



## E-SAN THAILAND CODING & AI ACADEMY

โครงการวิจัยโมเดลระบบบิเวศการเรียนรู้กับภูมิภาคการ CODING & AI สำหรับเยาวชน

Model of Learning Ecosystem Platform integrate with Coding & AI for Youth



โครงการย่อยที่ 5

การพัฒนาเยาวชนเพื่อเข้าสู่อาชีพพัฒนาสูงสุด Coding & AI

ร่วมกับ Coding Entrepreneur & Partnership: Data Science & AI

Course: Data Science Model 101

ออกแบบคอร์สโดย  
ศ.ดร. วรารัตน์ สงข์แป้น  
ผศ.ดร. ณัฐวัชร์ สนธิชัย  
ผศ.ดร. วุฒิชัย ศรีไสดาพา



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# Outline



การพัฒนาเยาวชนเพื่อเข้าสู่วิชาชีพขั้นสูงด้าน Coding & AI ร่วมกับ Coding Entrepreneur & Partnership: Data Science & AI

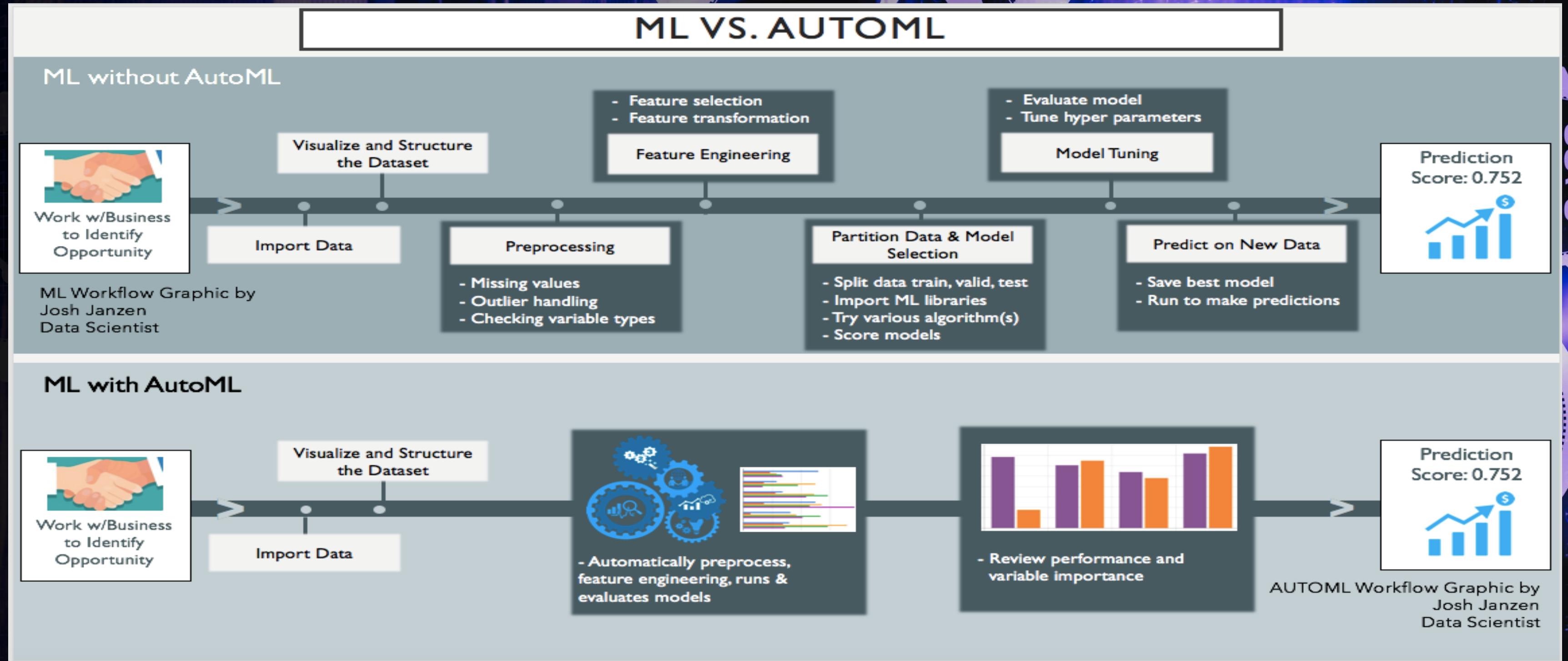
- 01** Introduction to Data Science and What is a Data Scientist?
- 02** Data Science Methodology
- 03** Installation Environment needs for Data Science
- 04** Data Science libraries & tools box
- 05** Type of Machine Learning and use case
- 06** Deployment of Data Science Project

## อี-เทคโนโลยี THAILAND CODING & AI ACADEMY

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### Installation Environment needs for Data Science

Source: <https://joshjanzen.com/ml-vs-automl/>





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## Installation Environment needs for Data Science



- ติดตั้งบนเครื่อง ลง resource หรือ library เชื่อมต่อเฉพาะ version ได้



ANACONDA®



- ไม่ต้องติดตั้งเครื่อง เพียงแต่มี Gmail รัน ML เน้นการทำงานบนคลาวน์ มี Library พื้นฐานให้ทดสอบ
- Free TPU & GPU (RAM of 12 GB - 25 GB) และ disk space 358.27 GB.



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## Installation Environment needs for Data Science

Start Google Colab : Link>> <https://colab.research.google.com/>

### 1. Get data

- Upload File (served on clouds)
- Google Drive
- GitHub



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## Installation Environment needs for Data Science

Start Google Colab : Link>> <https://colab.research.google.com/>

The screenshot shows the 'Welcome to Colaboratory' page of Google Colab. The interface includes a sidebar with a 'Table of contents' section containing links to 'Getting started', 'Data science', 'Machine learning', 'More resources', and 'Machine learning examples'. The main content area features a heading 'What is Colaboratory?' followed by a description of what Colab is and its benefits. It also includes sections for 'Getting started' and 'Introduction to Colab'.



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## Installation Environment needs for Data Science

### วิธีที่ 1 Upload File

The screenshot shows the 'File' menu of Google Colab with the 'Upload notebook' option highlighted by a red box. A red arrow points from this box to the 'Upload' icon in the main toolbar.

The screenshot shows the 'Table of contents' sidebar of Google Colab with the 'Upload' icon highlighted by a red box. A red arrow points from this box to the 'Upload' icon in the main toolbar.



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## Installation Environment needs for Data Science

Environment Needs\_connect get data.ipynb

File Edit View Insert Runtime Tools Help All changes saved

Comment

Files

+ Code + Text

Get Data via upload data

```
[2]: 1 import pandas as pd
      2
      3 df = pd.read_csv('/content/bank-data.csv')
      4
      5 df.head(5)
```

	id	age	sex	region	income	married	children	car	save_act	current_act	mortgage	credit
0	ID12101	48	FEMALE	INNER_CITY	17546.0	NO	1	NO	NO	NO	NO	YES
1	ID12102	40	MALE	TOWN	30085.1	YES	3	YES	NO	YES	YES	NO
2	ID12103	51	FEMALE	INNER_CITY	16575.4	YES	0	YES	YES	YES	NO	NO
3	ID12104	23	FEMALE	TOWN	20375.4	YES	3	NO	NO	YES	NO	NO
4	ID12105	57	FEMALE	RURAL	50576.3	YES	0	NO	YES	NO	NO	NO

