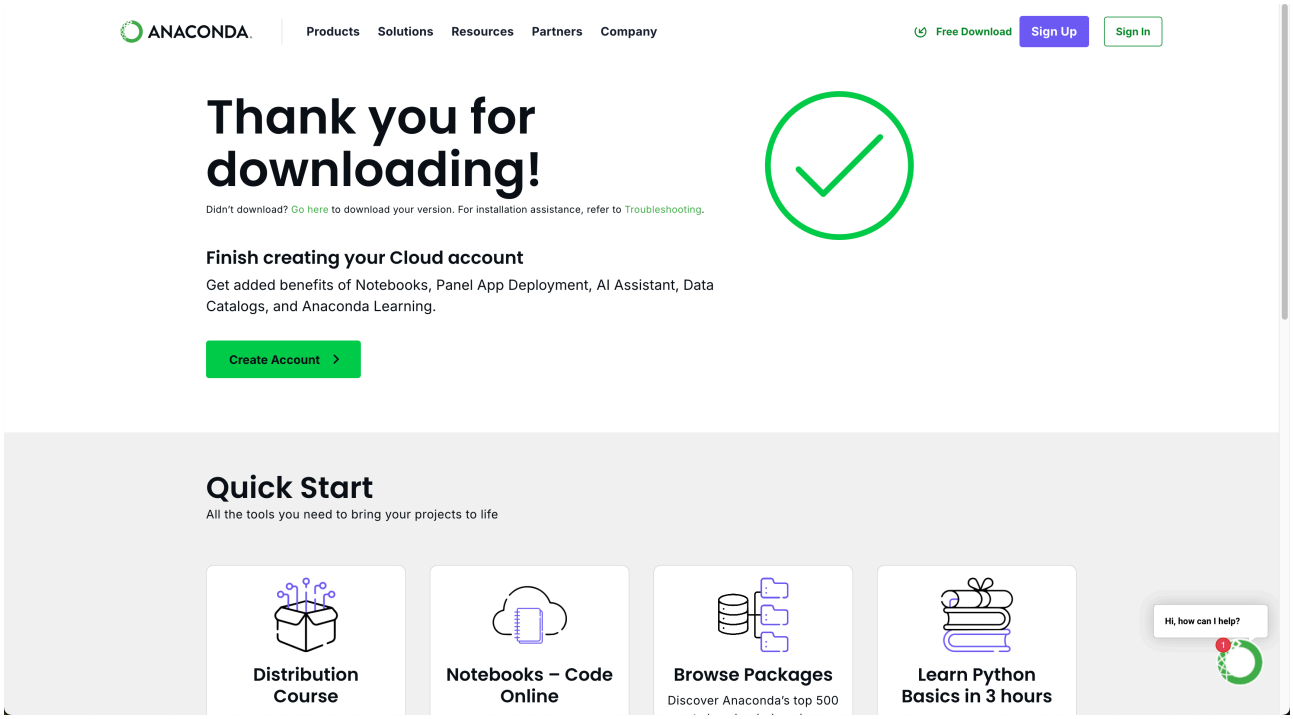
Step 1: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