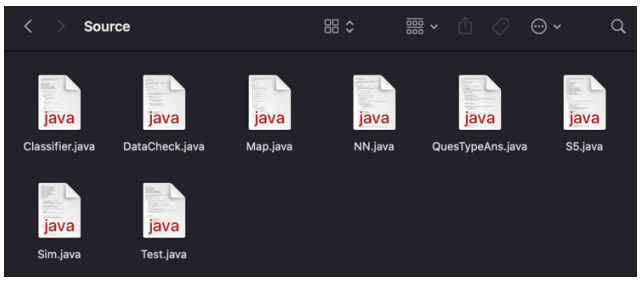


Figure 4

Step 2: IDE Setup

I suggest the use of an IDE to run the Java programs that make up SkillDetective. I personally use NetBeans and will illustrate the usage of SD on that platform.

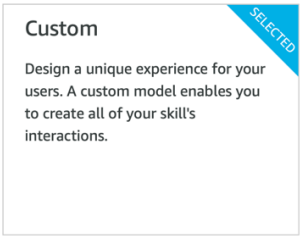
Setup NetBeans by following this URL: https://netbeans.apache.org
The rest of this document assumes that you have a working version of NetBeans installed. For the following examples, I am using NetBeans 12.4, but SD should be able to run on most versions and IDEs.

***Step 3*:** Amazon Developer Console

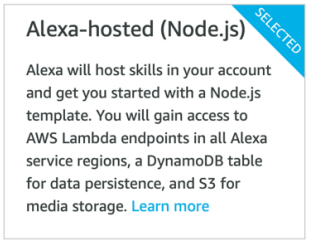
For Step 3, you will need access to your Amazon Developer's Account.
Here is link to the system: https://developer.amazon.com/ and the steps you should take:
Once you sign up, you will need to create a skill.

1. Name your skill.

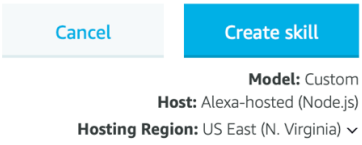
2. For model, choose custom.



3. For hosting, choose Alexa-hosted (Node.js)

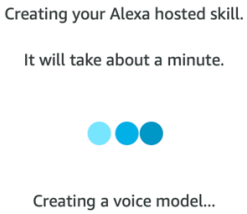


4. Click the "Create Skill" button located in the upper right corner.

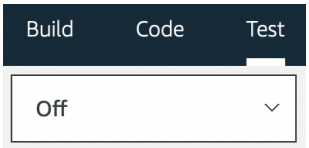


5. On the next webpage, click “Continue with Template” button.

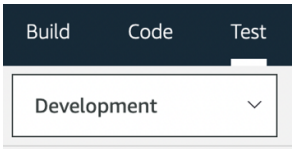
6. Your new skill should now be created.



7. Upon creation of the skill, go to the “Test” tab on the skill menu.



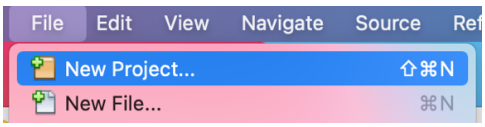
8. Make sure to enable “Development”.



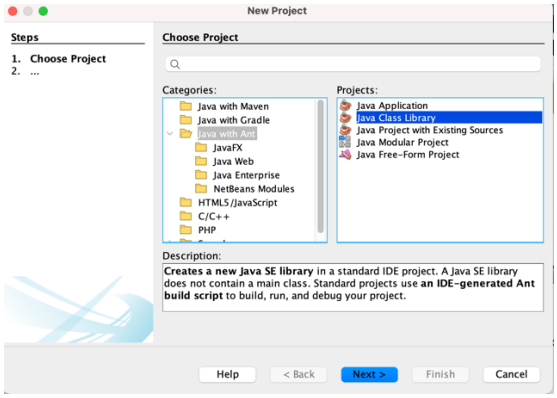
9. For the last step, you will need to copy the URL from this page to be used in the Java code. This is the testing environment that SD will use to test skills.

***Step 4*:** Installing the software and dependencies on the IDE (This is not the only way to install this software, so feel free to improvise).