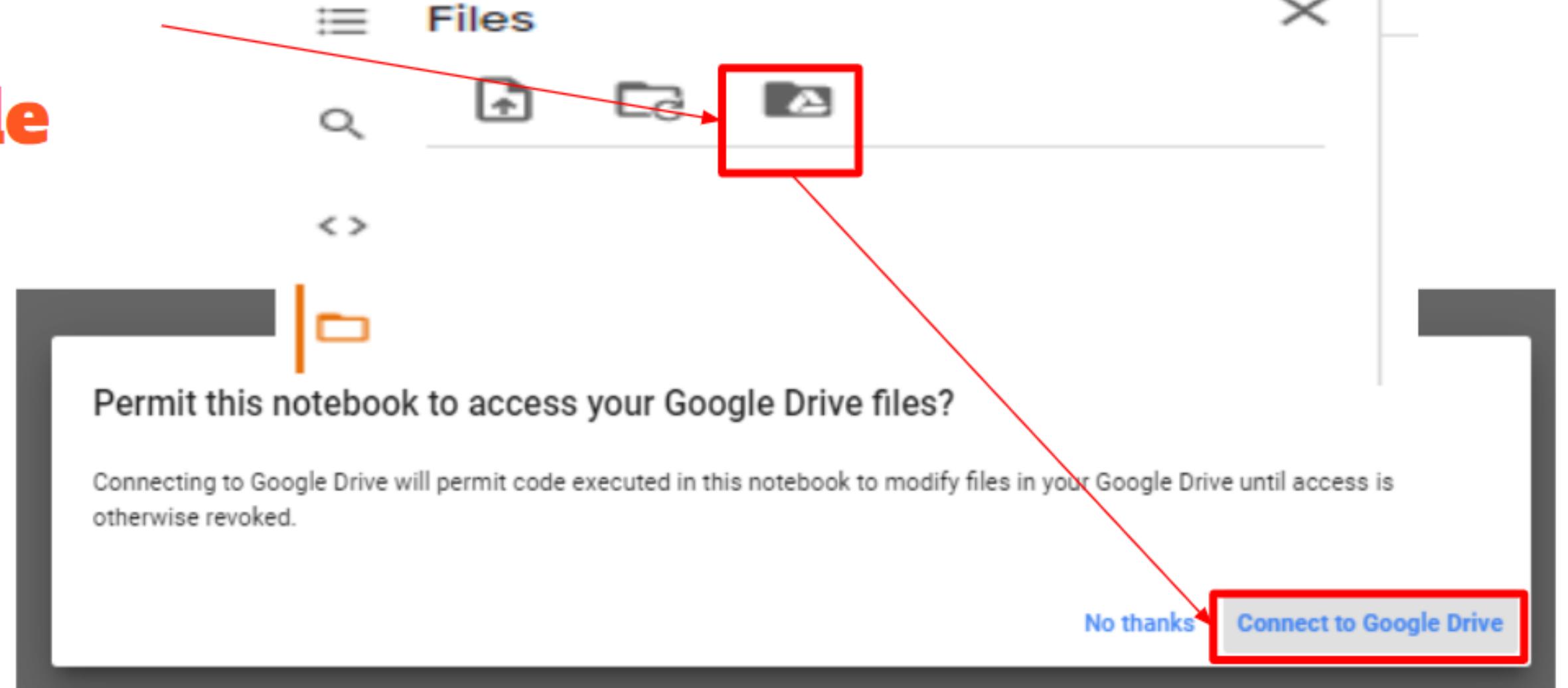


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## Installation Environment needs for Data Science

วิธีที่ 2  
**Google Drive**



The screenshot shows a Jupyter Notebook interface. At the top, there is a toolbar with icons for file operations and a search bar. Below it, the 'Files' tab is selected. A red box highlights the 'File' icon in the toolbar. In the center, a modal dialog box asks: 'Permit this notebook to access your Google Drive files?'. It explains that connecting to Google Drive will allow code in the notebook to modify files in Google Drive. At the bottom of the dialog, there are two buttons: 'No thanks' and 'Connect to Google Drive', with 'Connect to Google Drive' being highlighted by a red box.



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## Installation Environment needs for Data Science

### วิธีที่ 2 Google Drive

```
[ ]  
from google.colab import drive  
drive.mount('/content/drive')
```

```
[ ]  
from google.colab import drive  
drive.mount('/content/drive')  
... Go to this URL in a browser : https://accounts.google.com/o/oauth2/auth?client\_id=947318989803  
Enter your authorization code:  

```

**Click link**



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## Installation Environment needs for Data Science

### วิธีที่ 2 Google Drive

The screenshot shows a Google Colab notebook interface. At the top, it says "Google Sign in" with a message: "Please copy this code, switch to your application and paste it there:". Below this is a code cell containing:

```
from google.colab import drive
drive.mount('/content/drive')
```

Underneath the code cell, it says "... Go to this URL in a browser: [https://accounts.google.com/o/oauth2/auth?client\\_id=947318989803](https://accounts.google.com/o/oauth2/auth?client_id=947318989803)". Below that is a text input field with the placeholder "Enter your authorization code:".

Two red annotations are present: a red box highlights the URL in the "... Go to this URL..." text, and another red box highlights the text input field for the authorization code. Red arrows point from the word "Copy" to the URL and from the word "Paste here" to the authorization code input field.



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## Installation Environment needs for Data Science

The screenshot shows a Jupyter Notebook interface. On the left, a file browser window displays a directory structure under 'Disk'. A red box highlights the 'Copy path' option in the context menu of a folder named 'EsanCoding&AI-DS101'. On the right, a code cell contains Python code for reading a CSV file from Google Drive. A red box highlights the file path in the code. Below the code cell, the resulting DataFrame is displayed.

Files

- EsanCoding&AI-DS101
  - Download
  - Rename file
  - Delete file
  - Copy path**
  - Refresh
- drive
  - ..
  - MyDrive
  - Shareddrives
  - sample\_data
- bank-data.csv

+ Code + Text

4 ID12105 57 FEMALE RURAL 50576.3 YES 0 NO YES NO NO NO

▼ Get Data via Drive

```
1 import pandas as pd
2
3 df = pd.read_csv('/content/drive/MyDrive/EsanCoding&AI-DS101/bank-data.csv')
4
5 print(df.head(5))
```

	id	age	sex	region	income	married	children	car	save_act	current_act	mortgage	credit
0	ID12101	48	FEMALE	INNER_CITY	17546.0	NO	1	NO	NO	NO	NO	YES
1	ID12102	40	MALE	TOWN	30085.1	YES	3	YES	NO	YES	NO	NO
2	ID12103	51	FEMALE	INNER_CITY	16575.4	YES	0	YES	YES	NO	NO	NO
3	ID12104	23	FEMALE	TOWN	20375.4	YES	3	NO	NO	NO	NO	NO
4	ID12105	57	FEMALE	RURAL	50576.3	YES	0	NO	YES	NO	NO	NO

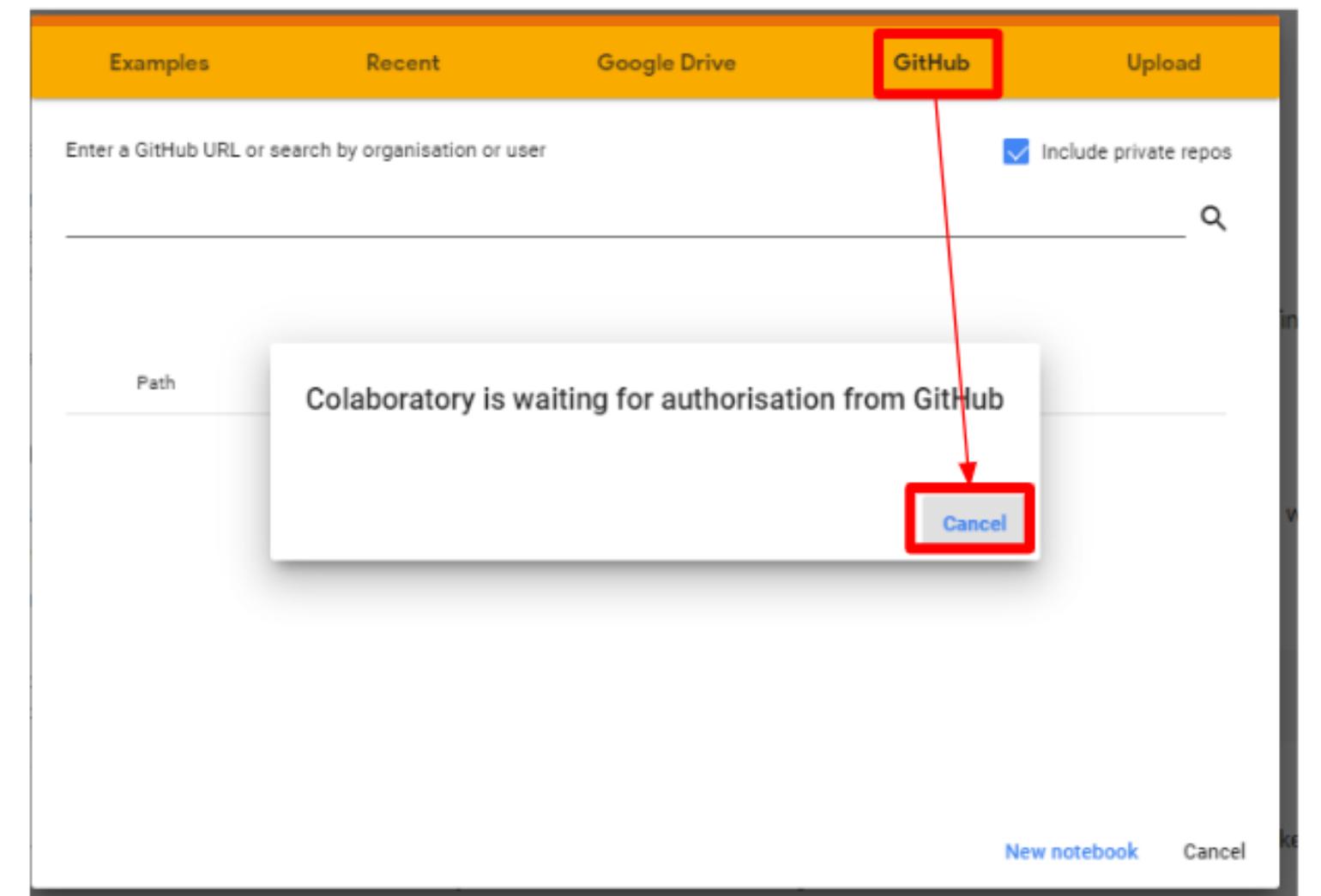


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## Installation Environment needs for Data Science