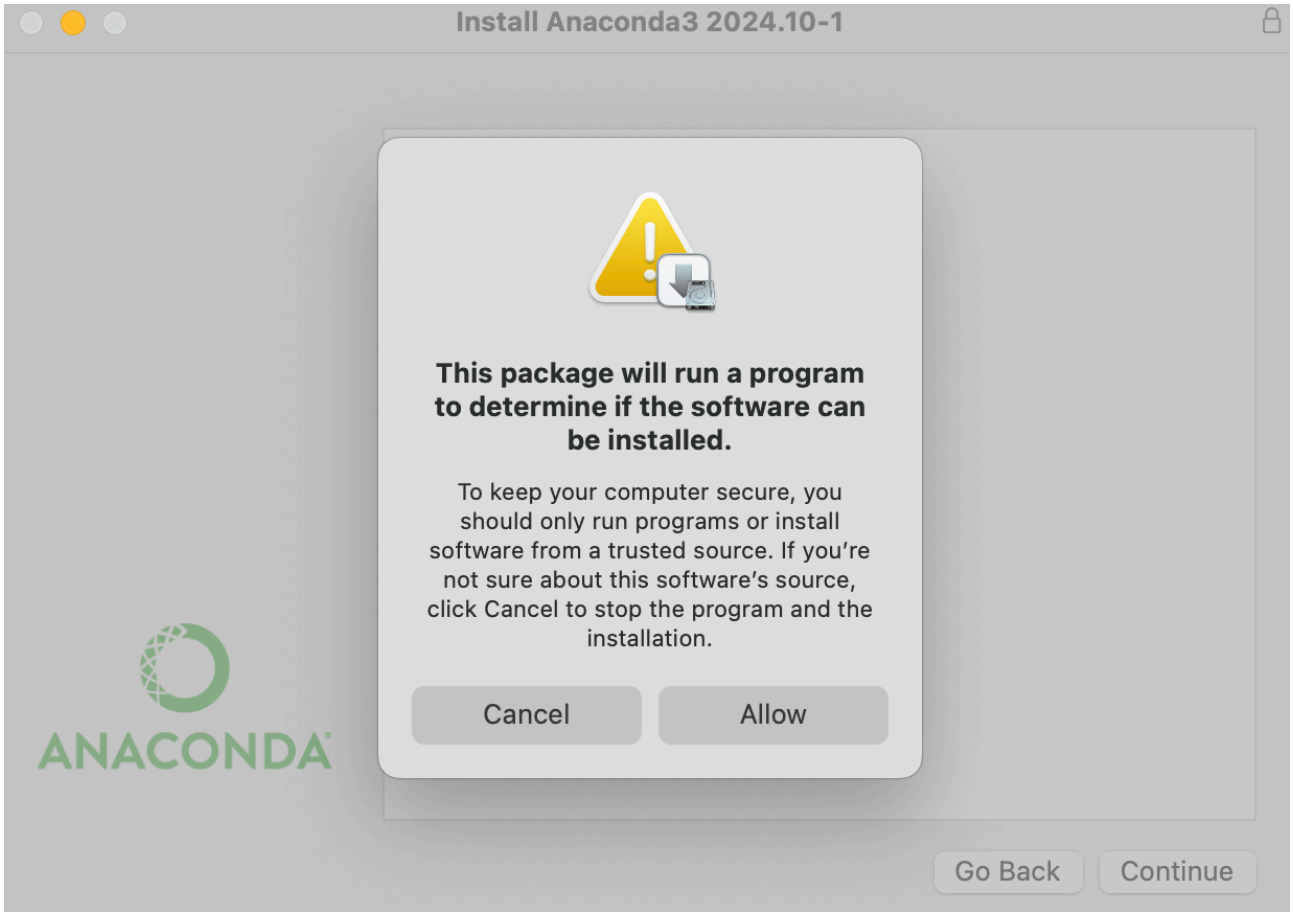
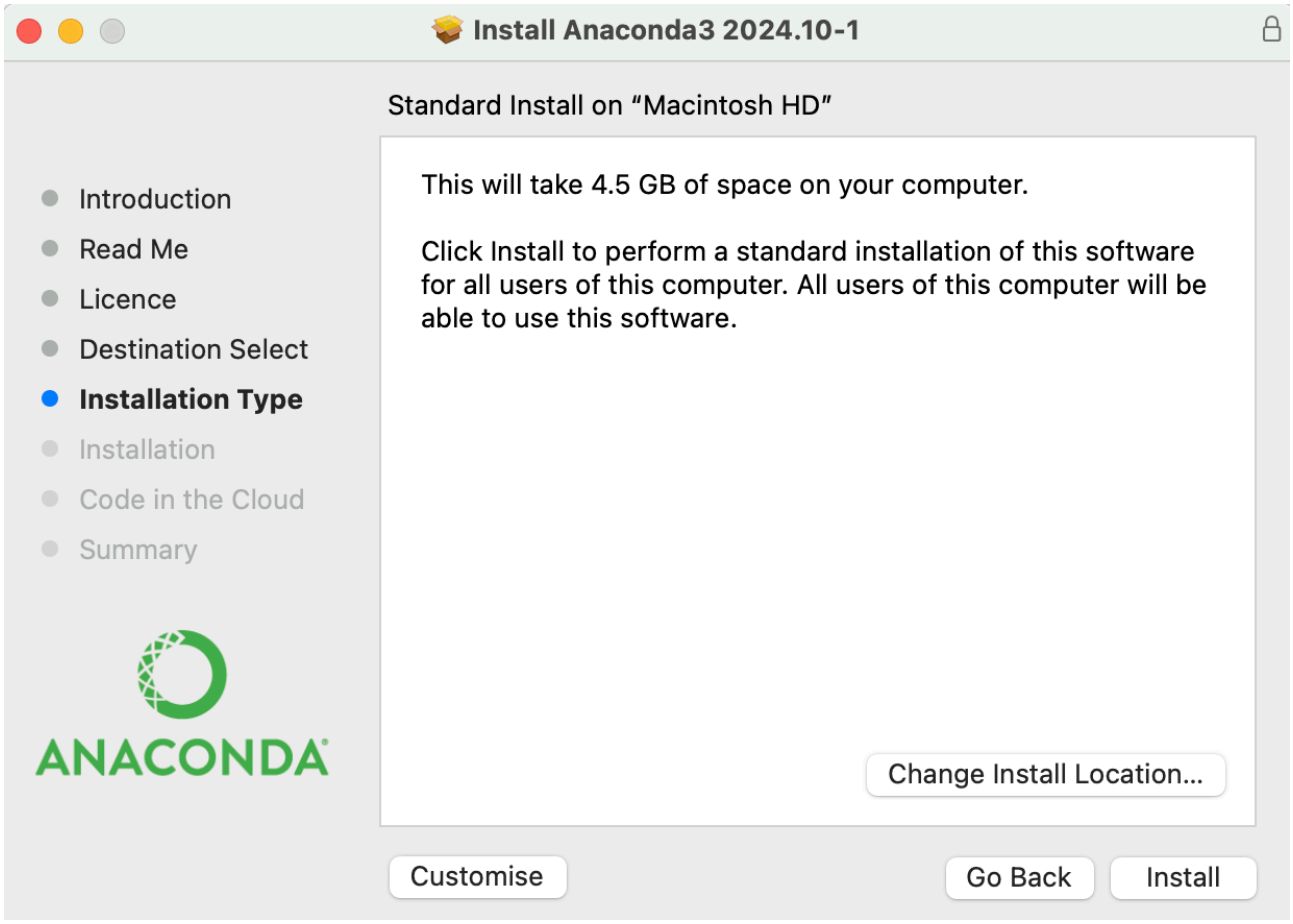
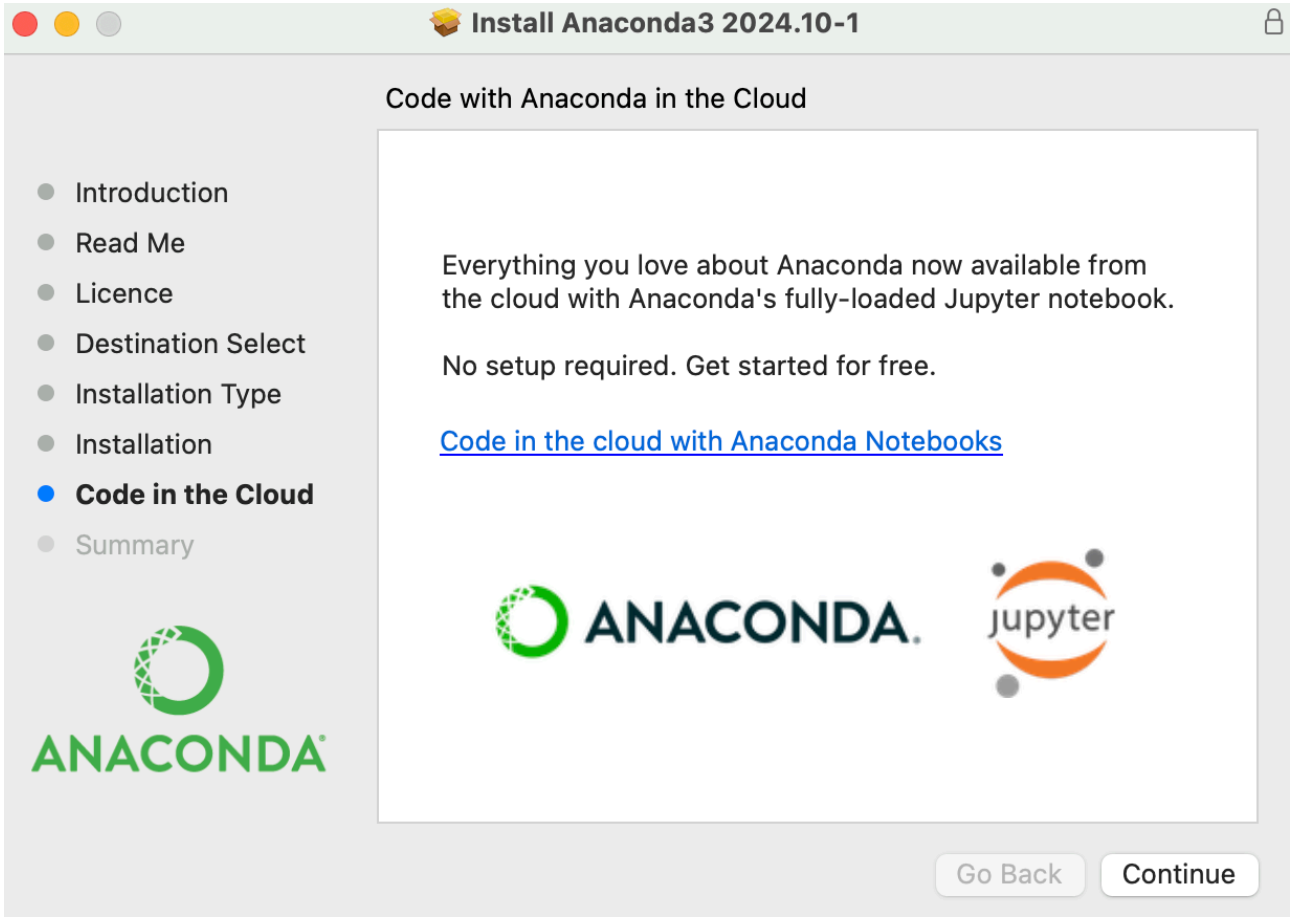
Step 2:

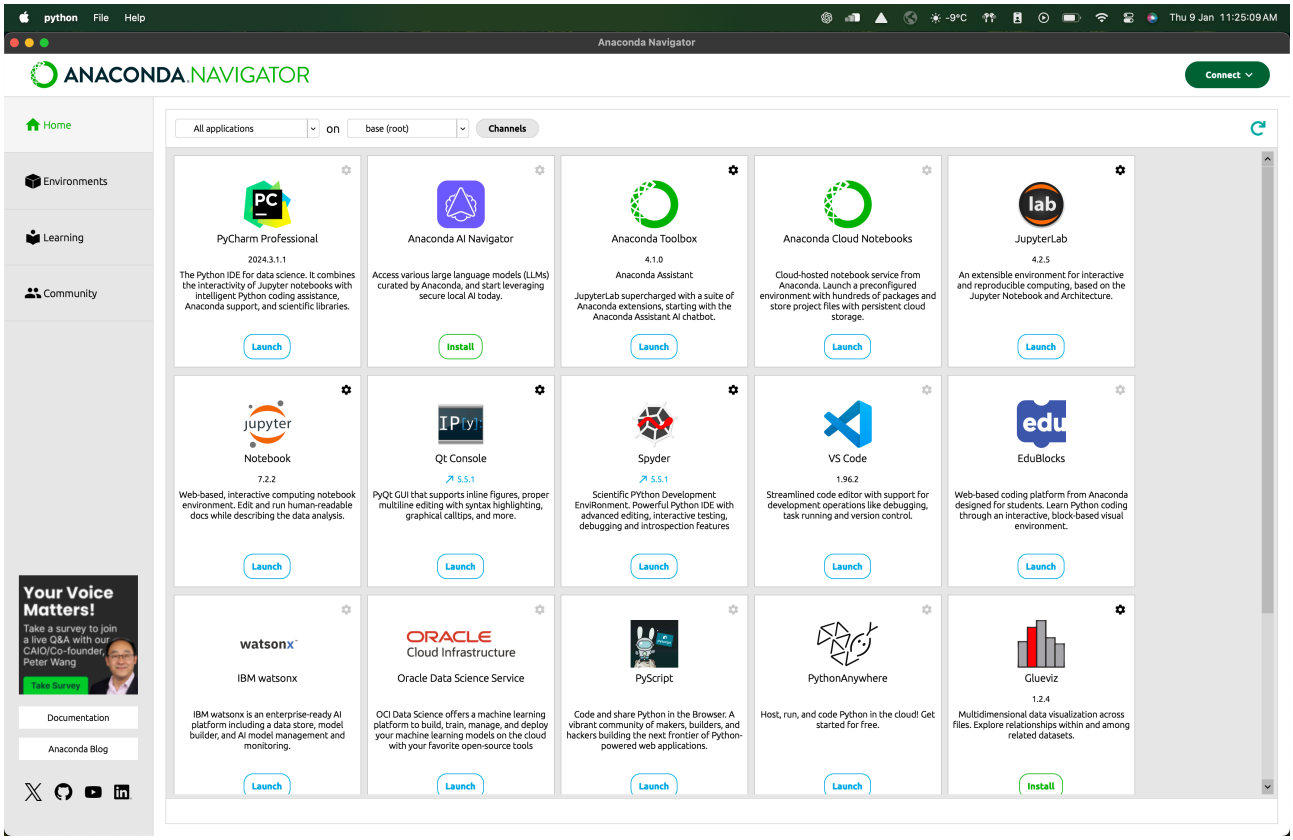

Install Anaconda3 2024.10-1
This package will run a program to determine if the software can be installed.
To keep your computer secure, you should only run programs or install software from a trusted source. If you're not sure about this software's source, click Cancel to stop the program and the installation.
Cancel
Allow
ANACONDA
Go Back
Continue

Step 4:

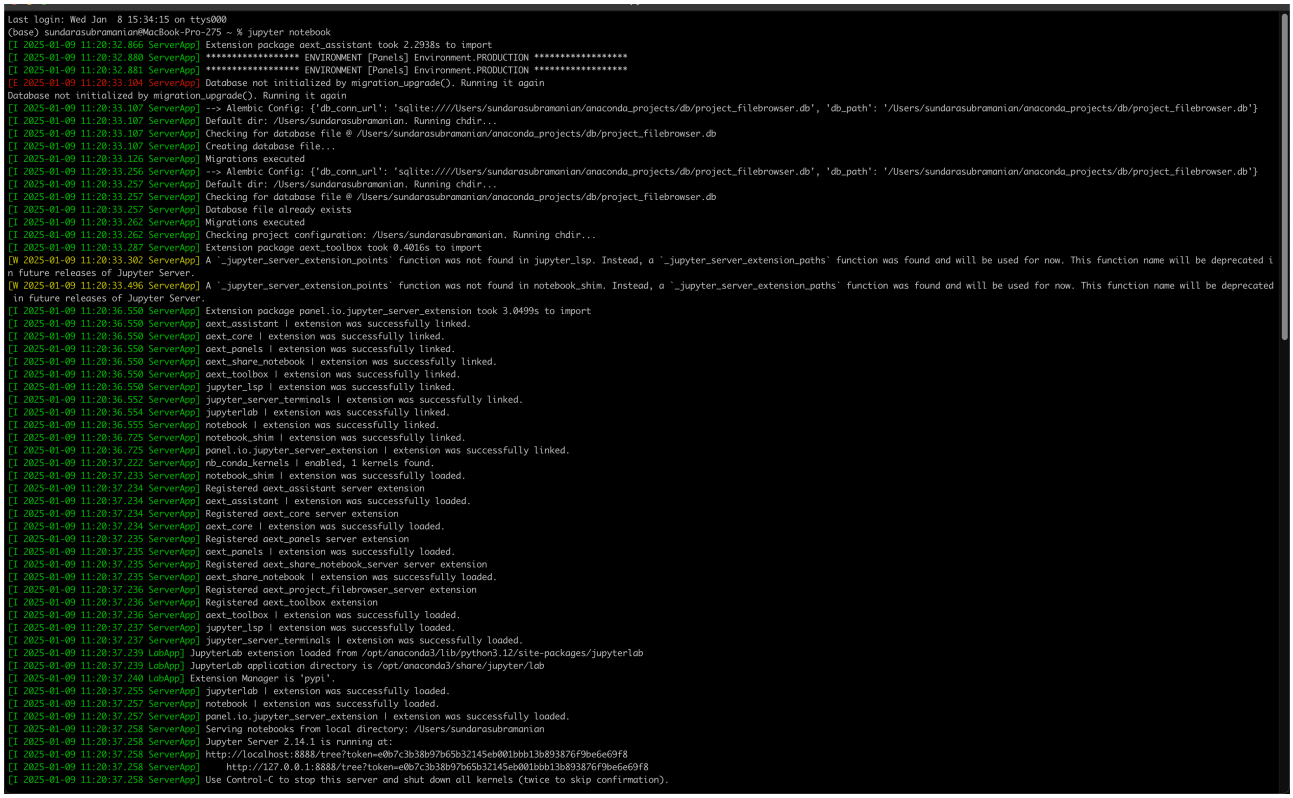

Install Anaconda3 2024.10-1
Standard Install on "Macintosh HD"
Introduction
Read Me
Licence
Destination Select
Installation Type
Installation
Code in the Cloud
Summary
ANACONDA
This will take 4.5 GB of space on your computer.
Click Install to perform a standard installation of this software for all users of this computer. All users of this computer will be able to use this software.
Change Install Location...
Customise
Go Back
Install

Step 5:

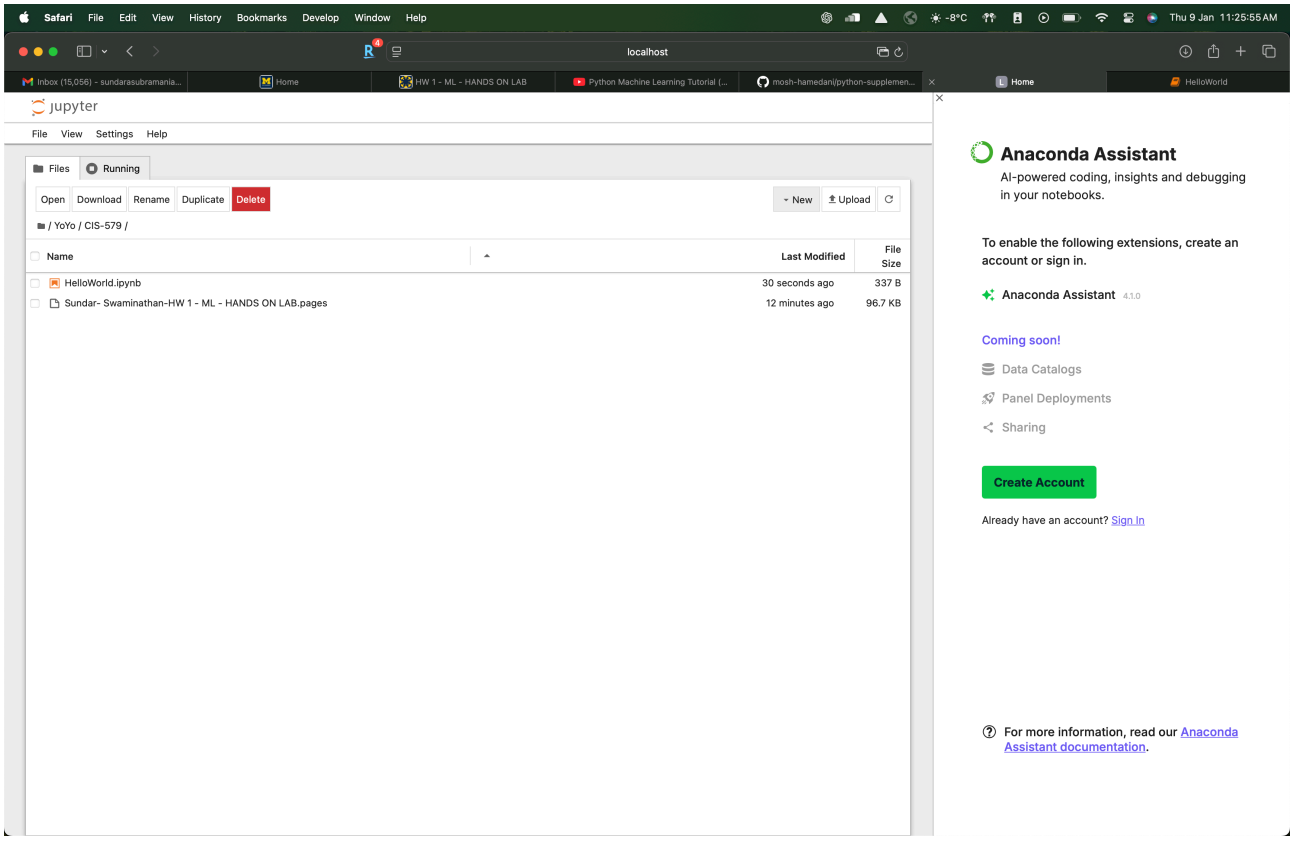

Install Anaconda3 2024.10-1
Code with Anaconda in the Cloud
Introduction
Read Me
Licence
Destination Select
Installation Type
Installation
Code in the Cloud
Summary
ANACONDA
Everything you love about Anaconda now available from the cloud with Anaconda's fully-loaded Jupyter notebook.
No setup required. Get started for free.
Code in the cloud with Anaconda Notebooks
ANACONDA.
jupyter
Go Back
Continue


python File Help
Thu 9 Jan 11:25:09 AM
Anaconda Navigator
ANACONDA.NAVIGATOR
Connect
Home
Environments
Learning
Community
All applications
on
base (root)
Channels
PyCharm Professional
2024.3.1.1
The Python IDE for data science. It combines the interactivity of Jupyter notebooks with intelligent Python coding assistance, Anaconda support, and scientific libraries.
Launch
Anaconda AI Navigator
Access various large language models (LLMs) curated by Anaconda, and start leveraging secure local AI today.
Install
Anaconda Toolbox
4.1.0
Anaconda Assistant
JupyterLab supercharged with a suite of Anaconda extensions, starting with the Anaconda Assistant AI chatbot.
Launch
Anaconda Cloud Notebooks
Cloud-hosted notebook service from Anaconda. Launch a preconfigured environment with hundreds of packages and store project files with persistent cloud storage.
Launch
JupyterLab
4.2.5
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.
Launch
Notebook
7.2.2
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch
Qt Console
5.5.1
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.
Launch
Spyder
5.5.1
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features
Launch
VS Code
1.96.2
Streamlined code editor with support for development operations like debugging, task running and version control.
Launch
EduBlocks
Web-based coding platform from Anaconda designed for students. Learn Python coding through an interactive, block-based visual environment.
Launch
Your Voice Matters!
Take a survey to join a live Q&A with our CAIO/Co-founder, Peter Wang
Take Survey
IBM watsonx
IBM watsonx is an enterprise-ready AI platform including a data store, model builder, and AI model management and monitoring.
Launch
Oracle Data Science Service
OCI Data Science offers a machine learning platform to build, train, manage, and deploy your machine learning models on the cloud with your favorite open-source tools
Launch
PyScript
Code and share Python in the Browser. A vibrant community of makers, builders, and hackers building the next frontier of Python-powered web applications.
Launch
PythonAnywhere
Host, run, and code Python in the cloud! Get started for free.
Launch
Glueviz
1.2.4
Multidimensional data visualization across files. Explore relationships within and among related datasets.
Install
Documentation
Anaconda Blog

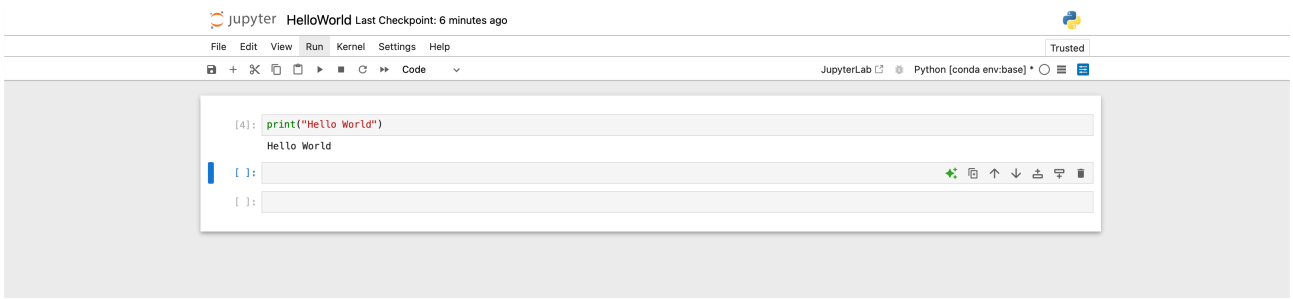
Step 7:

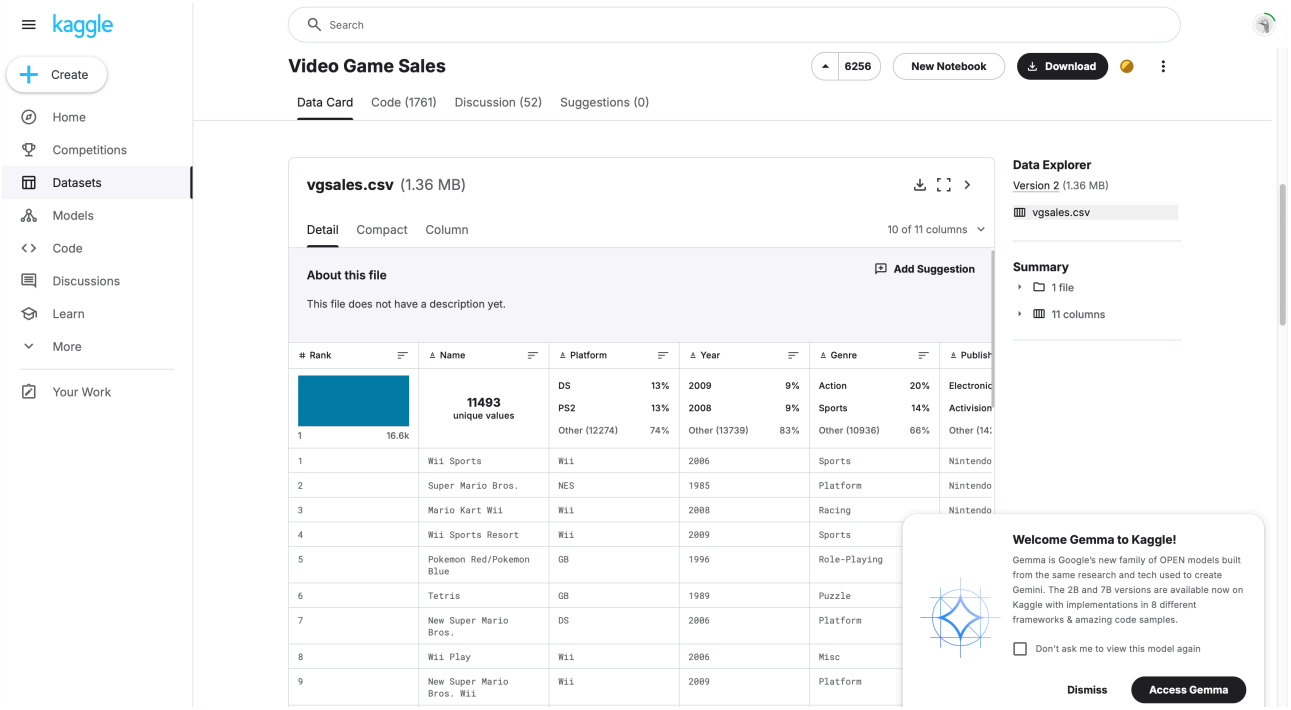

Last login: Wed Jan 8 15:34:15 on ttys000
(base) sundarasubramanian@MacBook-Pro-275 ~ % jupyter notebook
[I 2025-01-09 11:20:32.866 ServerApp] Extension package aext_assistant took 2.2938s to import
[I 2025-01-09 11:20:32.880 ServerApp] ********** ENVIRONMENT [Panels] Environment.PRODUCTION **********
[I 2025-01-09 11:20:32.881 ServerApp] ********** ENVIRONMENT [Panels] Environment.PRODUCTION **********
[E 2025-01-09 11:20:33.104 ServerApp] Database not initialized by migration_upgrade(). Running it again
Database not initialized by migration_upgrade(). Running it again
[I 2025-01-09 11:20:33.107 ServerApp] --> Alembic Config: {'db_conn_url': 'sqlite:////Users/sundarasubramanian/anaconda_projects/db/project_filebrowser.db', 'db_path': '/Users/sundarasubramanian/anaconda_projects/db/project_filebrowser.db'}
[I 2025-01-09 11:20:33.107 ServerApp] Default dir: /Users/sundarasubramanian. Running chdir...
[I 2025-01-09 11:20:33.107 ServerApp] Checking for database file @ /Users/sundarasubramanian/anaconda_projects/db/project_filebrowser.db
[I 2025-01-09 11:20:33.107 ServerApp] Creating database file...
[I 2025-01-09 11:20:33.126 ServerApp] Migrations executed
[I 2025-01-09 11:20:33.256 ServerApp] --> Alembic Config: {'db_conn_url': 'sqlite:////Users/sundarasubramanian/anaconda_projects/db/project_filebrowser.db', 'db_path': '/Users/sundarasubramanian/anaconda_projects/db/project_filebrowser.db'}
[I 2025-01-09 11:20:33.257 ServerApp] Default dir: /Users/sundarasubramanian. Running chdir...
[I 2025-01-09 11:20:33.257 ServerApp] Checking for database file @ /Users/sundarasubramanian/anaconda_projects/db/project_filebrowser.db
[I 2025-01-09 11:20:33.257 ServerApp] Database file already exists
[I 2025-01-09 11:20:33.262 ServerApp] Migrations executed
[I 2025-01-09 11:20:33.262 ServerApp] Checking project configuration: /Users/sundarasubramanian. Running chdir...
[I 2025-01-09 11:20:33.287 ServerApp] Extension package aext_toolbox took 0.4016s to import
[W 2025-01-09 11:20:33.302 ServerApp] A `_jupyter_server_extension_points` function was not found in jupyter_lsp. Instead, a `_jupyter_server_extension_paths` function was found and will be used for now. This function name will be deprecated i
n future releases of Jupyter Server.
[W 2025-01-09 11:20:33.496 ServerApp] A `_jupyter_server_extension_points` function was not found in notebook_shim. Instead, a `_jupyter_server_extension_paths` function was found and will be used for now. This function name will be deprecated
in future releases of Jupyter Server.
[I 2025-01-09 11:20:36.550 ServerApp] Extension package panel.io.jupyter_server_extension took 3.0499s to import
[I 2025-01-09 11:20:36.550 ServerApp] aext_assistant | extension was successfully linked.
[I 2025-01-09 11:20:36.550 ServerApp] aext_core | extension was successfully linked.
[I 2025-01-09 11:20:36.550 ServerApp] aext_panels | extension was successfully linked.
[I 2025-01-09 11:20:36.550 ServerApp] aext_share_notebook | extension was successfully linked.
[I 2025-01-09 11:20:36.550 ServerApp] aext_toolbox | extension was successfully linked.
[I 2025-01-09 11:20:36.550 ServerApp] jupyter_lsp | extension was successfully linked.
[I 2025-01-09 11:20:36.552 ServerApp] jupyter_server_terminals | extension was successfully linked.
[I 2025-01-09 11:20:36.554 ServerApp] jupyterlab | extension was successfully linked.
[I 2025-01-09 11:20:36.555 ServerApp] notebook | extension was successfully linked.
[I 2025-01-09 11:20:36.725 ServerApp] notebook_shim | extension was successfully linked.
[I 2025-01-09 11:20:36.725 ServerApp] panel.io.jupyter_server_extension | extension was successfully linked.
[I 2025-01-09 11:20:37.222 ServerApp] nb_conda_kernels | enabled, 1 kernels found.
[I 2025-01-09 11:20:37.233 ServerApp] notebook_shim | extension was successfully loaded.
[I 2025-01-09 11:20:37.234 ServerApp] Registered aext_assistant server extension
[I 2025-01-09 11:20:37.234 ServerApp] aext_assistant | extension was successfully loaded.
[I 2025-01-09 11:20:37.234 ServerApp] Registered aext_core server extension
[I 2025-01-09 11:20:37.234 ServerApp] aext_core | extension was successfully loaded.
[I 2025-01-09 11:20:37.235 ServerApp] Registered aext_panels server extension
[I 2025-01-09 11:20:37.235 ServerApp] aext_panels | extension was successfully loaded.
[I 2025-01-09 11:20:37.235 ServerApp] Registered aext_share_notebook_server server extension
[I 2025-01-09 11:20:37.235 ServerApp] aext_share_notebook | extension was successfully loaded.
[I 2025-01-09 11:20:37.236 ServerApp] Registered aext_project_filebrowser_server extension
[I 2025-01-09 11:20:37.236 ServerApp] Registered aext_toolbox extension
[I 2025-01-09 11:20:37.236 ServerApp] aext_toolbox | extension was successfully loaded.
[I 2025-01-09 11:20:37.237 ServerApp] jupyter_lsp | extension was successfully loaded.
[I 2025-01-09 11:20:37.237 ServerApp] jupyter_server_terminals | extension was successfully loaded.
[I 2025-01-09 11:20:37.239 LabApp] JupyterLab extension loaded from /opt/anaconda3/lib/python3.12/site-packages/jupyterlab
[I 2025-01-09 11:20:37.239 LabApp] JupyterLab application directory is /opt/anaconda3/share/jupyter/lab
[I 2025-01-09 11:20:37.240 LabApp] Extension Manager is 'pypi'.
[I 2025-01-09 11:20:37.255 ServerApp] jupyterlab | extension was successfully loaded.
[I 2025-01-09 11:20:37.257 ServerApp] notebook | extension was successfully loaded.
[I 2025-01-09 11:20:37.257 ServerApp] panel.io.jupyter_server_extension | extension was successfully loaded.
[I 2025-01-09 11:20:37.258 ServerApp] Serving notebooks from local directory: /Users/sundarasubramanian
[I 2025-01-09 11:20:37.258 ServerApp] Jupyter Server 2.14.1 is running at:
[I 2025-01-09 11:20:37.258 ServerApp] http://localhost:8888/tree?token=e0b7c3b38b97b65b32145eb001bbb13b893876f9be6e69f8
[I 2025-01-09 11:20:37.258 ServerApp] http://127.0.0.1:8888/tree?token=e0b7c3b38b97b65b32145eb001bbb13b893876f9be6e69f8
[I 2025-01-09 11:20:37.258 ServerApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).

