Fairly.ai / Kubeflow 1.3 Tutorial

This tutorial requires the installation of Fairly.ai along with Kubeflow's Jupyter Notebook and Snapshot Store functionality.   These instructions walk you through setting up those two systems.   This joint product solution enables you to run a model in a Jupyter Notebook, snapshot your model, and then use Fairly.ai to produce a sample compliance report that includes some of the required artifacts for Federal Reserve's SR11-7 guidelines.

To make the tutorial easy to set-up, we recommend using MiniKubeflow (MiniKF), which is a single node Kubeflow cluster.   You can set-up a MiniKF cluster in about 15 minutes from the AWS or GCP Marketplaces using the following instructions: https://www.arrikto.com/get-started/

Once you have configured your MiniKF cluster and started its installation process, you will have a few minutes before your Kubeflow cluster will be ready. While the cluster is installing, you can proceed to setting up the Fairly portion of the tutorial.
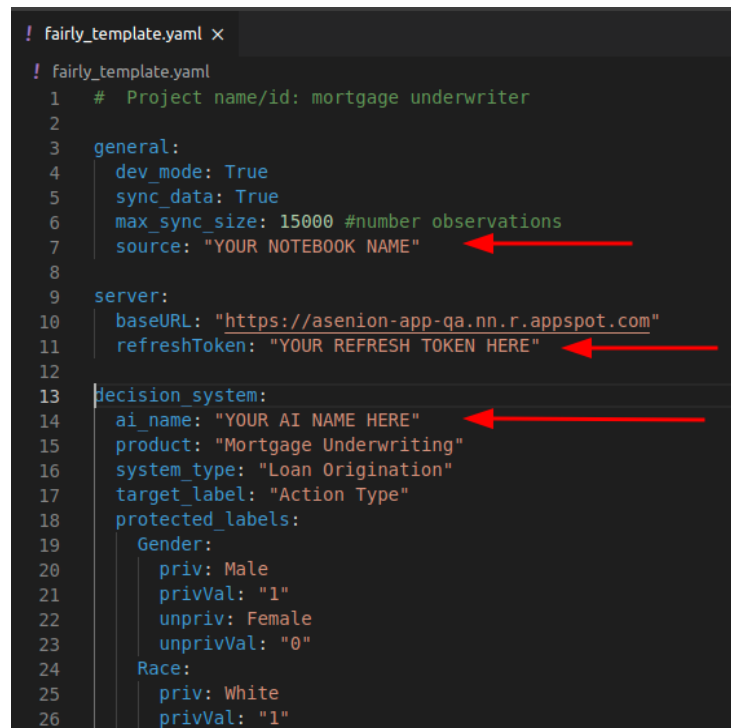
Fairly Account Setup

1. Navigate to https://fairly.app/SignUp
2. Enter your email, create a password and sign up. You should receive a validation email to the address you entered.
3. Verify your email address and return to https://fairly.app/SignIn
4. From the homepage, click on the 'Report Builder' link on the left hand side.
5. Click on 'Begin New Report'.
6. Click on the 'sync code' button and copy your refresh token to the clipboard to be used in step 2 of yaml configuration.

Yaml Configuration:

Inside 'fairly-tutorial' there is a file called fairly.yaml, this is your configuration file, and will enable you to connect with the fairly server.

For the purposes of this tutorial, we have pre-configured some information inside the yaml, but you will need to input some details in order to get started.

1. Inside your code editor of choice, open the 'fairly.yaml' file.
2. Paste your refresh token into the space marked 'Your Refresh Token Here'.
3. Enter a name for your AI in the space marked "YOUR AI NAME HERE".
4. Enter a name for your source notebook in the space marked "YOUR NOTEBOOK HERE".

```yaml
!  fairly_template.yaml  ×

!  fairly_template.yaml
  1    #  Project name/id: mortgage underwriter
  2
  3    general:
  4      dev_mode: True
  5      sync_data: True
  6      max_sync_size: 15000 #number observations
  7      source: "YOUR NOTEBOOK NAME"          ⟵
  8
  9    server:
 10      baseURL: "https://asenion-app-qa.nn.r.appspot.com"
 11      refreshToken: "YOUR REFRESH TOKEN HERE"   ⟵
 12
 13    decision_system:
 14      ai_name: "YOUR AI NAME HERE"          ⟵
 15      product: "Mortgage Underwriting"
 16      system_type: "Loan Origination"
 17      target_label: "Action Type"
 18      protected_labels:
 19        Gender:
 20          priv: Male
 21          privVal: "1"
 22          unpriv: Female
 23          unprivVal: "0"
 24        Race:
 25          priv: White
 26          privVal: "1"
```

Installing Packages

The objective of this section is to create a virtual environment and install the required packages in 'requirements.txt' file. This process can be slightly different depending on your python installation and IDE, the following instructions show the process for VSCode.