วิธีที่ 3  
**GitHub**





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## Installation Environment needs for Data Science

Open notebook

Examples >	Enter a GitHub URL or search by organization or user	<input type="checkbox"/> Include private repos
Recent >	<a href="https://github.com/wararakku/EsanCoding-AI_ds101">https://github.com/wararakku/EsanCoding-AI_ds101</a>	
Google Drive >	Repository: <a href="#">wararakku/EsanCoding-AI_ds101</a>	Branch: <a href="#">main</a>
GitHub >	Path	
Upload >	No results	

Cancel



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## Installation Environment needs for Data Science

วิธีที่ 3 GitHub

The image shows two screenshots illustrating the process of connecting a GitHub account to Colaboratory. On the left, a screenshot of the GitHub sign-in page is shown, with the text "Sign in to GitHub to continue to Colaboratory". It includes fields for "Username or email address" and "Password", and a "Sign in" button. On the right, a screenshot of the GitHub authorization screen for Colaboratory is shown. It displays a list of permissions: "Gists Read and write access" and "Repositories Public and private". Below this, it shows "Organization access" with "dsai-asia" and "Access request pending". At the bottom, there is a red-bordered "Authorize googlecolab" button.



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## Installation Environment needs for Data Science

github.com/wararakku/EsanCoding-AI\_ds101/blob/main/bank-data.csv

wararakku / EsanCoding-AI\_ds101

Type / to search

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Files

main bank-data.csv

wararakku Add files via upload 28137ce · 1 hour ago History

Preview Code Blame 601 lines (601 loc) · 33.7 KB Code 55% faster with GitHub Copilot

Raw

Search this file

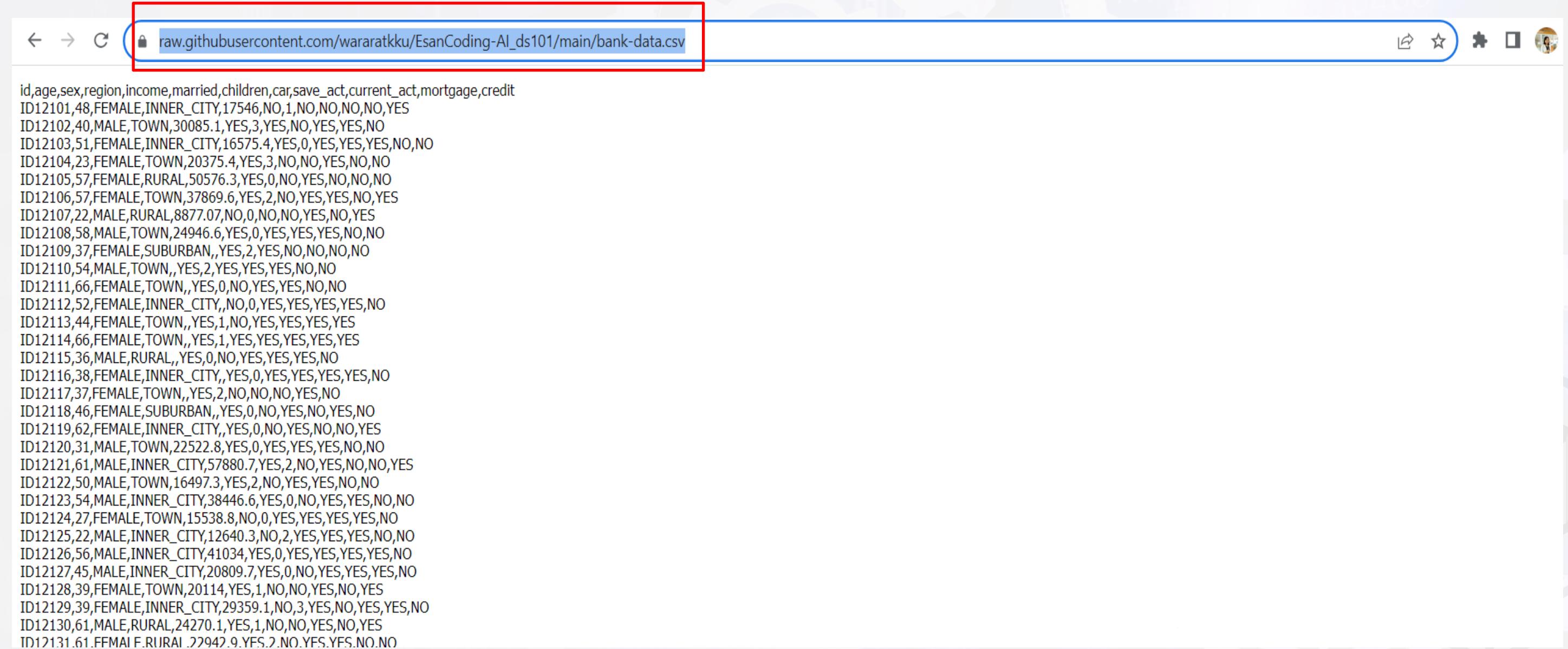
1	id	age	sex	region	income	married	children	car	save_act	current_act	mortgage	credit
2	ID12101	48	FEMALE	INNER_CITY	17546	NO	1	NO	NO	NO	NO	YES
3	ID12102	40	MALE	TOWN	30085.1	YES	3	YES	NO	YES	YES	NO
4	ID12103	51	FEMALE	INNER_CITY	16575.4	YES	0	YES	YES	YES	NO	NO
5	ID12104	23	FEMALE	TOWN	20375.4	YES	3	NO	NO	YES	NO	NO
6	ID12105	57	FEMALE	RURAL	50576.3	YES	0	NO	YES	NO	NO	NO
7	ID12106	57	FEMALE	TOWN	37869.6	YES	2	NO	YES	YES	NO	YES
8	ID12107	22	MALE	RURAL	8877.07	NO	0	NO	NO	YES	NO	YES
9	ID12108	58	MALE	TOWN	24946.6	YES	0	YES	YES	YES	NO	NO
10	ID12109	37	FEMALE	SUBURBAN		YES	2	YES	NO	NO	NO	NO
11	ID12110	54	MALE	TOWN		YES	2	YES	YES	YES	NO	NO



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## Installation Environment needs for Data Science



```
id,age,sex,region,income,married,children,car,save_act,current_act,mortgage,credit
ID12101,48,FEMALE,INNER_CITY,17546,NO,1,NO,NO,NO,NO,YES
ID12102,40,MALE,TOWN,30085.1,YES,3,YES,NO,YES,YES,NO
ID12103,51,FEMALE,INNER_CITY,16575.4,YES,0,YES,YES,YES,NO,NO
ID12104,23,FEMALE,TOWN,20375.4,YES,3,NO,NO,YES,NO,NO
ID12105,57,FEMALE,RURAL,50576.3,YES,0,NO,YES,NO,NO,NO
ID12106,57,FEMALE,TOWN,37869.6,YES,2,NO,YES,YES,NO,YES
ID12107,22,MALE,RURAL,8877.07,NO,0,NO,NO,YES,NO,YES
ID12108,58,MALE,TOWN,24946.6,YES,0,YES,YES,YES,NO,NO
ID12109,37,FEMALE,SUBURBAN,,YES,2,YES,NO,NO,NO,NO
ID12110,54,MALE,TOWN,,YES,2,YES,YES,YES,NO,NO
ID12111,66,FEMALE,TOWN,,YES,0,NO,YES,YES,NO,NO
ID12112,52,FEMALE,INNER_CITY,,NO,0,YES,YES,YES,NO,NO
ID12113,44,FEMALE,TOWN,,YES,1,NO,YES,YES,YES,YES
ID12114,66,FEMALE,TOWN,,YES,1,YES,YES,YES,YES,YES
ID12115,36,MALE,RURAL,,YES,0,NO,YES,YES,YES,NO
ID12116,38,FEMALE,INNER_CITY,,YES,0,YES,YES,YES,YES,NO
ID12117,37,FEMALE,TOWN,,YES,2,NO,NO,NO,YES,NO
ID12118,46,FEMALE,SUBURBAN,,YES,0,NO,YES,NO,YES,NO
ID12119,62,FEMALE,INNER_CITY,,YES,0,NO,YES,NO,NO,YES
ID12120,31,MALE,TOWN,22522.8,YES,0,YES,YES,YES,NO,NO
ID12121,61,MALE,INNER_CITY,57880.7,YES,2,NO,YES,NO,NO,YES
ID12122,50,MALE,TOWN,16497.3,YES,2,NO,YES,YES,NO,NO
ID12123,54,MALE,INNER_CITY,38446.6,YES,0,NO,YES,YES,NO,NO
ID12124,27,FEMALE,TOWN,15538.8,NO,0,YES,YES,YES,YES,NO
ID12125,22,MALE,INNER_CITY,12640.3,NO,2,YES,YES,YES,NO,NO
ID12126,56,MALE,INNER_CITY,41034,YES,0,YES,YES,YES,YES,NO
ID12127,45,MALE,INNER_CITY,20809.7,YES,0,NO,YES,YES,YES,NO
ID12128,39,FEMALE,TOWN,20114,YES,1,NO,NO,YES,NO,YES
ID12129,39,FEMALE,INNER_CITY,29359.1,NO,3,YES,NO,YES,YES,NO
ID12130,61,MALE,RURAL,24270.1,YES,1,NO,NO,YES,NO,YES
ID12131,61,FFMAI F.RURAI .22942.9.YFS.2.NO.YFS.YFS.NO.NO
```