Step 8:

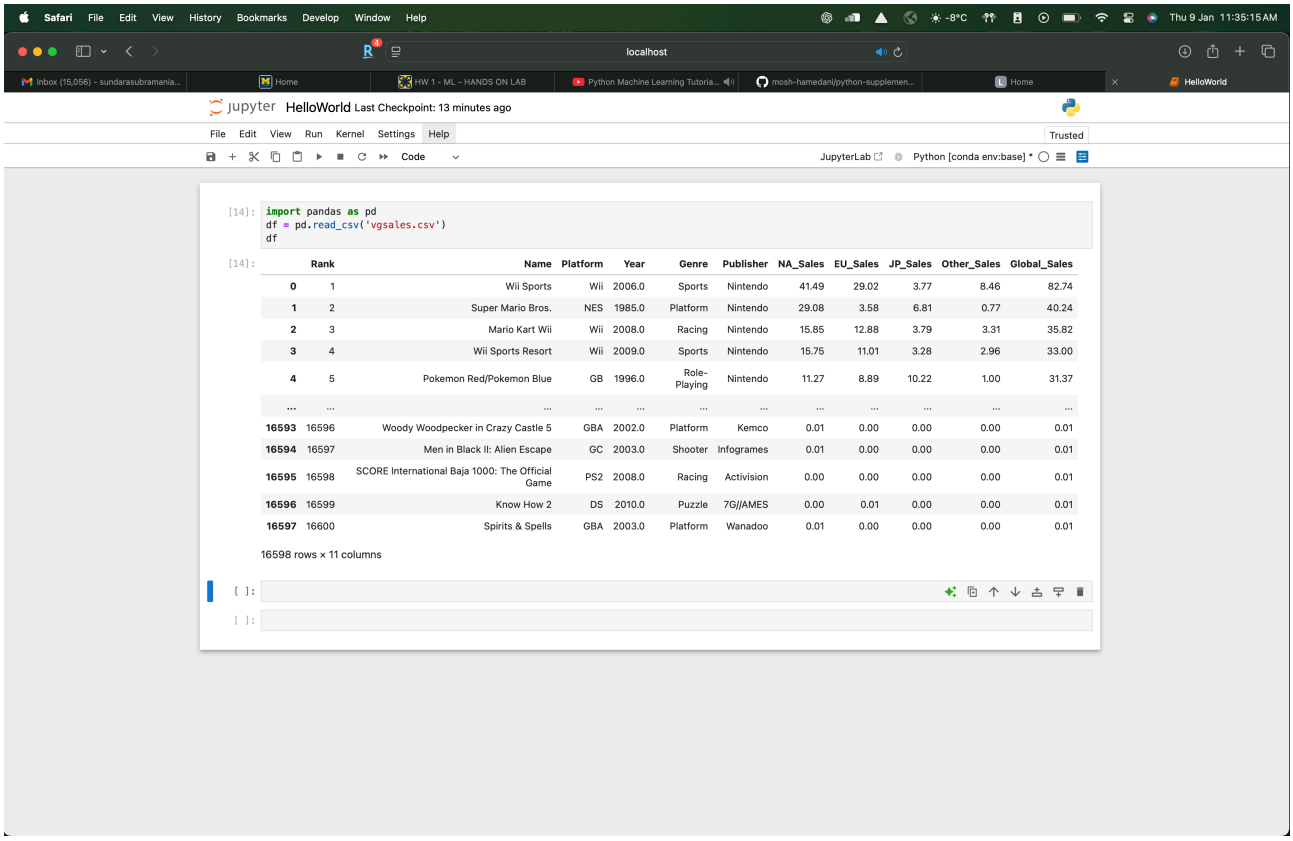

Safari File Edit View History Bookmarks Develop Window Help
Thu 9 Jan 11:25:55 AM
localhost
jupyter
File View Settings Help
Files Running
Open Download Rename Duplicate Delete
New Upload
/ YoYo / CIS-579 /
Name
Last Modified
File Size
HelloWorld.ipynb
30 seconds ago
337 B
Sundar- Swaminathan-HW 1 - ML - HANDS ON LAB.pages
12 minutes ago
96.7 KB
Anaconda Assistant
AI-powered coding, insights and debugging in your notebooks.
To enable the following extensions, create an account or sign in.
Anaconda Assistant 4.1.0
Coming soon!
Data Catalogs
Panel Deployments
Sharing
Create Account
Already have an account? Sign In
For more information, read our Anaconda Assistant documentation.

Step 9:


jupyter HelloWorld Last Checkpoint: 6 minutes ago
File Edit View Run Kernel Settings Help
Trusted
Code
JupyterLab
Python [conda env:base]
[4]: print("Hello World")
Hello World
[ ]:
[ ]:



Step 11:



	Rank	Name	Platform	Year	Genre	Publisher	NA_Sales	EU_Sales	JP_Sales	Other_Sales	Global_Sales
0	1	Wii Sports	Wii	2006.0	Sports	Nintendo	41.49	29.02	3.77	8.46	82.74
1	2	Super Mario Bros.	NES	1985.0	Platform	Nintendo	29.08	3.58	6.81	0.77	40.24
2	3	Mario Kart Wii	Wii	2008.0	Racing	Nintendo	15.85	12.88	3.79	3.31	35.82
3	4	Wii Sports Resort	Wii	2009.0	Sports	Nintendo	15.75	11.01	3.28	2.96	33.00
4	5	Pokemon Red/Pokemon Blue	GB	1996.0	Role-Playing	Nintendo	11.27	8.89	10.22	1.00	31.37
...	...	...	...	...	...	...	...	...	...	...	...
16593	16596	Woody Woodpecker in Crazy Castle 5	GBA	2002.0	Platform	Kemco	0.01	0.00	0.00	0.00	0.01
16594	16597	Men in Black II: Alien Escape	GC	2003.0	Shooter	Infogrames	0.01	0.00	0.00	0.00	0.01
16595	16598	SCORE International Baja 1000: The Official Game	PS2	2008.0	Racing	Activision	0.00	0.00	0.00	0.00	0.01
16596	16599	Know How 2	DS	2010.0	Puzzle	7G//AMES	0.00	0.01	0.00	0.00	0.01
16597	16600	Spirits & Spells	GBA	2003.0	Platform	Wanadoo	0.01	0.00	0.00	0.00	0.01

Step 12:

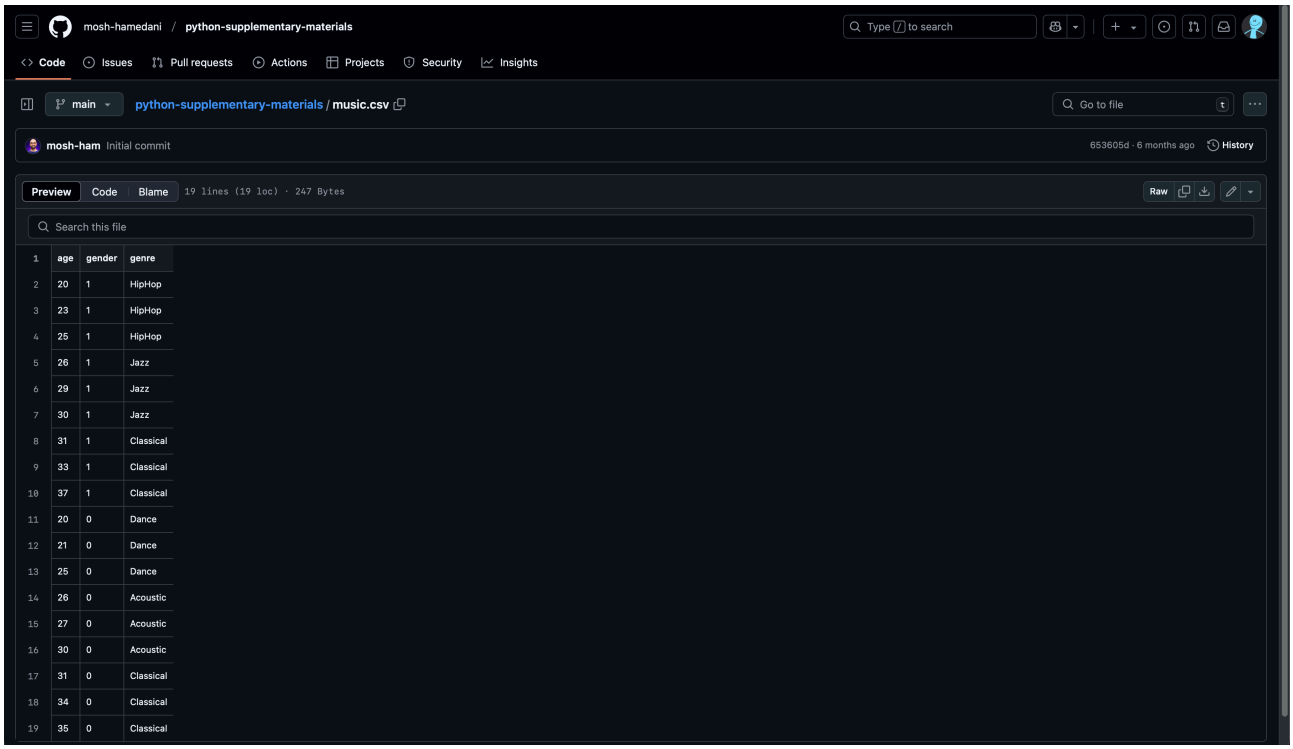
```
[16]: import pandas as pd
      df = pd.read_csv('vgsales.csv')
      df.shape

[16]: (16598, 11)

[32]: print("Hello World")

      Hello World

[36]: df.describe()
```