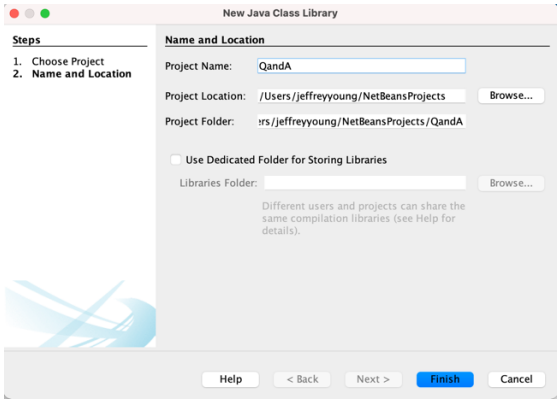
1. Create a new project in the IDE.



2. You can select “Java with Ant”, “java Class Library” and click “Next”.



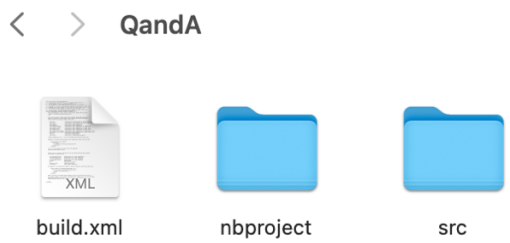
3. Name the project. For this example, I have named my project “QandA”. Lastly, select “Finish”.



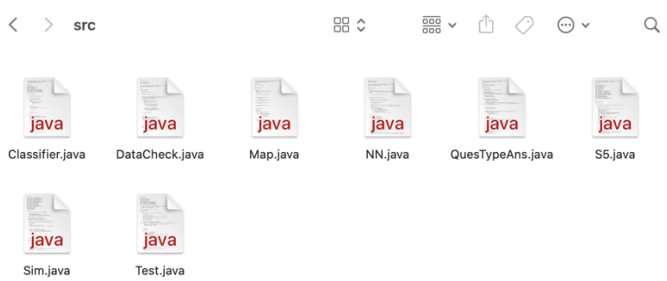
4. Locate the project folder for “QandA”. This is usually found within the NetBeans Projects folder.

QandA

5. Open the “QandA” folder. It should appear like this:

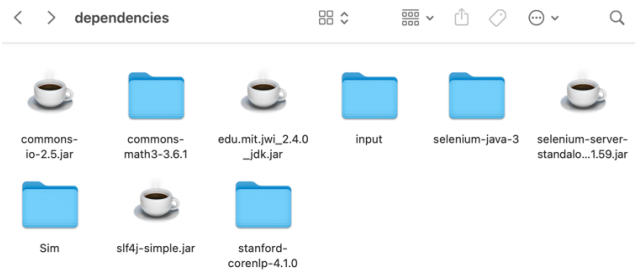


6. Open the “src” folder and place all of the files located in “Source” into this folder.

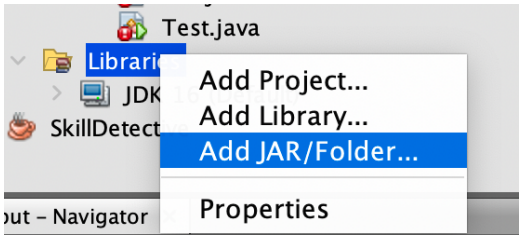


7. You should now see the contents visible within the IDE.

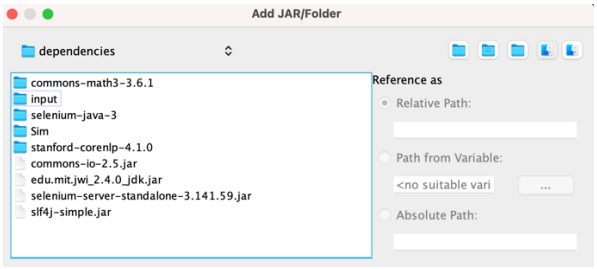
8. We now need to import all the .jar files located in the “dependencies” folder.



9. In NetBeans, select the “Libraries” tab and right click to access the drop-down menu. Select the “Add Jar/Folder’ tab from the drop-down menu.