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## Installation Environment needs for Data Science

### Get Data via GitHub

```
1 import pandas as pd
2
3 url = 'https://raw.githubusercontent.com/wararakku/EsanCoding-AI\_ds101/main/bank-data.csv'
4 df = pd.read_csv(url, index_col=0)
5
6 print(df.head(5))
```

	age	sex	region	income	married	children	car	save_act	\
id	ID12101	48	FEMALE	INNER_CITY	17546.0	NO	1	NO	NO
	ID12102	40	MALE	TOWN	30085.1	YES	3	YES	NO
	ID12103	51	FEMALE	INNER_CITY	16575.4	YES	0	YES	YES
	ID12104	23	FEMALE	TOWN	20375.4	YES	3	NO	NO
	ID12105	57	FEMALE	RURAL	50576.3	YES	0	NO	YES

current\_act mortgage credit

	id	current_act	mortgage	credit
	ID12101	NO	NO	YES
	ID12102	YES	YES	NO
	ID12103	YES	NO	NO
	ID12104	YES	NO	NO
	ID12105	NO	NO	NO



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## Installation Environment needs for Data Science

<https://github.com/ankitsinghh12/plant-disease-detection-final?tab=readme-ov-file>

The screenshot shows the GitHub repository page for 'plant-disease-detection-final'. The repository is public and was created by user 'ankitsinghh12'. It contains 1 branch and 0 tags. The main file listed is 'README.md' updated 3 months ago. Other files include 'LatentSpace-Experiment', 'Plant\_Disease\_Detection\_Benchmark\_models', 'Plant\_Disease\_Detection\_gan\_experiments', 'VGG\_segnet', 'leaf-image-segmentation', 'LICENSE', 'README.md', 'main.py', 'requirements.txt', and 'test\_main.py'. The repository has 17 commits, 1 star, 1 watching, and 1 fork.

Example:

Command used: `python3 generate_marker.py -s 'ab.jpg'`

Input Image



Output Image





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## Installation Environment needs for Data Science

The screenshot shows a GitHub repository page for 'ankitsinghh12 / plant-disease-detection-final'. The repository contains several files including 'main.py', 'LICENSE', 'README.md', 'requirements.txt', and 'test\_main.py'. The 'requirements.txt' file is displayed, listing the following dependencies:

```
1 # N.B: This requirements file contains packages that are needed to run main.py file only.
2
3 numpy
4 tensorflow
5 Pillow
```



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## Installation Environment needs for Data Science

ankitsinghh12 / plant-disease-detection-final

Type ⌂ to search

Code Issues Pull requests Actions Projects Security Insights

plant-disease-detection-final Public

Watch 1 Fork 1 Star 1

main 1 Branch 0 Tags

Go to file Add file Code

Local Codespaces

Clone HTTPS SSH GitHub CLI

<https://github.com/ankitsinghh12/plant-disease-detection-final>

Use Git or checkout with SVN using the web URL.

Open with GitHub Desktop

Open with Visual Studio

Download ZIP

About

Plant disease detection using VGG16 model, which is a pre-trained model that has been trained on a large dataset of images.

generative-adversarial-network resnet  
transfer-learning vgg16 inceptionv3  
plant-disease plant-disease-detection  
leaf-image-segmentation dnn-models

Readme MIT license

Activity 1 star 1 watching 1 fork

Report repository

Releases

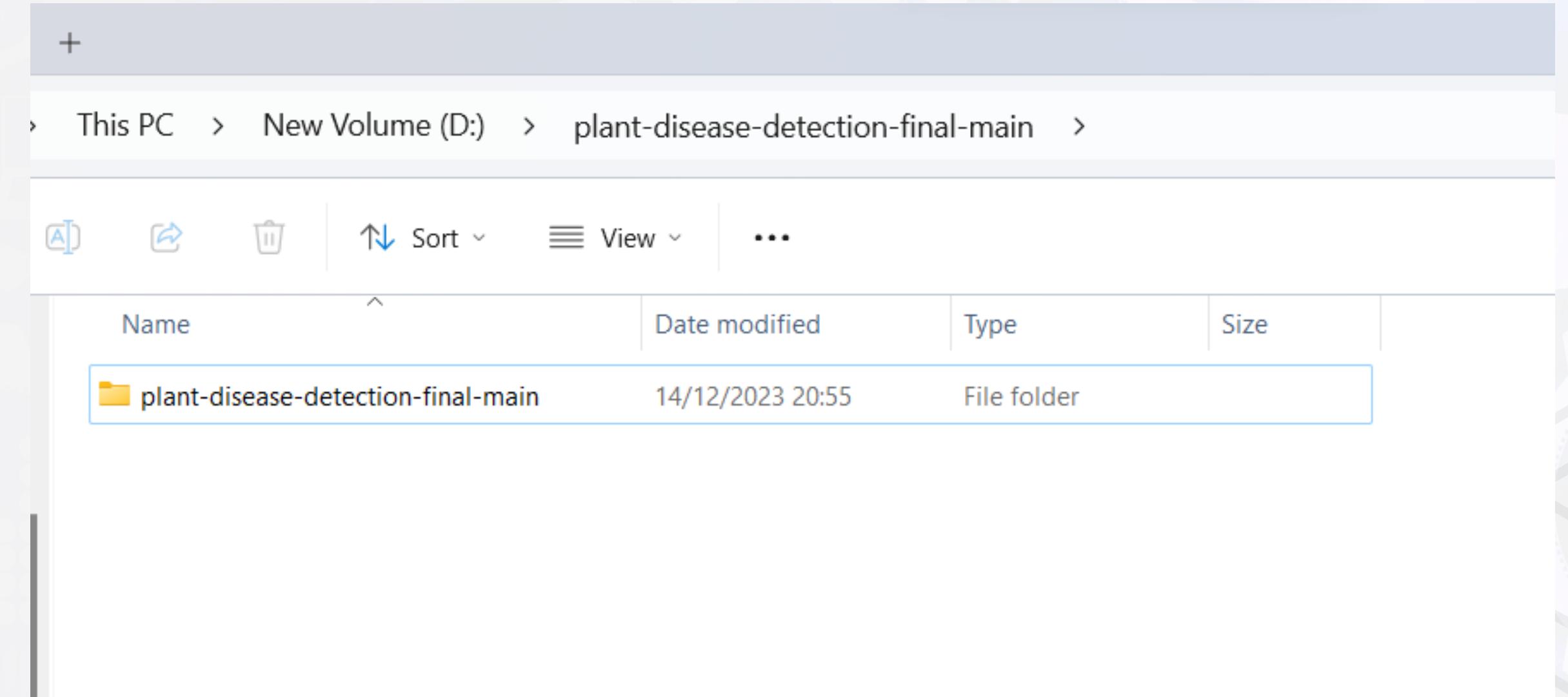
File	Action	Last Commit
LatentSpace-Experiment	Add files via upload	
Plant_Disease_Detection_Benchmark_models	Add files via upload	
Plant_Disease_Detection_gan_experiments	Add files via upload	
VGG_segnet	Add files via upload	
leaf-image-segmentation	Add files via upload	
LICENSE	Add files via upload	
README.md	Update README.md	3 months ago
main.py	Add files via upload	
requirements.txt	Add files via upload	
test_main.py	Add files via upload	3 months ago



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## Installation Environment needs for Data Science

