Dec 7th, 2021

Code Implementation

Structure of this zip file:

This zip file has the following files:

Name	Type	Size	Description
testdemo	folder	4.2 MB	The small dataset that was used during the live demo.
inceptionv3	ipynb	16KB	My model that is supposed to run on Kaggle. Please follow the instructions below.
inceptionv3	py	11 KB	My model. Please follow the instruction below to run the code.
README	Pdf		Description to implement the code.
Other resource (not in the zip)			
Model2	Folder (zip)	484 MB	Already trained model. Here is the link to download it. This is only needed if using inceptionv3.py.

Required components:

I set up two ways to implement the inception v3 model program. Two separate instructions are explained below.

1. Case of using **IPYNB** file type: (*recommended*)
   - inceptionv3.ipynb
   - Kaggle platform for running the program;
   - testdemo folder (if you want to run predict using the small dataset).

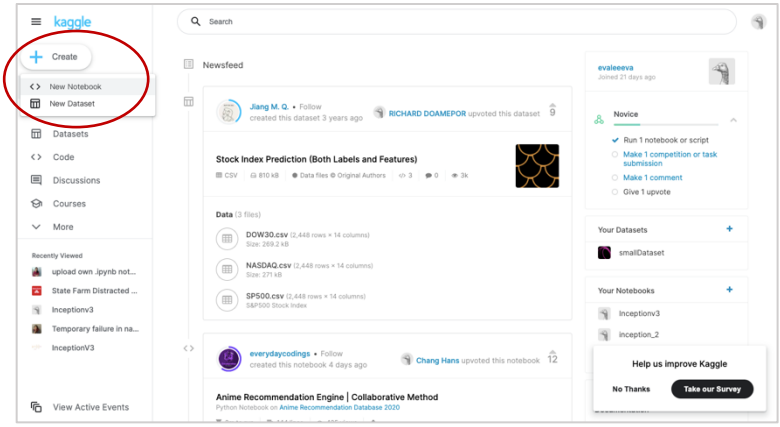
2. Case of using **PY** file type:
   - inceptionv3.py
   - Python version 3.8
   - Installation – tensorflow (instruction), matplotlib (instruction), cv2 (instruction), shutil (instruction), glob (instruction), keras (instruction), sklearn (instruction),
   - "State Farm Distracted Driver Detection" Database from Kaggle
   - terminal
   - testdemo folder (if you want to run predict using the small dataset).

- model2 folder – it takes a long time to train without GPU on personal computer, so I saved my previously-implemented model for convenience.

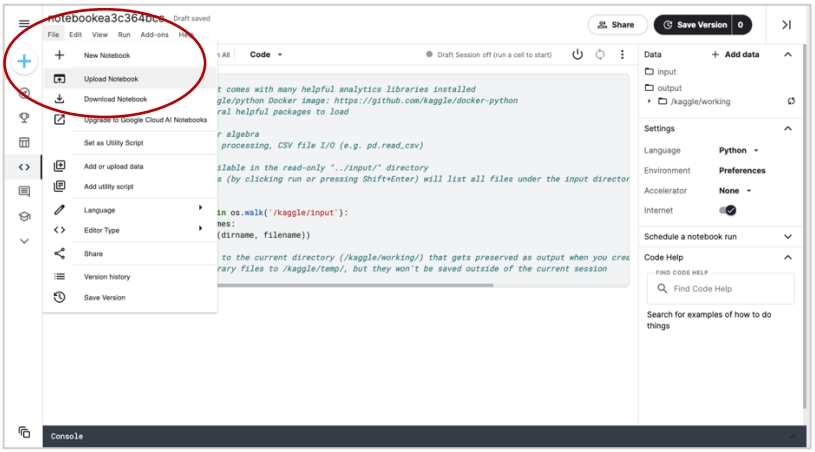
How to run the code: Case of using **IPYNB** file type (*recommended*)