1. Now open the notebook file: fairly_tutorial_notebook.ipynb
2. Create a new terminal window in the 'fairly-tutorial' folder
3. Enter and execute to create a new Python virtual environment
   python -m venv asenion-client

4. Your editor may prompt you to install certain dependencies (like 'ipykernel') once again, and agree to continue.

5. Enter and execute this command to start the Python virtual environment:

     If using MacOS/Linux: **source asenion-client/bin/activate**
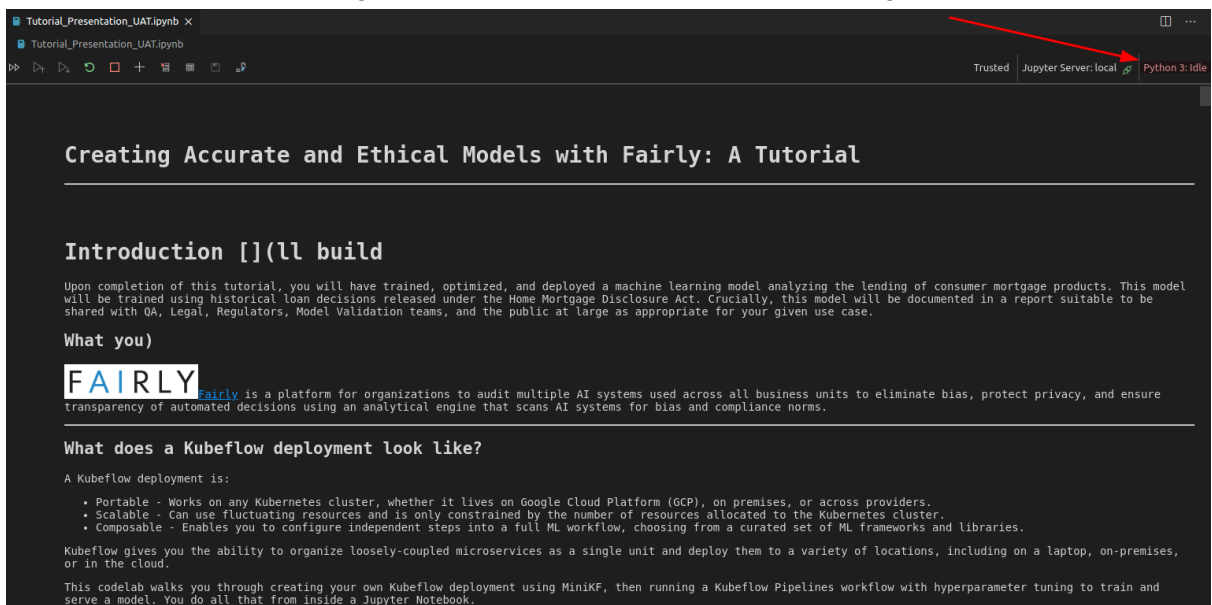   If using Windows: **asenion-client/scripts/activate**

6. Your terminal should now look something like this:
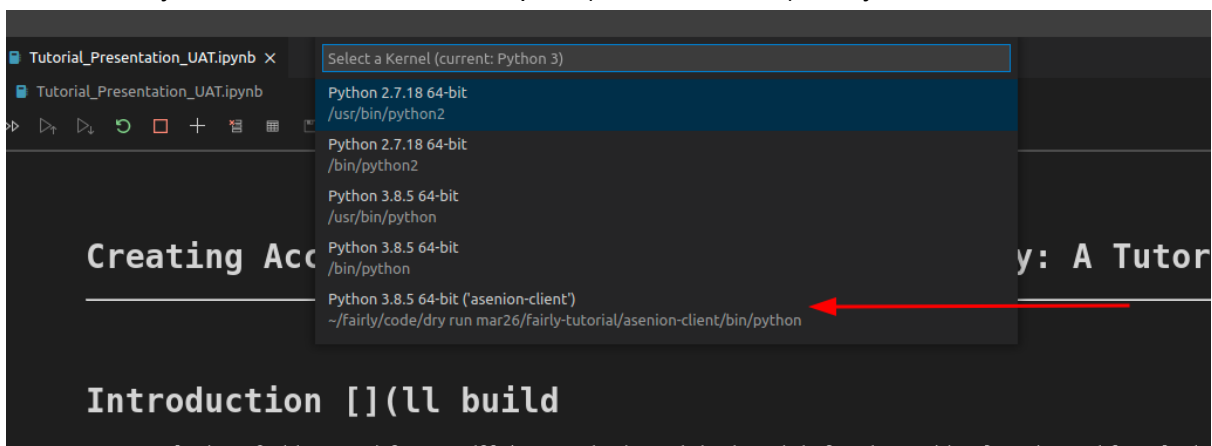

7. Enter and execute the following command to install all required dependencies:
     pip install -r requirements.txt

8. Open the menu for selecting a Kernel (in VSCode this is in the top right hand corner).

9. Select the Python Virtual Environment option('asenion-client') that you created.

Now the notebook is ready to run! Follow the instructions and run the cells inside the tutorial to walk through a full data science pipeline.

Building a Report

1. Once you have run all the cells in the notebook navigate back to the Fairly Web Application. Open the report builder and select the AI you have uploaded.
2. Select the scope of your report (Only "Lite" version is available for the tutorial)
3. Fill out the report with as much or as little detail as you would like
4. After filling out the final form 'Model Risk Governance' and clicking submit, you will see the 'Model Development Report Lite' in the navigation bar. Click this to see your final report.

If you have any questions or require any assistance, please contact us at help@fairly.ai.

If you are interested in the full SR11-7 model validation or model development report, please contact us at info@fairly.ai.