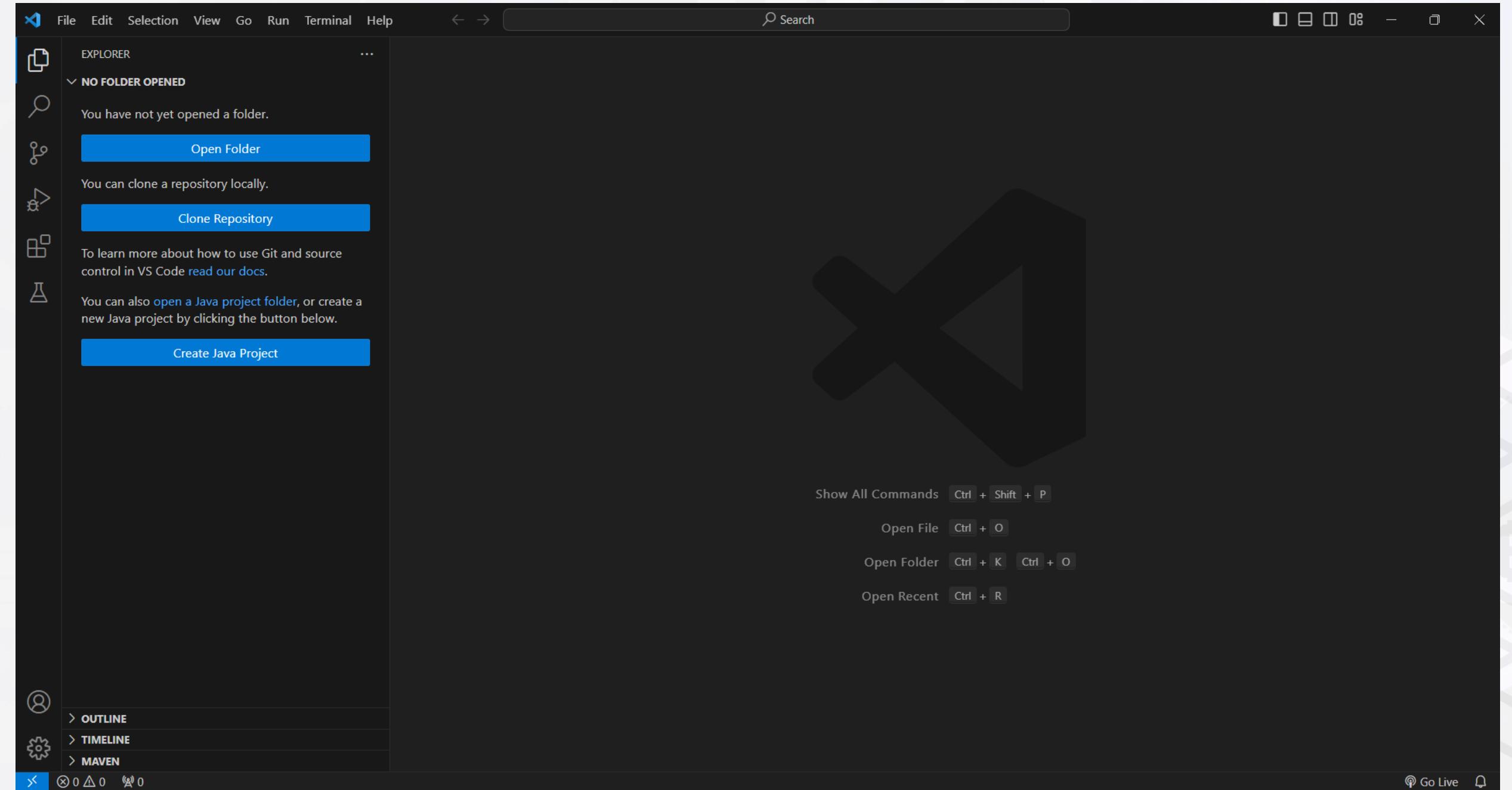




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## Installation Environment needs for Data Science

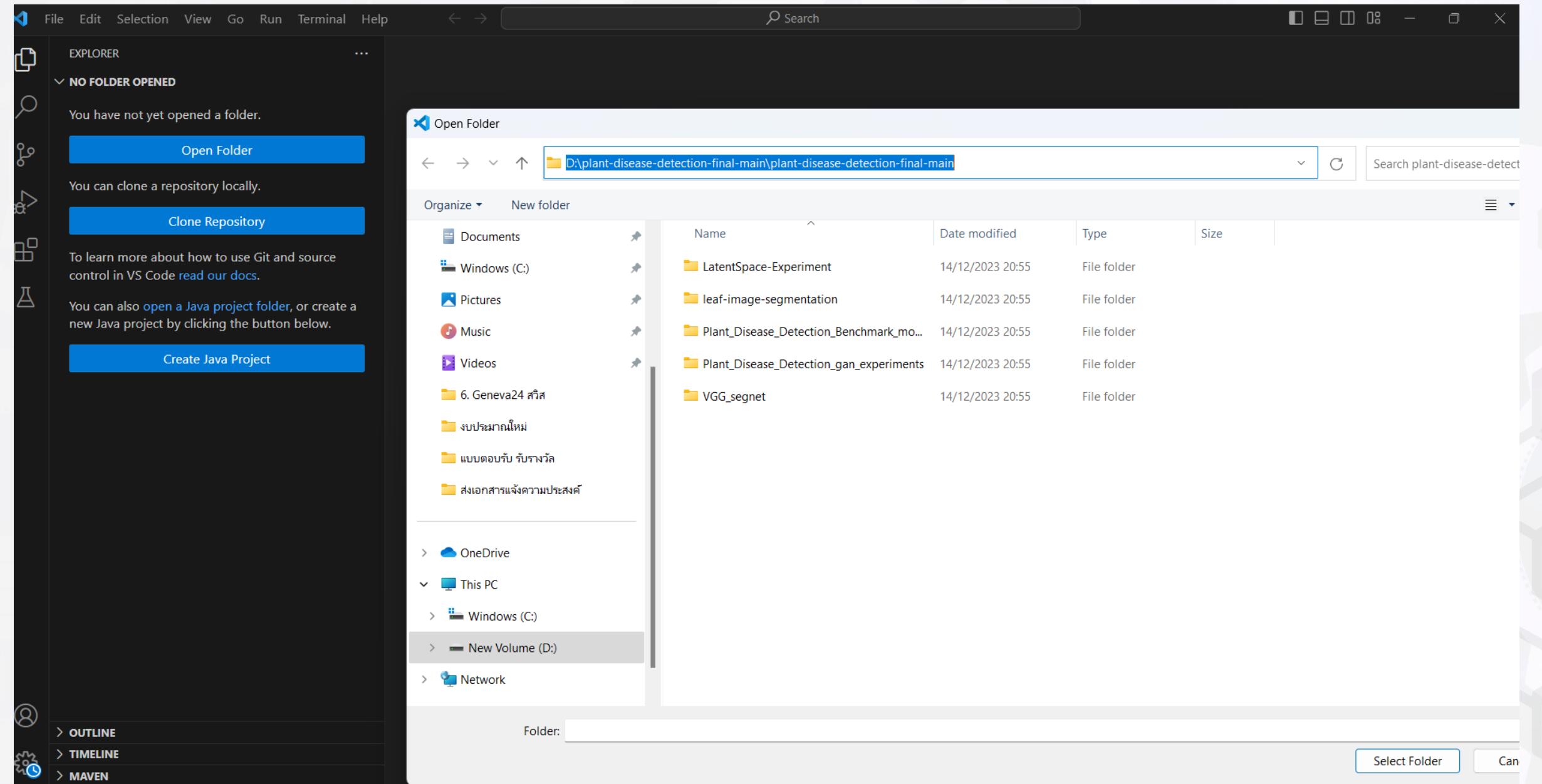




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## Installation Environment needs for Data Science





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## Installation Environment needs for Data Science

The screenshot shows a code editor window with the file `main.py` open. The code is written in Python and performs plant disease detection. It imports various libraries such as os, argparse, subprocess, numpy, PIL, tensorflow.keras, tensorflow.preprocessing, tensorflow.keras.applications.inception\_v3, and tensorflow.keras.models. The code defines several species names like APPLE, BEAN, BLUEBERRY, CHERRY, CORN, GRAPE, GRAPEFRUIT, ORANGE, PEACH, PEPPER, POTATO, RASPBERRY, SORGHUM, SOYBEAN, SQUASH, STRAWBERRY, SUGARCANE, and TOMATO. It also defines SPECIES and DISEASE\_SUPPORTED\_SPECIES lists, and a classes\_for\_each\_species variable.

```
File Edit Selection View Go Run Terminal Help ↻ → plant-disease-detection-final-main main.py x
EXPLORER PLANT-DISEASE-DETECTION-FINAL-MAIN ...
main.py > ...
main.py > ...
1 import os
2 import argparse
3 import subprocess
4 import numpy as np
5
6 from PIL import Image
7
8 from tensorflow.python.keras.models import load_model
9 from tensorflow.python.keras.preprocessing import image
10 from tensorflow.python.keras.applications.inception_v3 import preprocess_input
11
12 # species names
13 APPLE = 'apple'
14 BEAN = 'bean'
15 BLUEBERRY = 'blueberry'
16 CHERRY = 'cherry'
17 CORN = 'corn'
18 GRAPE = 'grape'
19 GRAPEFRUIT = 'grapefruit'
20 ORANGE = 'orange'
21 PEACH = 'peach'
22 PEPPER = 'pepper'
23 POTATO = 'potato'
24 RASPBERRY = 'raspberry'
25 SORGHUM = 'sorghum'
26 SOYBEAN = 'soybean'
27 SQUASH = 'squash'
28 STRAWBERRY = 'strawberry'
29 SUGARCANE = 'sugarcane'
30 TOMATO = 'tomato'
31
32 # all species and supported species names
33 SPECIES = [APPLE, BEAN, BLUEBERRY, CHERRY, CORN, GRAPE, GRAPEFRUIT, ORANGE, PEACH,
34 | | | PEPPER, POTATO, RASPBERRY, SORGHUM, SOYBEAN, SQUASH, STRAWBERRY, SUGARCANE, TOMATO]
35 DISEASE_SUPPORTED_SPECIES = {APPLE, CHERRY, CORN, GRAPE, PEACH, PEPPER, POTATO, STRAWBERRY, SUGARCANE, TOMATO, }
36
37 # classes for each species
```