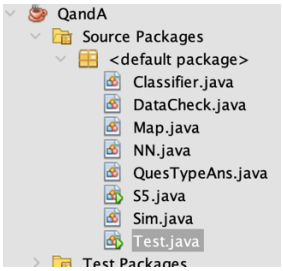


10. Locate the “dependencies” folder and select and add all the .jar files from every sub-folder.



11. When you have added all the .jar files, the “Libraries” folder should look like this:

12. At this point the project should have no errors and be ready to use (with a few more modifications).



Step 5 SkillDetective V0.1: Pointing the software to the correct datasets. For this example, I will only cover one such case but there are several links that must be updated in order to allow the software to import and export the correct datasets. I will include a list of all the necessary changes.

1. For this example, I will use the file “Classifier.java”. Within the “input” function, you will find the following code:

```
public static void input(ArrayList<ArrayList<String>> data) throws IOException {

    ArrayList<ArrayList<XSSFCell>> cells = new ArrayList<>();

    //This pathway must be set!!!!
    File myFile = new File("//Path to folder/Data/Data/QClassified.xlsx");

    FileInputStream fis = null;
```

2. You will need to copy the absolute path to the folder “Data”. It should look something like this: “//Users/JohnSmith/Desktop/SkillDetective/”.

3. With the pathway copied, you will need to paste it in to the “Path to folder” part of the links located in the source code as follows:

```
public static void input(ArrayList<ArrayList<String>> data) throws IOException {

    ArrayList<ArrayList<XSSFCell>> cells = new ArrayList<>();

    //This pathway must be set!!!!
    File myFile = new File("//Users/JohnSmith/Desktop/SkillDetective/Data/Data/QClassified.xlsx");

    FileInputStream fis = null;
```

4. The following .java files will need to be updated in this way: “Classifier.java”, “S5.java”, and “Test.java”. Within “S5.java”, you will need to update the “outputMedia”, “input”, and “outputToFile” functions.

Step 5 SkillDetective V0.2: If you are using this version of SkillDetective, you will have to update the config.txt file which can be found in the Source folder. Replace the term username with your Amazon email. Replace the term Password with your Amazon password. Finally, replace the term URL with URL of your Amazon testing console.

Step 6: Final setup. You will need to fill in your Amazon login information into "S5.java". The "Amazon URL" statement should be replaced with the URL copied in Step 3. The "Amazon Email" statement should by replaced with your Amazon email address used for login and the "Amazon Password" statement should be replaced with your Amazon password.

```
//log in-------------------------------------------------------------
WebDriver driver = new FirefoxDriver();
//URL to testing console
String baseUrl = "Amazon URL";
driver.get(baseUrl);
//Testing console sign in credentials
driver.findElement(By.id("ap_email")).sendKeys("Amazon Email");
driver.findElement(By.id("ap_password")).sendKeys("Amazon Password");
driver.findElement(By.id("signInSubmit")).click();
```

At this point, the system should work by running "S5.java".

This Error Will Occur

The error java.net.SocketTimeoutException will occur for certain skills. It seems to be an issue with Amazon's testing console, and we have not found a work around thus far. We will continue to work on the issues but in the meantime, you must skip the skill that encounters this error.

Usage

After running SD, you will find the collected data in several folders. The textual skill interactions can be found in the "output.xlsx" file located in the "Data" folder. Collected media files like images and sound files can be found in the "Media folder" (please note that this folder is only updated after SD completes all of the interactions within a given map).

Troubleshooting

You may run into an error: "Cannot find firefox binary in PATH". To solve this issue, you will need to download the Gecko Driver from https://github.com/mozilla/geckodriver/releases and select the version that best fits your operating system. Next, you will need to add "System.setProperty("webdriver.gecko.driver", "/path/to/geckodriver");" into the "S5.java" file's Main method replacing the statement "/path/to/geckodriver" with the pathway to the driver. We have also included a version of Gecko Driver in the Dependencies folder.

If you happen to encounter a “java.io.FileNotFoundException”, you have not added the pathway to the “SkillDetective” folder for all necessary instances. Please look back through Step 5 in order to ensure that the needed data is made available to the system.

Contact:

If you have any issues while installing or using this software, please contact me at: skilldetectivetroubleshoot@gmail.com