Environment Setup

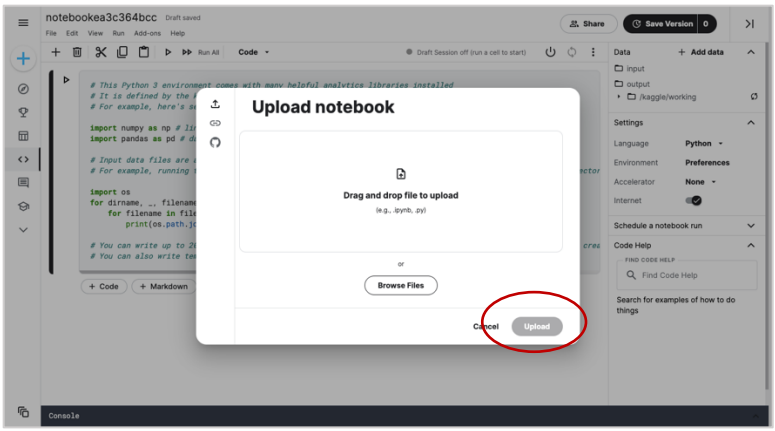
1. Prepare all required files including inceptionv3.ipynb and testdemo folder.
2. Go to Kaggle (https://www.kaggle.com/).
3. Click on **+ Create** then click on **<> New Notebook.** This will take you to another new notebook on Kaggle.



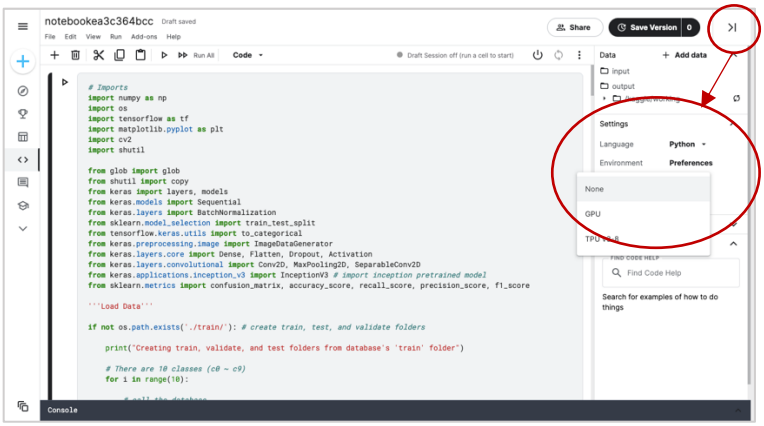
4. In the new Kaggle notebook, click on **File** on the top left and click on **Upload Notebook**. A pop-up window will show up and ask you to upload your file.



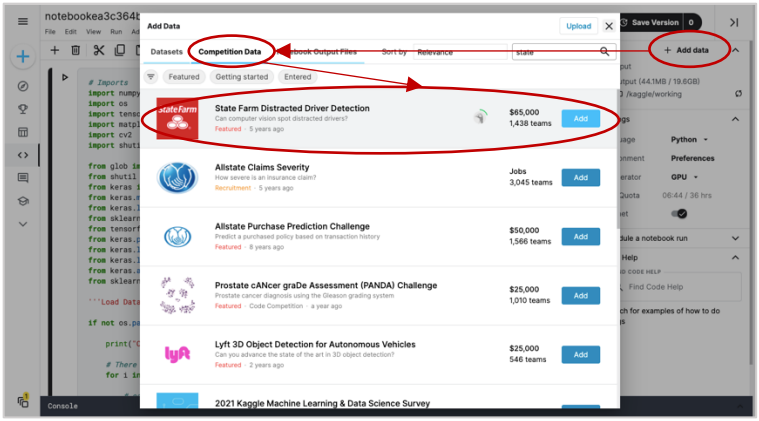
5. In the pop-up window like below, **upload file "inceptionv3.ipynb"** and click on upload. The code in the file should show up.



6. After the file is loaded into Kaggle, go to the side bar on the right. If it does not show up, click on the >| icon on the top right. Click on setting option. Next, click on **Accelerator** and click on **GPU**. Then, turn on the **Internet**.