Ln 1, Col 1 Spaces: 4 UTF-8 LF Python 3.11.4 64-bit Go Live Prettier



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## Installation Environment needs for Data Science

The screenshot shows a terminal window in Visual Studio Code (VS Code) with the title bar "plant-disease-detection-final-main". The terminal is displaying Python code for a plant disease detection model. The code includes imports for keras, tensorflow, and inception\_v3, and defines several fruit and vegetable categories: BLUEBERRY, CHERRY, CORN, GRAPE, GRAPEFRUIT, ORANGE, PEACH, PEPPER, and POTATO.

```
python.keras.models import load_model
python.keras.preprocessing import image
python.keras.applications.inception_v3 import preprocess_input

15 BLUEBERRY = 'blueberry'
16 CHERRY = 'cherry'
17 CORN = 'corn'
18 GRAPE = 'grape'
19 GRAPEFRUIT = 'grapefruit'
20 ORANGE = 'orange'
21 PEACH = 'peach'
22 PEPPER = 'pepper'
23 POTATO = 'potato'
```

The terminal also shows the command "PS D:\plant-disease-detection-final-main\plant-disease-detection-final-main>" at the bottom.



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## Installation Environment needs for Data Science

A screenshot of a terminal window in Visual Studio Code. The terminal tab is selected, showing the path `D:\plant-disease-detection-final-main\plant-disease-detection-final-main>`. To the right of the terminal, a context menu is open over the PowerShell tab, listing options: `PowerShell`, `Git Bash`, `Command Prompt`, `JavaScript Debug Terminal`, `Split Terminal`, `Configure Terminal Settings`, `Select Default Profile`, `Run Task...`, and `Configure Tasks...`.



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## Installation Environment needs for Data Science

```
22  POTATO - 'potato'
PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS + v ... ^ X
Microsoft Windows [Version 10.0.22621.2715]
(c) Microsoft Corporation. All rights reserved.

D:\plant-disease-detection-final-main\plant-disease-detection-final-main>
```



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## Installation Environment needs for Data Science

```
File Edit Selection View Go Run Terminal Help ← → plant-disease-detection-final-main
```

EXPLORER

PLANT-DISEASE-DETECTION-FINAL-MAIN

- > LatentSpace-Experiment
- > leaf-image-segmentation
- > Plant\_Disease\_Detection\_Benchmark\_models
- > Plant\_Disease\_Detection\_gan\_experiments
- > VGG\_segnet
- LICENSE
- main.py 2
- README.md
- requirements.txt
- test\_main.py

main.py > ...

```
1 import os
2 import argparse
3 import subprocess
4 import numpy as np
5
6 from PIL import Image
7
8 from tensorflow.python.keras.models import load_model
9 from tensorflow.python.keras.preprocessing import image
10 from tensorflow.python.keras.applications.inception_v3 import preprocess_input
11
12 # species names
13 APPLE = 'apple'
14 BEAN = 'bean'
15 BLUEBERRY = 'blueberry'
16 CHERRY = 'cherry'
17 CORN = 'corn'
18 GRAPE = 'grape'
19 GRAPEFRUIT = 'grapefruit'
20 ORANGE = 'orange'
21 PEACH = 'peach'
22 PEPPER = 'pepper'
23 POTATO = 'potato'
```

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS

Microsoft Windows [Version 10.0.22621.2715]  
(c) Microsoft Corporation. All rights reserved.

D:\plant-disease-detection-final-main\plant-disease-detection-final-main>pip install tensorflow



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## Installation Environment needs for Data Science

```
D:\plant-disease-detection-final-main\plant-disease-detection-final-main>pip install -r requirements.txt
```

```
Requirement already satisfied: zipp>=0.5 in c:\python38\lib\site-packages (from importlib-metadata>=4.4->markdown>=2.6.8->tensorboard<2.14,>=2.13->tensorflow-intel==2.13.0->tensorflow->-r requirements.txt (line 4)) (3.17.0)
Requirement already satisfied: pyasn1<0.6.0,>=0.4.6 in c:\python38\lib\site-packages (from pyasn1-modules>=0.2.1->google-auth<3,>=1.6.3->tensorboard<2.14,>=2.13->tensorflow-intel==2.13.0->tensorflow->-r requirements.txt (line 4)) (0.5.1)
Requirement already satisfied: oauthlib>=3.0.0 in c:\python38\lib\site-packages (from requests-oauthlib>=0.7.0->google-auth-oauthlib<1.1,>=0.5->tensorboard<2.14,>=2.13->tensorflow-intel==2.13.0->tensorflow->-r requirements.txt (line 4)) (3.2.2)
Using cached Pillow-10.1.0-cp38-cp38-win_amd64.whl (2.6 MB)
Installing collected packages: Pillow
Successfully installed Pillow-10.1.0
```

```
D:\plant-disease-detection-final-main\plant-disease-detection-final-main>
```



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## Installation Environment needs for Data Science

```
File Edit Selection View Go Run Terminal Help ↻ ↺ ↽ plant-disease-detection-final-main

EXPLORER
  PLANT-DISEASE-DETECTION-FINAL-MAIN
    LatentSpace-Experiment
    leaf-image-segmentation
    Plant_Disease_Detection_Benchmark_models
    Plant_Disease_Detection_gan_experiments
    VGG_segnet
    LICENSE
    main.py
    README.md
    requirements.txt
    test_main.py

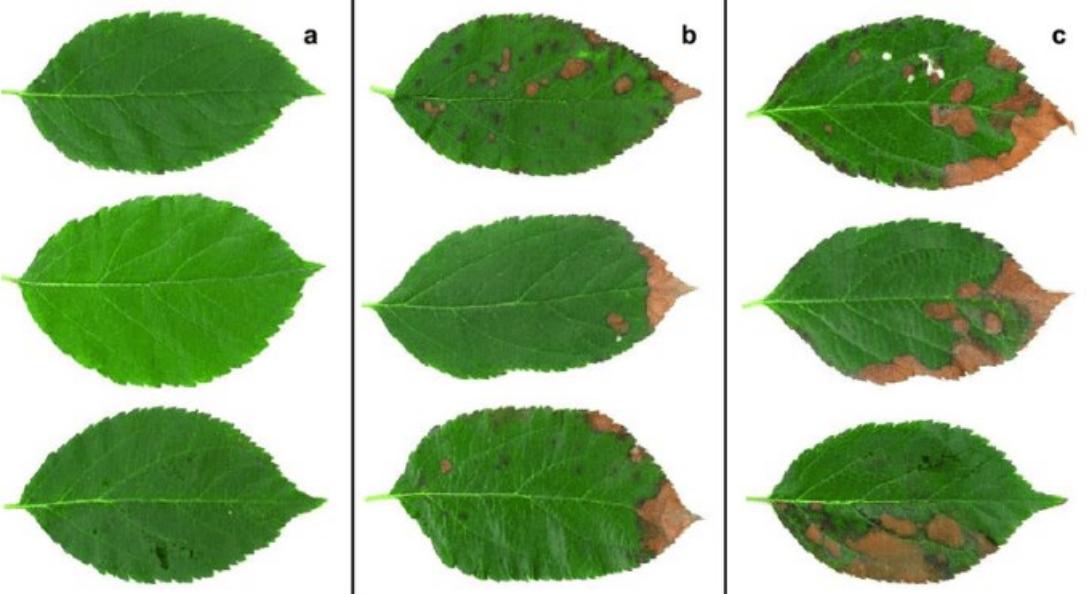
requirements.txt README.md X

# Examples
# you can remove a part of arguments except image path
>>> python main.py 'test/a.jpg' --segment --species 'apple' --model 'inceptionv3'

- This will segment the image and predict the output class based on that. Segmented image will be saved as the file name with '_marked' suffix before the file extension.

- The images are trained with segmented network and lower performance on unsegmented dataset is expected.

- You can check the segmentation accuracy from saved image.
```