[36]:

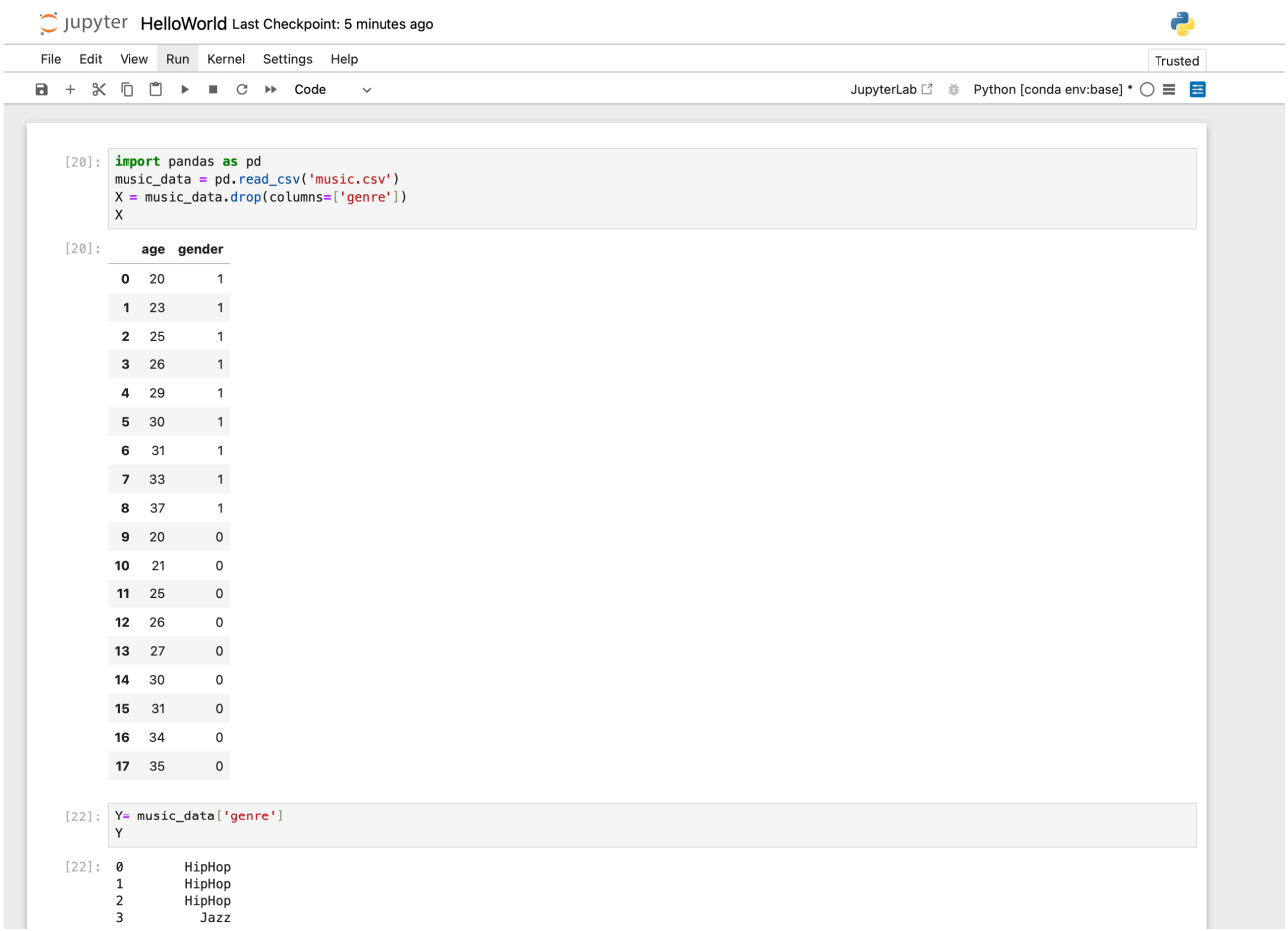
	Rank	Year	NA_Sales	EU_Sales	JP_Sales	Other_Sales	Global_Sales
count	16598.000000	16327.000000	16598.000000	16598.000000	16598.000000	16598.000000	16598.000000
mean	8300.605254	2006.406443	0.264667	0.146652	0.077782	0.048063	0.537441
std	4791.853933	5.828981	0.816683	0.505351	0.309291	0.188588	1.555028
min	1.000000	1980.000000	0.000000	0.000000	0.000000	0.000000	0.010000
25%	4151.250000	2003.000000	0.000000	0.000000	0.000000	0.000000	0.060000
50%	8300.500000	2007.000000	0.080000	0.020000	0.000000	0.010000	0.170000
75%	12449.750000	2010.000000	0.240000	0.110000	0.040000	0.040000	0.470000
max	16600.000000	2020.000000	41.490000	29.020000	10.220000	10.570000	82.740000

```
[24]: df.values

[24]: array([[1, 'Wii Sports', 'Wii', ..., 3.77, 8.46, 82.74],
             [2, 'Super Mario Bros.', 'NES', ..., 6.81, 0.77, 40.24],
             [3, 'Mario Kart Wii', 'Wii', ..., 3.79, 3.31, 35.82],
             ...,
             [16598, 'SCORE International Baja 1000: The Official Game', 'PS2',
              ..., 0.0, 0.0, 0.01],
             [16599, 'Know How 2', 'DS', ..., 0.0, 0.0, 0.01],
             [16600, 'Spirits & Spells', 'GBA', ..., 0.0, 0.0, 0.01]],
            dtype=object)

[ ]: df.describe()
```

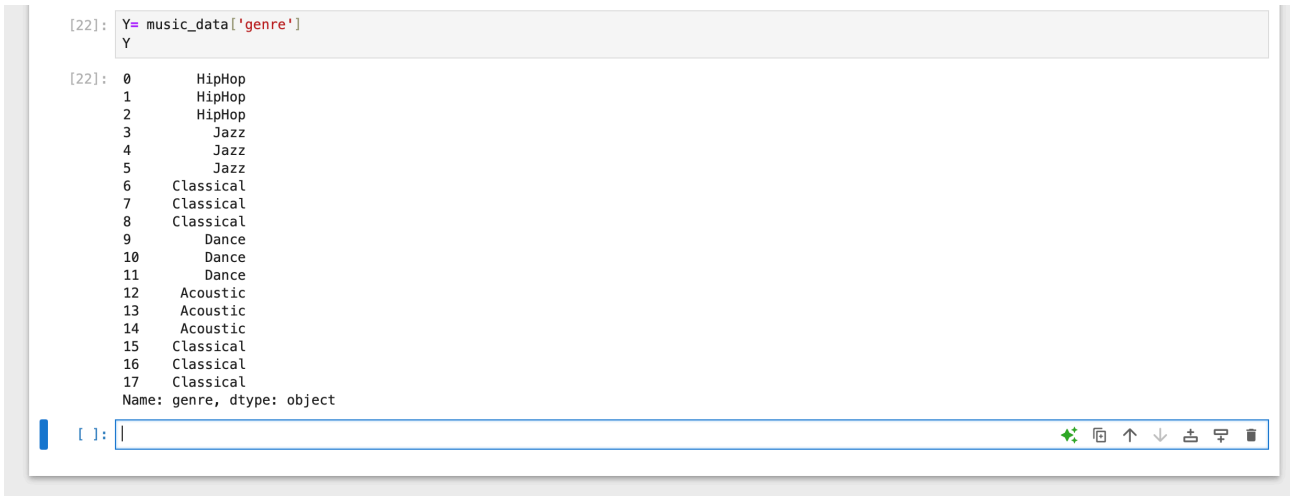
Step 13:



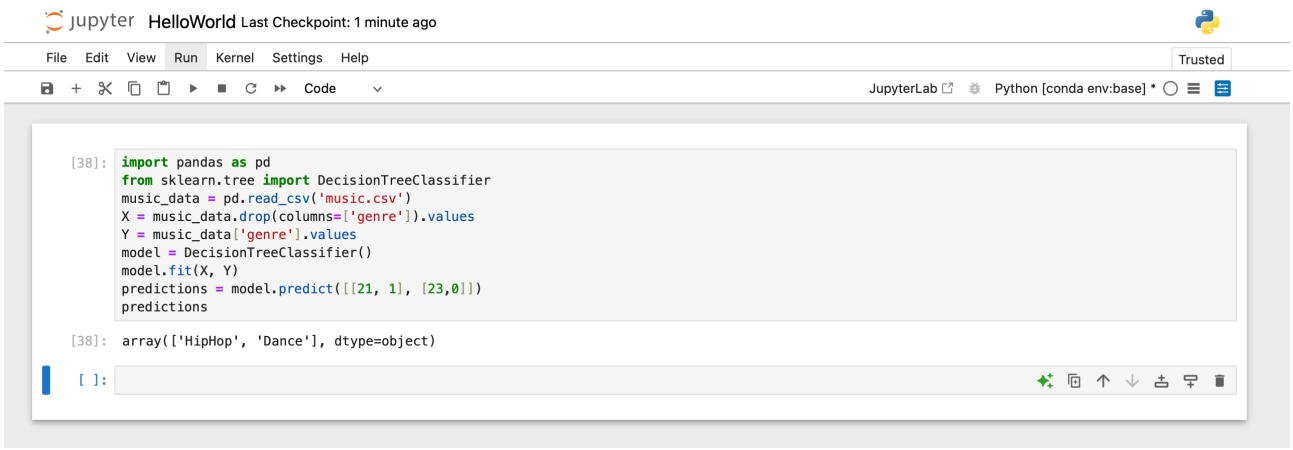
Step 14:



Step 15:



Step 16:



Step 17:

Step 18:

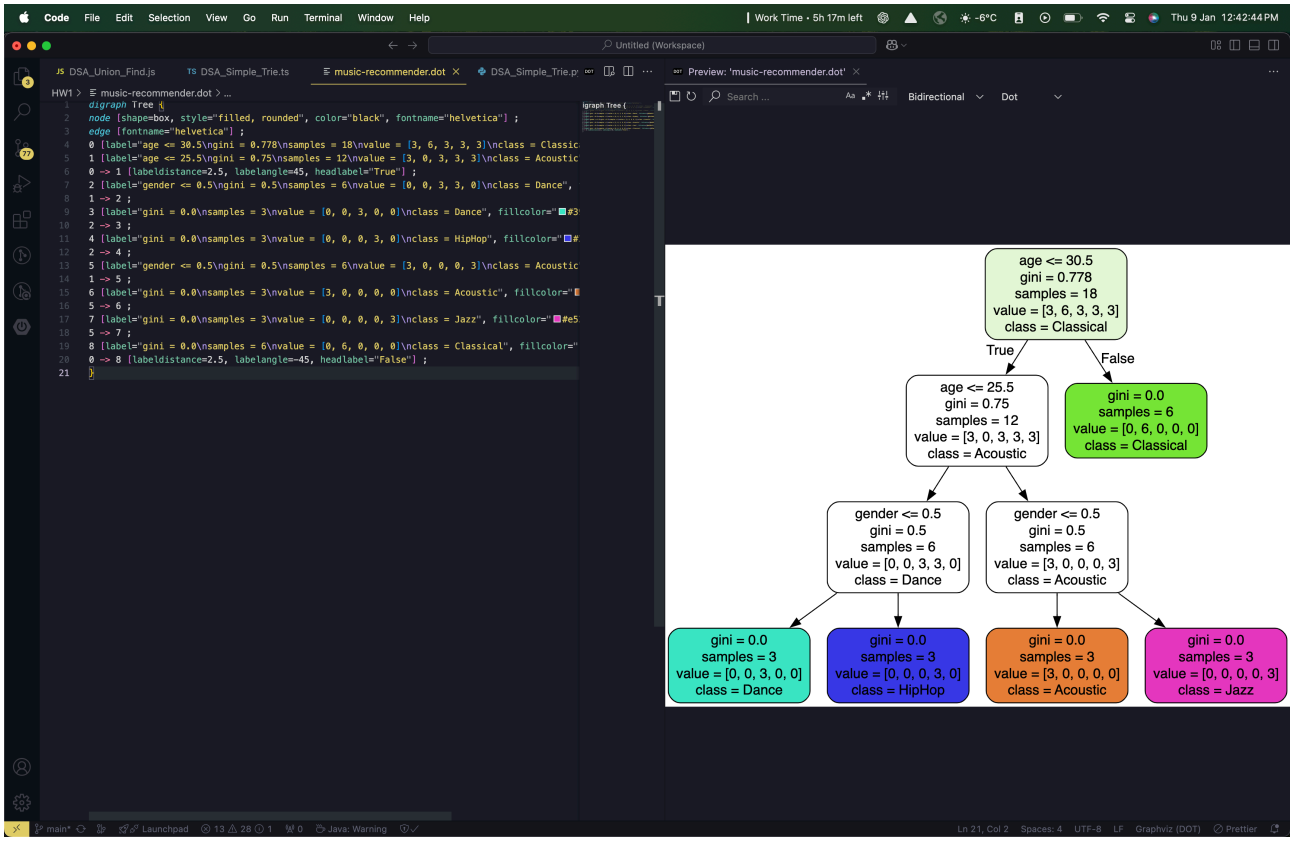
Step 19:

```
[310]: import pandas as pd
       from sklearn.tree import DecisionTreeClassifier
       import joblib

       # music_data = pd.read_csv('music.csv')
       # X = music_data.drop(columns=['genre']).values
       # y = music_data['genre'].values

       # model = DecisionTreeClassifier()
       # model.fit(X_train, y_train)
       model = joblib.load('music-recommender.joblib')

       predictions = model.predict([[21, 1]])
       predictions
```

```
[310]: array(['HipHop'], dtype=object)
```

Step 20:

```
[326]: import pandas as pd
       from sklearn.tree import DecisionTreeClassifier
       from sklearn import tree

       music_data = pd.read_csv('music.csv')
       X = music_data.drop(columns=['genre'])
       y = music_data['genre']

       model = DecisionTreeClassifier()
       model.fit(X, y)

       tree.export_graphviz(model, out_file="music-recommender.dot", feature_names=['age', 'gender'], class_names=sorted(y.unique()), label='all',
```



Additional Questions

Q1: In AI we generally work with huge data sets, what are other sources you know like kaggle for getting access to these collections of sample data sets?

Some of the data sets that I have seen/used are:

- Google DataSet Search. - http://datasetsearch.research.google.com
- US Gov Data - https://data.gov/
- EU Open Data - https://data.europa.eu/en
- HuggingFace Datasets - https://huggingface.co/datasets
- Natural Language database - https://ai.google.com/research/NaturalQuestions/visualization
- Natural Earth Map Dataset - https://www.naturalearthdata.com/?ref=hackernoon.com
- 538 Election Dataset - https://data.fivethirtyeight.com/

Q2: After the implementation, do you feel comfortable working with ML tools and technologies? What are the challenges you faced and the learning you got from the implementation.

I'm feeling more comfortable than before especially since Python was not my primary language earlier. I still feel like I have some way to go before I can be fully comfortable but I definitely feel like I'm moving upwards on the learning curve.

The major challenges that I faced were that some of the methods had changed between the recording of the video and now and I got stuck at certain places. But I used online resources to find the erring methods and fixed them and was able to come up with a successful response.

The learning I got from the system was that the "intelligence" part of AI is essentially directly proportional to the quality of data, the kind, quantity and efficiency of "learning" that the system developers put the system to which is in turn directly proportional to the amount of resources that is available to the developers of the system.