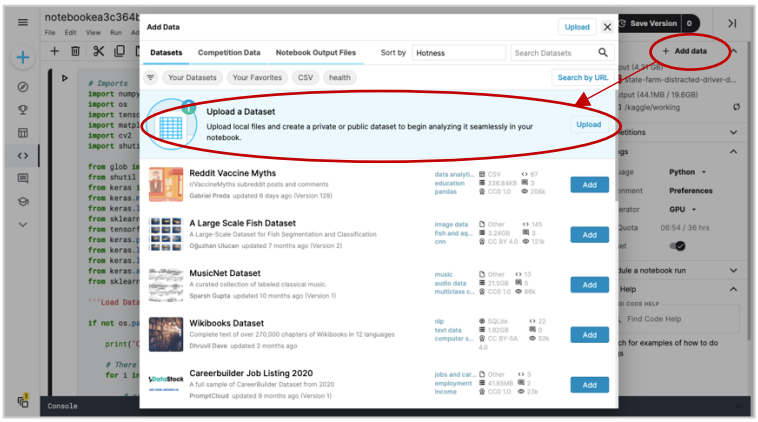


7. To add the "State Farm Distracted Driver Detection dataset," click on **+ Add data** on top of the side bar. A pop-up window should up. Then, click on **Competition Data** and do a quick search on the dataset. Then, add the database to this notebook by pressing **add** button to the right of the database. After you have done so, the input section on the side bar on the right will show the name of the database.

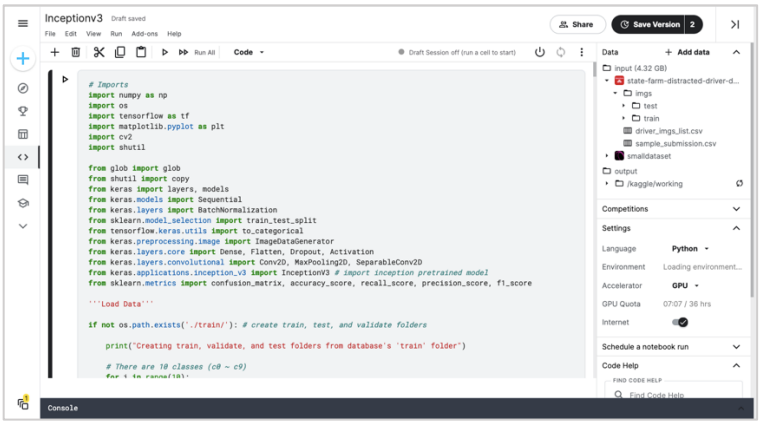


8. To add "testdemo" folder to database, click on **+ Add data** on the top of the side bar again.

Then, click on **Upload a Database** in the pop-up window. The browse function might not be functioning so just drag the folder into the pop-up window. **Name the dataset smalldataset** and change the skip duplicates to **include duplicates.**

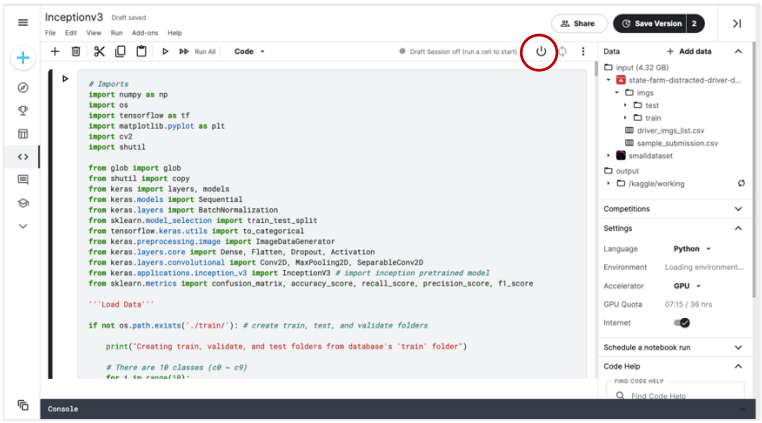


9. The environment is ready! Your window should look like the image below.



<u>Implement the Code</u>

10. Click on the starting icon at the top right corner. The gray circle will turn to green if the session starts.



11. Click on the blocks of code one by one in order. The last two blocks are <u>supporting code</u> for

(1) deleting three created folders and (2) testing the path.

How to run the code: Case of using **PY** file type

Environment Setup

1. Prepare all required files including inceptionv3.py and testdemo folder. Also, download model2 folder (484 MB) from oneDrive if you want to run the previously-trained model.
2. Download the database from Kaggle. Click on Data on the top bar and download 4.31 GB of data.
3. Change the path for the downloaded database in the inceptionv3.py line 41. Make sure model2 and inceptionv3.py are on the same path.
4. Open terminal and make sure all imports are installed using the instruction from the "required components" section.
5. In inceptionv3.py, change the directory path where you store your database and its name.
6. In terminal, use "cd" command line to go to the directory where inceptionv3.py is located at. Then, run the program using line "python3.8 inceptionv3.py"