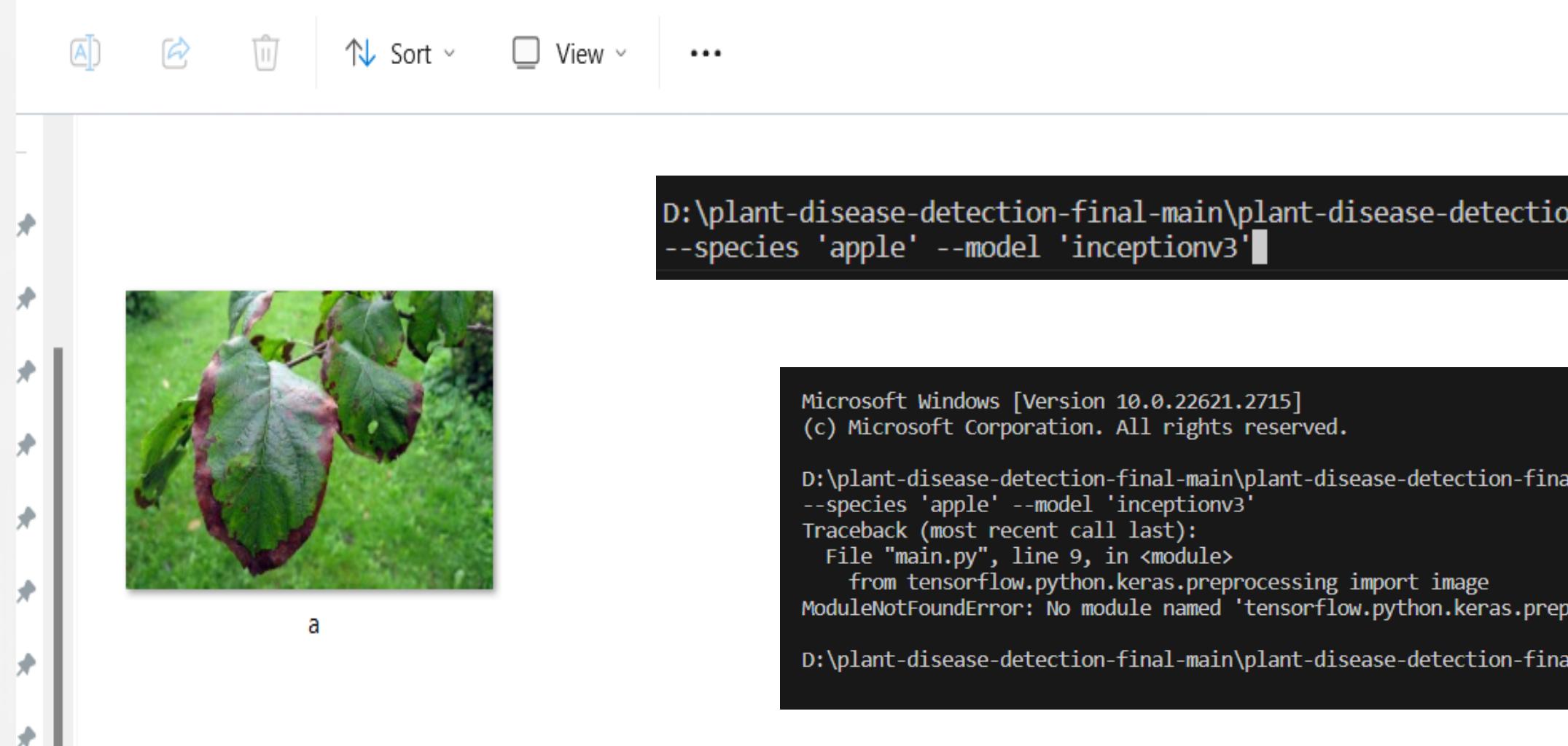


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## Installation Environment needs for Data Science

> This PC > New Volume (D:) > plant-disease-detection-final-main > plant-disease-detection-final-main > test



a

```
Microsoft Windows [Version 10.0.22621.2715]
(c) Microsoft Corporation. All rights reserved.

D:\plant-disease-detection-final-main\plant-disease-detection-final-main>python main.py 'test/a.jpg' --segment
--species 'apple' --model 'inceptionv3'
Traceback (most recent call last):
  File "main.py", line 9, in <module>
    from tensorflow.python.keras.preprocessing import image
ModuleNotFoundError: No module named 'tensorflow.python.keras.preprocessing'

D:\plant-disease-detection-final-main\plant-disease-detection-final-main>
```



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## Installation Environment needs for Data Science

```
D:\plant-disease-detection-final-main\plant-disease-detection-final-main>pip list
Package           Version
-----
absl-py          2.0.0
astunparse       1.6.3
cachetools       5.3.2
certifi          2023.11.17
charset-normalizer 3.3.2
flatbuffers      23.5.26
```

rsa	4.9
setuptools	47.1.0
six	1.16.0
tensorboard	2.13.0
tensorboard-data-server	0.7.2
tensorflow	2.13.0
tensorflow-estimator	2.13.0
tensorflow-intel	2.13.0
tensorflow-io-gcs-filesystem	0.31.0
termcolor	2.4.0
typing_extensions	4.5.0
urllib3	2.1.0
Werkzeug	3.0.1
wheel	0.42.0
wrapt	1.16.0



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## Installation Environment needs for Data Science

The screenshot shows a code editor interface with the following details:

- EXPLORER:** Shows a project structure named "PLANT-DISEASE-DETECTION-FINAL-MAIN". Inside this folder are several subfolders and files:
  - LatentSpace-Experiment
  - leaf-image-segmentation
    - test\_images
      - apple\_healthy\_marked.JPG
      - apple\_healthy.JPG
    - \_init\_.py
    - background\_marker.py
    - fill\_holes.py
    - generate\_marker.py
    - histogram.py
    - main.py
    - otsu\_binarization.py
    - otsu\_segmentation.py
  - Plant\_Disease\_Detection\_Benchmark\_models
  - Plant\_Disease\_Detection\_gan\_experiments
  - test
  - VGG\_segnet
  - LICENSE
  - main.py
- CODEVIEW:** Displays the content of the "main.py" file.

```
requirements.txt main.py leaf-image-segmentation main.py README.md
```

```
main.py > ...
1 import os
2 import argparse
3 import subprocess
4 import numpy as np
5
6 from PIL import Image
7
8 from tensorflow.python.keras.models import load_model
9 from tensorflow.python.keras.preprocessing import image
10 from tensorflow.python.keras.applications.inception_v3 import preprocess_input
11
12 # species names
13 APPLE = 'apple'
14 BEAN = 'bean'
15 BLUEBERRY = 'blueberry'
16 CHERRY = 'cherry'
17 CORN = 'corn'
18 GRAPE = 'grape'
19 GRAPEFRUIT = 'grapefruit'
20 ORANGE = 'orange'
21 PEACH = 'peach'
22 PEPPER = 'pepper'
23 POTATO = 'potato'
24 RASPBERRY = 'raspberry'
25 SORGHUM = 'sorghum'
26 SOYBEAN = 'soybean'
```

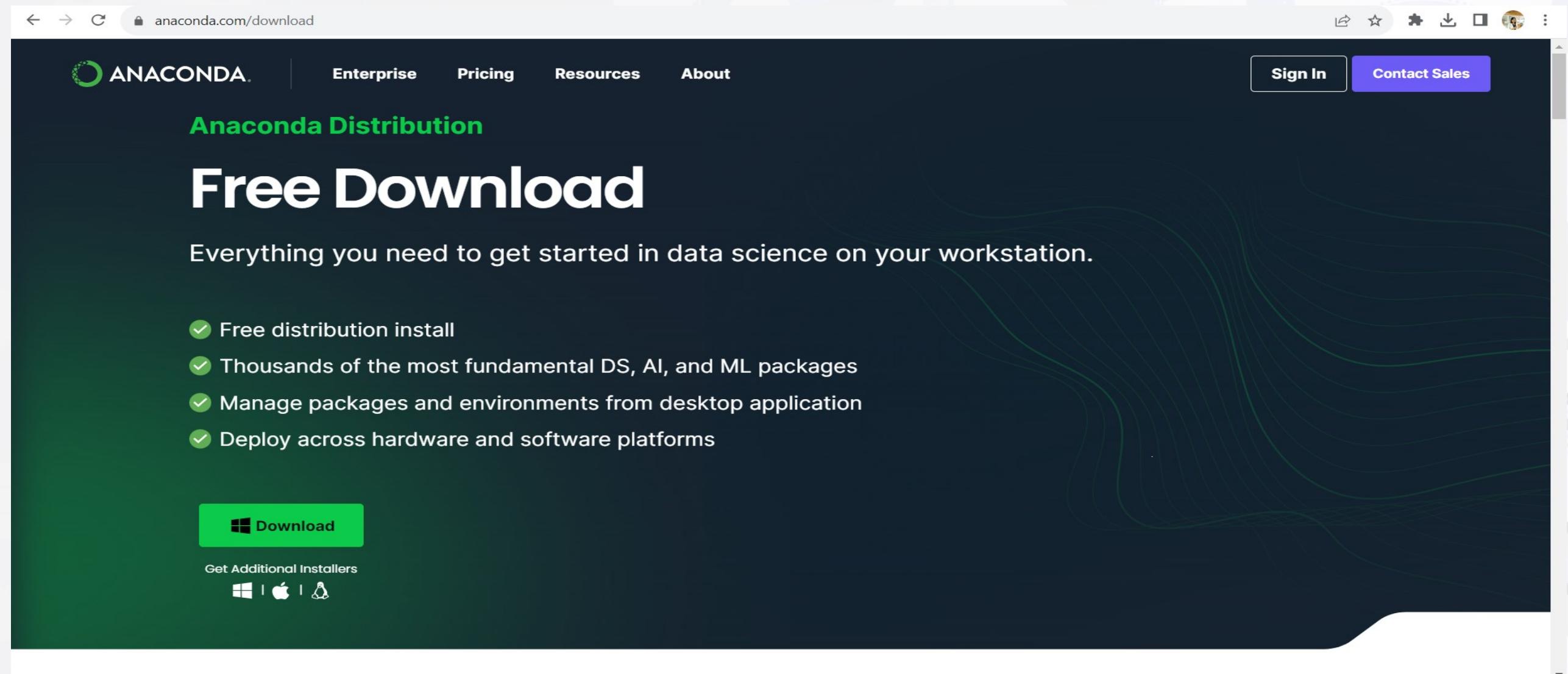


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## Installation Environment needs for Data Science

<https://www.anaconda.com/download>



The screenshot shows the official website for Anaconda Distribution. At the top, there is a navigation bar with links for 'Enterprise', 'Pricing', 'Resources', and 'About'. On the right side of the header, there are 'Sign In' and 'Contact Sales' buttons. The main title 'Anaconda Distribution' is displayed in green, followed by a large, bold 'Free Download' button. Below this, a sub-headline reads 'Everything you need to get started in data science on your workstation.' To the left of the headline, there is a bulleted list of features:

- ✓ Free distribution install
- ✓ Thousands of the most fundamental DS, AI, and ML packages
- ✓ Manage packages and environments from desktop application
- ✓ Deploy across hardware and software platforms

At the bottom of the page, there is a 'Download' button with a Windows icon, and below it, a link to 'Get Additional Installers' with icons for Windows, Mac, and Linux.



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## Installation Environment needs for Data Science

📁 Python38	09/11/2023 22:02	File folder
📁 Python310	19/10/2023 14:57	File folder
📁 Python311	19/10/2023 14:51	File folder

Anaconda Navigator (Anaconda3)

Anaconda Prompt (Anaconda3)

Anaconda Powershell Prompt (Anaco...)

Visual Studio Code

Notepad

canva

PowerPoint

Postman

OBS Studio (64bit)

Search





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## ตัวอย่างการดึงข้อมูลโดยใช้ Environment เพิ่มเติม

1. conda create -n gpu python=3.7
2. conda activate gpu
3. conda install tensorflow-gpu=2.1
4. pip install tensorflow-gpu==2.3.1

```
Anaconda Prompt (Anaconda) + | v

(base) C:\Users\PC6>conda create -n gpu python=3.7
Collecting package metadata (current_repodata.json): done
Solving environment: failed with repodata from current_repodata.json, will retry with next repodata source.
Collecting package metadata (repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
    current version: 22.9.0
    latest version: 23.11.0

Please update conda by running

$ conda update -n base -c defaults conda

## Package Plan ##

environment location: C:\Users\PC6\.conda\envs\gpu

added / updated specs:
  - python=3.7

The following packages will be downloaded:

  package                               | build
  -----                                | -----

```



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ตัวอย่างสร้าง Environment ให้ສະดากรในการใช้งานใน jupyter Lab

```
(gpu) C:\Users\PC6>pip install --user ipykernel
```

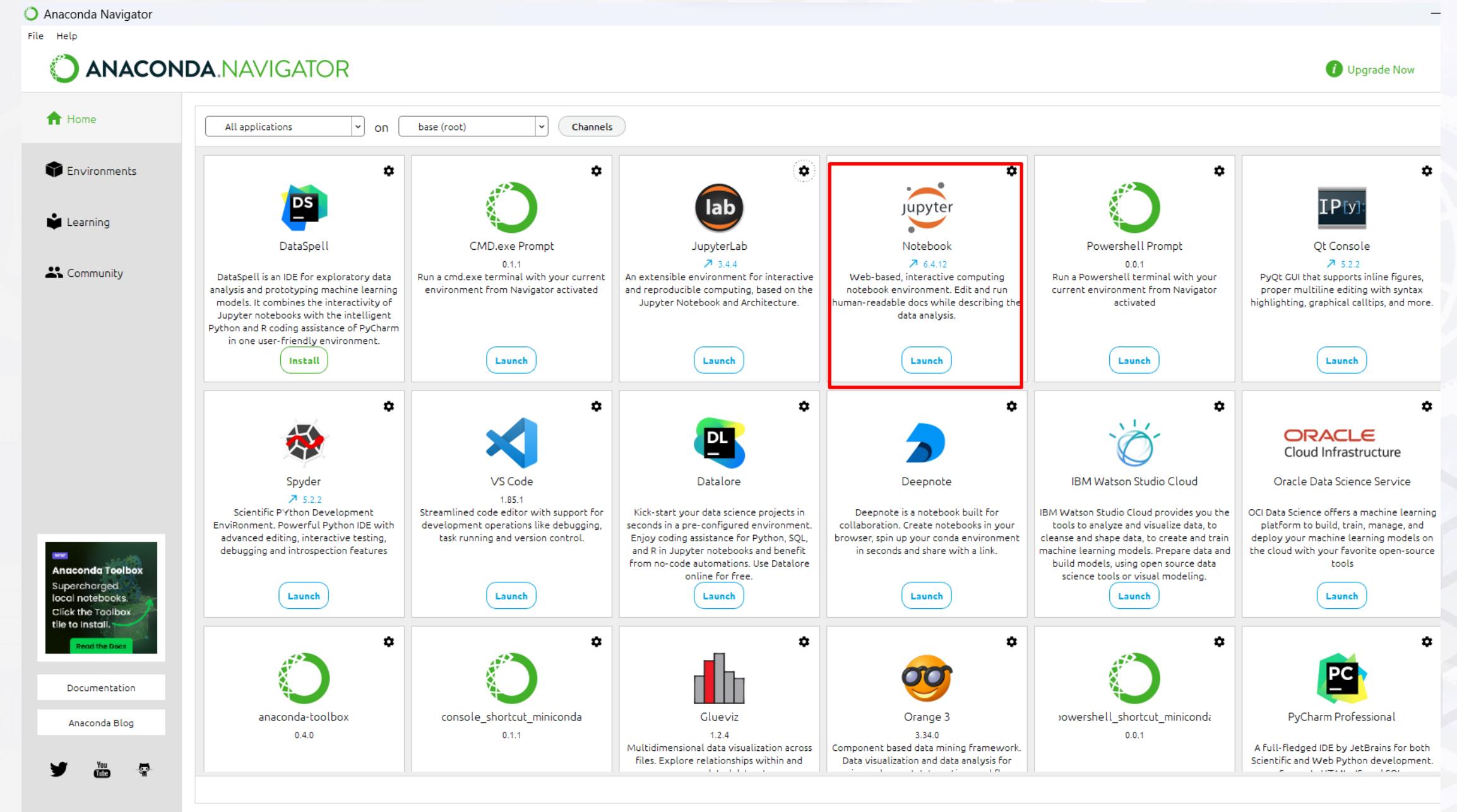
```
(gpu) C:\Users\PC6>python -m ipykernel install --user --name=gpu
Installed kernelspec gpu in C:\Users\PC6\AppData\Roaming\jupyter\kernels\gpu
```



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## ตัวอย่างสร้าง Environment ให้ສอดคลึนในการใช้งานใน jupyter Lab





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## ตัวอย่างสร้าง Environment ให้ສอดคล้องในการใช้งานใน jupyter

The screenshot shows a Jupyter Notebook interface running at `localhost:8889/tree`. On the left, there is a file tree with various folders and files. On the right, a modal dialog box is open for creating a new notebook. The 'Name' field contains 'gpu'. Other options in the dialog include 'Notebook: Python 3 (ipykernel)', 'Other: Text File, Folder, Terminal', and a timestamp '3 months ago'.

